United States
Department of
Agriculture

Natural
Resources
Conservation
Service

In cooperation with the University of Nebraska, Conservation and Survey Division, and the Central Platte Natural Resources District

Soil Survey of Hall County, Nebraska

How To Use This Soil Survey

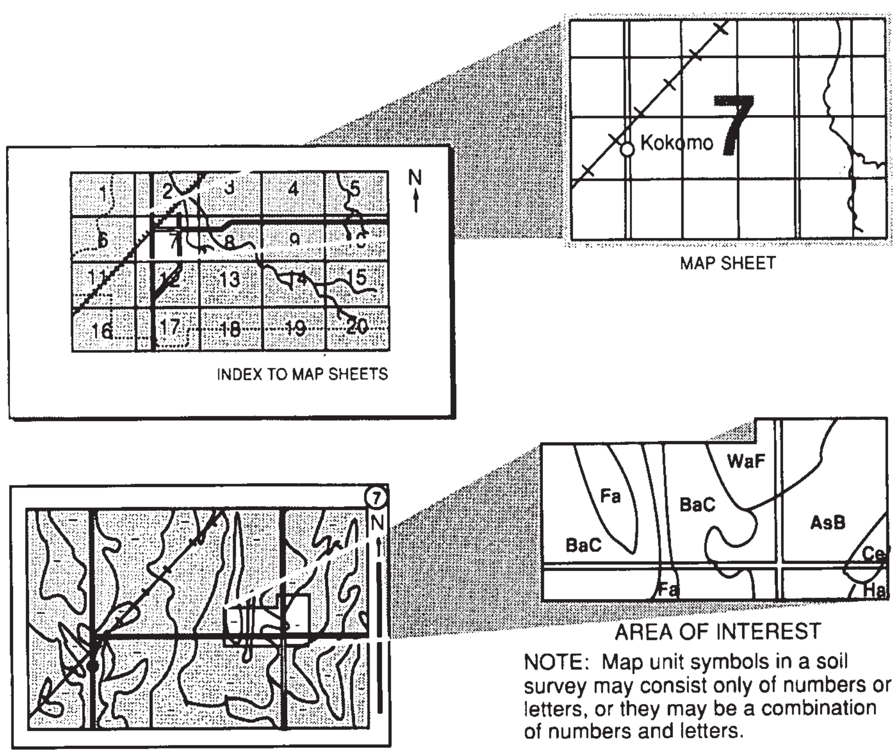
Detailed Soil Maps

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

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

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

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



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

MAP SHEET

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

Major fieldwork for this soil survey was completed in 1999. Soil names and descriptions were approved in 2003. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1999. This survey was made cooperatively by the Natural Resources Conservation Service and the University of Nebraska, Conservation and Survey Division. The survey is part of the technical assistance furnished to the Central Platte Natural Resources District.

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

Cover: Irrigated farmland in an area of Platte soil along the south side of the Platte River in central Hall County.

Additional information about the Nation's natural resources is available on the Natural Resources Conservation Service homepage on the World Wide Web. The address is http://www.nrcs.usda.gov.

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Issued 2004

Foreword

This soil survey contains information that affects land use planning in this survey area. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

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

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

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

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

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State Conservationist
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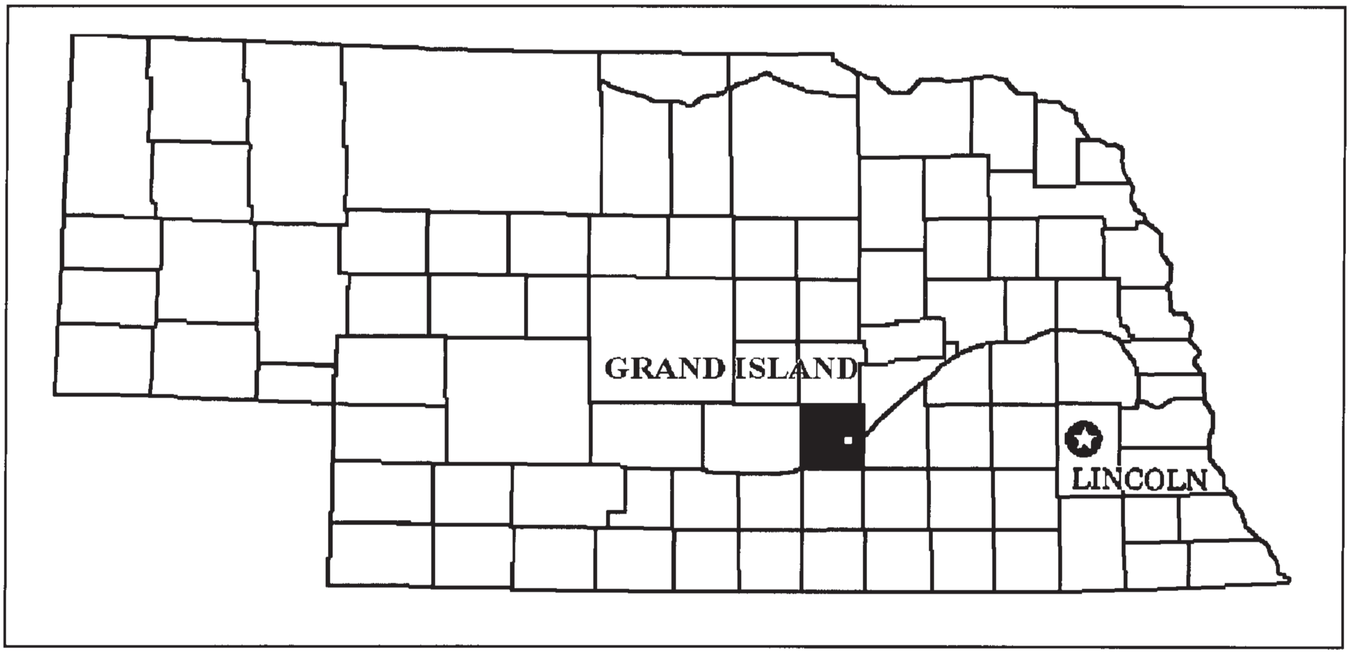

Location of Hall County in Nebraska.

Soil Survey of
Hall County, Nebraska

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United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with
the University of Nebraska, Conservation and Survey Division, and the Central Platte Natural Resources District

HALL COUNTY is located within the Central Great Plains Winter Wheat and Range Region (USDA, 1981) and is in an area of transition between Major Land Resource Areas 71 (Central Nebraska Loess Hills) and 75 (Central Loess Plains). The county is in south-central of Nebraska. The total area of this county is about 542 square miles, or 347,201 acres. Hall County is bordered on the south by the Platte River, on the east by Merrick County, on the north by Howard County, and on the west by Buffalo County.

General Nature of the County

The following paragraphs provide general information about Hall County. They describe physiography, relief, and drainage; climate; geology and ground water; history and development; and manufacturing, business, and transportation development.

The first soil survey of Hall County was published in 1916 (USDA, 1916); another soil survey was published in 1962 (USDA, 1962). This new survey updates the earlier surveys, provides additional information, includes maps that can be digitized for computer use, and presents the soils in more consistent detail.

About 70 percent of the county is used as cropland, and 19 percent is used for pasture or rangeland. About 1 percent is forestland. The remaining area consists of farmsteads, towns, or water. Corn is the principal crop. It is grown successfully in irrigated areas. About 90 to 95 percent of the cropland is irrigated. Soybeans and alfalfa are the other major crops in the county. These crops are used as feed for cattle and provide cash income.

Physiography, Relief, and Drainage

Hall County lies near the eastern margin of the Great Plains. The topography within the county ranges from nearly level to steeply sloping. The Platte River Valley crosses the county from the southwest to the northeast. It ranges in width from 12 to 19 miles. Near the southern border of the valley, the river separates into four channels and forms a group of low-lying, elongated islands. The alluvial bottom land is 5 to 10 feet above the riverbed and is 4 to 6 miles wide. A broad, alluvial terrace forms the northern part of the valley. This terrace is 10 to 40 feet above the Platte River Valley flood plain. There are three distinct levels or ages of terraces in the county. The high terraces have been covered with a silty, windblown deposited material, referred to as loess. The Wood River, Prairie Creek, and Silver Creek are the main drainage channels of these terraces and flow into the Platte River. Drainage is lacking in a few depressions in the silty uplands and on the terraces.

The extreme northwest corner of the county consists of about 6 square miles of the South Loup River Valley. Sweet Creek flows into the South Loup River. Nearly all streams in the county have low gradients and flow in a northeasterly direction. The Grand Island Airport area is at an elevation of 1,846 feet above sea level. The elevations of the first bottom and stream terraces of the Platte River Valley range from 1,800 to 2,000 feet. The valley has a gradual eastward slope of about 7 feet in 1 mile. The elevation of the South Loup River Valley is about 1,900 feet, and that of the uplands in this area ranges from 1,940 to 2,100 feet. The elevation of the southeastern uplands ranges from 1,900 feet along the eastern boundary to about 2,060 feet along the western edge of the county.

The upland areas are 40 to 100 feet above the level of the bottom land in the Platte River Valley. The silty uplands consist of two triangular areas. The larger area is in the southeastern part of the county; the smaller area is in the northwestern part of the county.

Climate

Table 1 gives data on temperature and precipitation for the survey area as recorded at Grand Island, Nebraska, in the period 1971 to 2000. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

The average temperature is 50 degrees F. The average daily minimum temperature is 39 degrees. The average daily maximum temperature is 62 degrees.

The average annual total precipitation is about 26 inches. Of this total, about 75 percent usually falls in April through September. The growing season for most crops falls within this period. The average seasonal snowfall is about 32 inches.

Hall County has occasional tornadoes and severe thunderstorms. These storms are local and of short duration and result in damage in narrow belts. Hailstorms occur at times during the warmer part of the year in irregular patterns and in relatively small areas.

The average relative humidity in midafternoon is about 55 percent. The prevailing wind is from the south.

Geology and Ground Water

Most of the bottom land in the valleys of the Platte River has been derived from alluvium of Recent age. This alluvium ranges from clay to sand in texture and is commonly stratified. The silty and sandy material is lighter colored than the clayey material, which is dark brown to black in most places. This recent alluvium was deposited to a depth of 1 to 8 feet over the basal sand or mixed sand and gravel. Some of the sandy alluvium has been reworked by the wind and redeposited in the form of hummocks or low sand ridges. The most recent alluvium is in upland draws and along the narrow bottom land along the Wood River, Prairie Creek, and Dry Creek, where sediment is still being deposited because of flooding after heavy rains.

Other alluvial deposits are on the lowest terrace level. This terrace level is in the area north and directly west of Grand Island and continues in a southwesterly direction to the Buffalo County line. Here, much of the alluvium has been mixed with or covered by windblown sands. One or more dark, buried soils occur in many places on this terrace level.

The deep, sandy upland soils in the northern part of the county formed in eolian sands that probably were once alluvial sands in the valley of the South Loup River. Likewise, the deep, sandy soils on the breaks and adjacent uplands southwest and northeast of Doniphan formed in sandy material that was once alluvial sands in the Platte Valley. These sandy soils are not uniformly distributed; the wind currents formed hummocks and hills. The eolian sandy deposits in Hall County range from 2 to about 50 feet in thickness. The sandhills consist of about 95 to 98 percent fine and medium sand and less than 5 percent silt and clay.

A basal deposit of coarse sand or mixed sand and gravel underlies nearly all of Hall County. This material is mainly quartz and feldspars containing minor quantities of mica. The gravel weathered from a great variety of rocks, principally those of igneous rock origin.

No bedrock formations are exposed in the county.

The principal source of surface water in Hall County is the Platte River. The South Loup River crosses the county in the extreme northwest corner. In the intermittent streams of the Wood River and Dry, Sweet, and Prairie Creeks, there is significant water flow after heavy rains.

The supply of ground water in the county is contained primarily in Pleistocene sands and gravels, which vary in thickness. The thickness of sand and gravel deposits generally increases as the deposits extend from the western side of the county to the eastern side. Wells drilled near the loess hills northwest of the town of Wood River yield little water for irrigation, but they supply enough water for domestic use. Southeast of Grand Island, the water-bearing sand and gravel formation is more than 150 feet thick. The water-bearing sand and gravel formation throughout much of Hall County is 50 feet or more in thickness. Some of the irrigation wells can discharge more than 1,000 gallons per minute.

The coarse underground sediments in Hall County yield large quantities of water for industrial, household, and agricultural uses. The ground water is recharged, or resupplied, by streamflow of the Platte River and its tributaries, local precipitation, underground movement of water, and seepage of irrigation water. The underground water does not move more than 10 feet per day. Most recharge of ground water from streams takes place in the spring and fall, since the streams are dry during the summer months.

The general movement of ground water in the Platte Valley is to the northeast, parallel to the Platte River. In the extreme southeastern part of the county, the ground water moves in a southeasterly direction. The depth to the ground water (water table) varies considerably. Along the bottom land, and in some imperfectly drained areas of the terraces, the ground water is at a depth of less than 10 feet. In parts of the loess uplands, it is below a depth of 150 feet.

The water table fluctuates in relation to the recharge and discharge of ground water. Small changes in the depth to the water table take place daily in summer, but larger fluctuations occur seasonally. The water table is generally the lowest late in the summer after large amounts of water have been removed by irrigation wells and by the evapotranspiration of plants. During the winter and spring, the water table is at its highest yearly level. There are also large fluctuations associated with wet and dry weather cycles. Since 1953, the level of ground water in Hall County has generally lowered, particularly in an area west of Wood River.

The quality of ground water in the county is good in some areas, although the water is moderately hard. There are normally from 200 to 600 parts of total dissolved solids per 1,000,000 parts of water (ppm). Calcium and bicarbonate are the dominant constituents, and the amounts of iron and manganese are generally small. The temperature of the ground water ranges from 53 to 55 degrees F. Since the 1970s, nitrate contamination of the ground water has become a concern. Nitrate counts as high as 40 to 60 ppm have been recorded in areas west and southwest of Grand Island. In the early 1980s, ground water quality management areas were established by local government agencies to address this concern. Approximately 50 percent of Hall County is now within a ground water quality management area. To date, these ground water quality management areas continue to address and monitor the contamination problems.

History and Development

The first permanent settlement in the county was established on July 4, 1857. The settlers raised corn and sold it to the government for troops at Fort Kearney. After the Union Pacific Railroad reached the city of Grand Island in 1868, the settling of Hall County occurred rapidly. A private school was established in 1862, and 3 years later public schools were started. A Catholic church was established in 1864.

Industry began in the county when the Union Pacific Railroad built shops at Grand Island in 1880. Soon a telephone exchange began, and a few years later a sugar beet processing plant was built.

Except for the period from 1930 to 1940, when the population in Hall County grew very slowly, the population of the county has increased steadily. In the early 1900s, the population of Hall County was about 17,000. It grew to about 37,000 in the middle 1950s. Today the county has a population of about 43,000. Most of the people in Hall County reside in the city of Grand Island and in the smaller towns of Cairo, Wood River, Alda, and Doniphan.

Manufacturing, Business, and Transportation Development

The Union Pacific and the Burlington Northern Railroads cross the county. Many State and Federal highways, along with Interstate 80, provide automobile and trucking passageways throughout the county. A county road system is present on almost every section line, except in some parts of the bottom land along the Platte River and in the sandhills area of the county. Major trucking companies serve the Grand Island area and are linked to businesses and industries from the east coast to the west coast of the United States.

Grand Island has a beef processing plant, which provides a marketplace for much of the cattle produced on farms and ranches. Cattle are fattened in feedlots in the Platte Valley area of Nebraska. Most of the corn and soybeans produced locally is stored at farms and trucked to markets in the eastern part of Nebraska. Some of the corn and soybeans is sold locally as feed or is sold to local grain elevators and transported to markets out of state. The use of corn for the production of ethanol has increased in recent years. Most of the native hay and alfalfa harvested in the valley is used locally on ranches in the cow-calf operations and in the cattle feedlot industry.

Most employment in Hall County is in agriculture or related business. The agricultural industry is the mainstay of the county's rural and industrial economy. Agribusiness manufacturing companies, such as farm machinery, automotive, and grain storage and grain handling equipment, are a few of the larger companies in Hall County and Grand Island. Many smaller manufacturing companies are also in Grand Island and in the small towns throughout the county. One economic enterprise in the county sells sand and gravel suitable for construction. The sand and gravel are obtained along the Platte River.

How This Survey Was Made

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

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

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

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

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

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

Detailed Soil Map Units

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

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

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

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

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit.

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, Gates silt loam, 3 to 6 percent slopes, is a phase of the Gates series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are called complexes. A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Els-Tryon complex, 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. O'Neill and Pivot loams, 0 to 2 percent slopes, is an undifferentiated group in this survey area.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. The map unit Gravel pits is an example.

In the descriptions, "LEP" means linear extensibility percent. Definitions of the ecological sites listed in the descriptions are provided in the Field Office Technical Guide, which is available in local offices of the Natural Resources Conservation Service.

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

1102—Alda sandy loam, rarely flooded

This map unit occurs on low valley flats. The Alda soil is in slightly slightly lower positions than those of the associated Janude soil.

Map Unit Composition

Alda: 90 percent
Minor components: 10 percent

Component Descriptions

Alda

MLRA: 71—Central Nebraska Loess Hills
Landform: Flats on flood plains in river valleys
Parent material: Loamy alluvium over sandy and gravelly alluvium
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained
Slowest permeability: Moderately rapid (about 2.00 inches per hour)
Available water capacity: Moderate (about 6.3 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding frequency: Rare
Ponding hazard: None
Depth to seasonal zone of saturation: About 18 to 42 inches
Surface runoff class: Low
Ecological site: Subirrigated; Veg. Zone 3
Land capability (irrigated): 3w
Land capability (nonirrigated): 3w

Typical profile:
Ap—0 to 6 inches; sandy loam
A—6 to 12 inches; sandy loam
C1—12 to 15 inches; very fine sandy loam
C2—15 to 33 inches; stratified very fine sandy loam to fine sand
2Cg1—33 to 44 inches; gravelly coarse sand
2Cg2—44 to 80 inches; coarse sand

Minor components

Janude
Extent within map unit: About 7 percent
Landform: Flood plains in river valleys
Slope: 0 to 2 percent
Drainage class: Moderately well drained

Inavale
Extent within map unit: About 3 percent
Landform: Flood plains in river valleys
Slope: 0 to 3 percent
Drainage class: Excessively drained

General Considerations

• This map unit is used mainly as irrigated cropland. Some areas are used as rangeland.

1104—Alda loam, rarely flooded

This map unit occurs on low valley flats. The Alda soil is slightly higher on the landscape than the associated and contrasting Platte soils. It is similar to and associated with soils in the Caruso, Darr, Janude, and Wann series. Caruso and Wann soils are in positions similar to those of the Alda soil. Darr and Janude soils are in slightly higher positions than those of the Alda soil.

Map Unit Composition

Alda: 95 percent
Minor components: 5 percent

Component Descriptions

Alda

MLRA: 71—Central Nebraska Loess Hills
Landform: Flats on flood plains in river valleys
Parent material: Loamy alluvium over sandy and gravelly alluvium
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: Moderate (about 6.3 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding frequency: Rare
Ponding hazard: None
Depth to seasonal zone of saturation: About 18 to 42 inches

Surface runoff class: Low
Ecological site: Subirrigated; Veg. Zone 3
Land capability (irrigated): 3w
Land capability (nonirrigated): 3w
Note: Alkali salts tend to accumulate in areas where surface drainage is impeded.

Typical profile:
Ap—0 to 6 inches; loam
A1—6 to 16 inches; loam
A2—16 to 20 inches; sandy loam
AC—20 to 27 inches; sandy loam
2C1—27 to 34 inches; coarse sand
2C2—34 to 39 inches; gravelly sand
2Cg—39 to 80 inches; gravelly coarse sand

Minor components

Platte
Extent within map unit: About 5 percent
Landform: Flood plains in river valleys
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained

General Considerations

• This map unit is used mainly as irrigated cropland. A few areas are used as rangeland.

1166—Almeria loamy sand, frequently flooded

This map unit occurs on flood plains and very low terraces. The associated Bolent soils are generally slightly higher on the landscape than the Almeria soil.

Map Unit Composition

Almeria: 90 percent
Minor components: 10 percent

Component Descriptions

Almeria

MLRA: 71—Central Nebraska Loess Hills
Landform: Terraces and flood plains in river valleys
Parent material: Sandy alluvium
Slope: 0 to 2 percent
Drainage class: Poorly drained
Slowest permeability: Rapid (about 5.95 inches per hour)
Available water capacity: Low (about 5.4 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding frequency: Frequent
Ponding hazard: None
Depth to seasonal zone of saturation: 0 to 18 inches
Surface runoff class: Low
Ecological site: Wet Subirrigated; Veg. Zone 3
Land capability (nonirrigated): 5w

Typical profile:
A—0 to 4 inches; loamy sand
Cg1—4 to 14 inches; loamy sand
Cg2—14 to 22 inches; stratified fine sand
Cg3—22 to 33 inches; stratified fine sand
Cg4—33 to 80 inches; stratified sand

Minor components

Bolent
Extent within map unit: About 10 percent
Landform: Flood plains in river valleys
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained

General Considerations

• This map unit consists of areas adjacent to the Loup River.
• Areas within this map unit contain sand bars, which are in the process of becoming a stabilized riverbank.
• Many areas of this map unit are vegetated by willows and small shrubs; some areas are vegetated with grasslike plants. In some areas near the river channel, this unit does not support vegetation and silty and sandy alluvial material is exposed.

1348—Barney complex, channeled, frequently flooded

This map unit is on valley floors. It consists of poorly drained and very poorly drained areas of Barney soils. Very wet, noncrossable channels occur in a braided pattern in areas of the very poorly drained Barney soil throughout most delineations of this map unit. These channels support hydrophytic vegetation year round but only flow during flooding events and during periods when the water table is high. The associated Gothenburg soils occur along some drainageways.

Map Unit Composition

Barney, frequently flooded: 55 percent
Barney, wet, channeled: 40 percent
Minor components: 5 percent

Component Descriptions

Barney, frequently flooded

MLRA: 71—Central Nebraska Loess Hills
Landform: Flood plains in river valleys
Parent material: Loamy alluvium over sandy and gravelly alluvium
Slope: 0 to 2 percent
Drainage class: Poorly drained

Slowest permeability: Moderately slow (about 0.20 inch per hour)
Available water capacity: Low (about 4.0 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding frequency: Frequent
Depth to seasonal zone of saturation: 0 to 18 inches
Surface runoff class: Very low
Ecological site: Wet Subirrigated; Veg. Zone 3
Land capability (nonirrigated): 5w

Typical profile:
A1—0 to 2 inches; silty clay loam
A2—2 to 6 inches; silty clay loam
C—6 to 12 inches; stratified very fine sandy loam to loamy fine sand
Cg1—12 to 16 inches; stratified sand to very fine sandy loam
2Cg2—16 to 80 inches; coarse sand

Barney, wet, channeled

MLRA: 71—Central Nebraska Loess Hills
Landform: Channels in flood plains in river valleys
Parent material: Loamy alluvium over sandy and gravelly alluvium
Slope: 0 to 2 percent
Drainage class: Very poorly drained
Slowest permeability: Moderately slow (about 0.20 inch per hour)
Available water capacity: Low (about 4.6 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding frequency: Frequent
Depth to seasonal zone of saturation: 0 to 12 inches
Surface runoff class: Very low
Ecological site: Wetland; Veg. Zone 3
Land capability (nonirrigated): 6w

Typical profile:
A1—0 to 4 inches; mucky loam
A2—4 to 11 inches; clay loam
ACg—11 to 18 inches; clay loam
2Cg—18 to 80 inches; coarse sand

Minor components

Gothenburg
Extent within map unit: About 5 percent
Landform: Flood plains in river valleys
Slope: 0 to 2 percent
Drainage class: Poorly drained

General Considerations

• This map unit is used primarily for wildlife management. A few areas are used for native hay meadow, pasture, or both.

1354—Barney-Bolent complex, frequently flooded

This map unit is on valley floors. It consists of the poorly drained Barney soils in broad, frequently flooded channels and the somewhat poorly drained Bolent soils on narrow, occasionally flooded bars between the channels. The associated Gothenburg soils occur along channels in areas of the Barney soil.

Map Unit Composition

Barney: 60 percent
Bolent: 35 percent
Minor components: 5 percent

Component Descriptions

Barney

MLRA: 71—Central Nebraska Loess Hills
Landform: Flood plains in river valleys
Parent material: Loamy alluvium over sandy and gravelly alluvium
Slope: 0 to 2 percent
Drainage class: Poorly drained
Slowest permeability: Moderately slow (about 0.20 inch per hour)
Available water capacity: Low (about 3.8 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding frequency: Frequent
Depth to seasonal zone of saturation: 0 to 18 inches
Surface runoff class: Very low
Ecological site: Wet Subirrigated; Veg. Zone 3
Land capability (nonirrigated): 5w

Typical profile:
A—0 to 6 inches; silty clay loam
AC—6 to 10 inches; stratified very fine sandy loam to loamy fine sand
Cg1—10 to 18 inches; stratified sand to silty clay loam
2Cg2—18 to 80 inches; coarse sand

Bolent

MLRA: 71—Central Nebraska Loess Hills
Landform: Flood plains in river valleys
Parent material: Loamy alluvium over sandy and gravelly alluvium; sandy alluvium
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: Low (about 5.6 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding frequency: Occasional

Depth to seasonal zone of saturation: About 18 to 36 inches
Surface runoff class: Negligible
Ecological site: Subirrigated; Veg. Zone 3
Land capability (irrigated): 4w
Land capability (nonirrigated): 4w

Typical profile:
A—0 to 8 inches; loam
C1—8 to 14 inches; very fine sandy loam
C2—14 to 26 inches; stratified fine sand to very fine sandy loam
C3—26 to 30 inches; sand
2C4—30 to 36 inches; coarse sand
2C5—36 to 80 inches; fine sand

Minor components

Calamus
Extent within map unit: About 4 percent
Landform: Flood plains in river valleys
Slope: 0 to 3 percent
Drainage class: Moderately well drained

Gothenburg
Extent within map unit: About 1 percent
Landform: Flood plains in river valleys
Slope: 0 to 2 percent
Drainage class: Poorly drained

General Considerations

• This map unit is used primarily for native hay meadow. Some areas are used for wildlife habitat.

1547—Blendon loam, 0 to 1 percent slopes

This map unit occurs on a low terrace. The Blendon soil is in positions slightly higher on the landscape than those of the associated Hall and Cozad soils. The associated Lockton soils are moderately well drained. They have a coarser substratum than that of the Blendon soil. The Lockton soils are in lower landscape positions.

Map Unit Composition

Blendon: 85 percent
Minor components: 15 percent

Component Descriptions

Blendon

MLRA: 71—Central Nebraska Loess Hills
Landform: Terraces in river valleys
Parent material: Coarse-loamy eolian deposits over sandy alluvium
Slope: 0 to 1 percent
Drainage class: Well drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: Moderate (about 8.1 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Negligible
Ecological site: Sandy; Veg. Zone 3
Land capability (irrigated): 1
Land capability (nonirrigated): 2c
Note: In about 35 to 40 percent of the mapped areas, there is a silty or loamy buried soil beneath the sandy substratum material. This deep or very deep buried layer does not affect the use or management of this soil.

Typical profile:
Ap—0 to 5 inches; loam
A—5 to 15 inches; loam
Bw1—15 to 20 inches; loam
Bw2—20 to 32 inches; sandy loam
BC—32 to 45 inches; loamy sand
C1—45 to 66 inches; loamy sand
C2—66 to 80 inches; sand

Minor components

Cozad
Extent within map unit: About 5 percent
Landform: Terraces in river valleys
Slope: 0 to 3 percent
Drainage class: Well drained

Hall
Extent within map unit: About 5 percent
Landform: Terraces in river valleys
Slope: 0 to 1 percent
Drainage class: Well drained

Lockton
Extent within map unit: About 5 percent
Landform: Terraces in river valleys
Slope: 0 to 1 percent
Drainage class: Moderately well drained

General Considerations

• This map unit is used mainly as irrigated cropland. The major crops are corn, soybeans, and alfalfa. A few areas support native grass and are used for grazing by livestock.

1669—Boelus, O'Neill, and Pivot complex, 0 to 3 percent slopes

This map unit occurs on the first terrace north of the Platte River flood plain. The O'Neill soil has 20 to 40 inches of coarse-loamy material over sand and gravel deposits. The Boelus soil occurs as thin, convex sand sheets 20 to 40 inches thick over the loamy O'Neill soil. The Pivot soil and the associated Simeon soils are in positions similar to those of the O'Neill soil. Valentine soils also are associated. They occur on deep, convex sand sheets more than 40 inches thick over a loamy buried soil. Pivot soils have 10 to 20 inches of coarse-loamy material over sand and gravel deposits. Simeon soils have less than 10 inches of coarse-loamy material over the sand and gravel deposits.

Map Unit Composition

Boelus: 35 percent
O'Neill and similar soils: 35 percent
Pivot: 15 percent
Minor components: 15 percent

Component Descriptions

Boelus

MLRA: 71—Central Nebraska Loess Hills
Landform: Terraces in river valleys
Parent material: Eolian sands over loamy alluvium over sandy and gravelly alluvium
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: Moderate (about 7.6 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Very low
Ecological site: Sandy; Veg. Zone 3
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 6 inches; loamy sand
A—6 to 12 inches; loamy sand
C—12 to 37 inches; loamy sand
2Ab—37 to 45 inches; loam
2Bwb—45 to 55 inches; loam
2BCb—55 to 65 inches; coarse sandy loam
3Cb—65 to 80 inches; stratified loamy coarse sand to gravelly loamy coarse sand

O'Neill

MLRA: 71—Central Nebraska Loess Hills
Landform: Terraces in river valleys
Parent material: Coarse-loamy alluvium over sandy and gravelly alluvium
Slope: 0 to 1 percent
Drainage class: Well drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: Low (about 6.0 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Low
Ecological site: Sandy; Veg. Zone 3
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 6 inches; loam
A—6 to 13 inches; loam
AC—13 to 18 inches; fine sandy loam
C1—18 to 27 inches; sandy loam
C2—27 to 38 inches; loamy sand
2C3—38 to 80 inches; coarse sand

Similar soils: Areas of O'Neill sandy loam make up 10 to 20 percent of the map unit.

Pivot

MLRA: 71—Central Nebraska Loess Hills
Landform: Terraces in river valleys
Parent material: Sandy eolian deposits over gravelly alluvium
Slope: 0 to 2 percent
Drainage class: Somewhat excessively drained
Slowest permeability: Moderately rapid (about 2.00 inches per hour)
Available water capacity: Low (about 4.7 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Very low
Ecological site: Sandy; Veg. Zone 3
Land capability (irrigated): 3e
Land capability (nonirrigated): 4e

Typical profile:
Ap—0 to 7 inches; fine sandy loam
A—7 to 12 inches; fine sandy loam
AC—12 to 17 inches; sandy loam
C1—17 to 25 inches; loamy sand

2C2—25 to 34 inches; loamy coarse sand
2C3—34 to 80 inches; coarse sand

Minor components

Valentine
Extent within map unit: About 10 percent
Landform: Sand sheets on terraces in river valleys
Slope: 0 to 3 percent
Drainage class: Excessively drained

Simeon
Extent within map unit: About 5 percent
Landform: Terraces in river valleys
Slope: 0 to 2 percent
Drainage class: Excessively drained

General Considerations

- This map unit is used primarily for the production of corn. Some areas are used for the production of soybeans. Nearly all cultivated areas of this unit are irrigated.
- Many areas have been developed for urban subdivision.

1678—Bolent loam, occasionally flooded

This map unit occurs as broad flats or slightly convex bar areas on high valley floors. The Bolent soil is slightly above the associated Platte soils on the landscape.

Map Unit Composition

Bolent: 85 percent
Minor components: 15 percent

Component Descriptions

Bolent

MLRA: 71—Central Nebraska Loess Hills
Landform: Flats and bars on flood plains in river valleys
Parent material: Sandy alluvium
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: Low (about 5.1 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding frequency: Occasional
Depth to seasonal zone of saturation: About 18 to 36 inches
Surface runoff class: Negligible
Ecological site: Subirrigated; Veg. Zone 3
Land capability (irrigated): 4w
Land capability (nonirrigated): 4w
Note: Alkali salts tend to accumulate in areas where surface drainage is impeded.

Typical profile:
Ap—0 to 6 inches; loam
A—6 to 9 inches; loam
C1—9 to 16 inches; very fine sandy loam
C2—16 to 27 inches; stratified fine sand to very fine sandy loam
2C3—27 to 80 inches; coarse sand

Minor components

Platte
Extent within map unit: About 10 percent
Landform: Flood plains in river valleys
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained

Calamus
Extent within map unit: About 5 percent
Landform: Flood plains in river valleys
Slope: 0 to 3 percent
Drainage class: Moderately well drained

General Considerations

- About half of the areas of this map unit are used as irrigated cropland. Other areas are used for native pasture or hayland.

1680—Bolent fine sandy loam, occasionally flooded

This map unit occurs on slightly convex bars or in flat areas on high valley floors. The Bolent soil is slightly above the associated Platte soils on the landscape.

Map Unit Composition

Bolent: 85 percent
Minor components: 15 percent

Component Descriptions

Bolent

MLRA: 71—Central Nebraska Loess Hills
Landform: Bars and flats on flood plains in river valleys
Parent material: Sandy alluvium
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained
Slowest permeability: Moderately rapid (about 2.00 inches per hour)
Available water capacity: Low (about 5.7 inches)
Shrink-swell potential: Low (about 1.5 LEP)

Flooding frequency: Occasional
Depth to seasonal zone of saturation: About 18 to 36 inches
Surface runoff class: Negligible
Ecological site: Subirrigated; Veg. Zone 3
Land capability (irrigated): 4w
Land capability (nonirrigated): 4w

Typical profile:
A—0 to 8 inches; fine sandy loam
AC—8 to 12 inches; fine sandy loam
C1—12 to 26 inches; loamy fine sand
C2—26 to 33 inches; stratified very fine sandy loam to loamy fine sand
C3—33 to 40 inches; sand
2C4—40 to 80 inches; coarse sand

Minor components

Calamus
Extent within map unit: About 8 percent
Landform: Flood plains in river valleys
Slope: 0 to 3 percent
Drainage class: Moderately well drained

Platte
Extent within map unit: About 7 percent
Landform: Flood plains in river valleys
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained

General Considerations

• About half of the areas of this map unit are used for the production of irrigated crops. Other areas are used for native hayland or pasture.

1688—Bolent loamy sand, occasionally flooded

This map unit occurs in occasionally flooded areas on bottom land and on very low terraces that are only rarely flooded. It is in areas adjacent to the Loup River.

Map Unit Composition

Bolent: 90 percent
Minor components: 10 percent

Component Descriptions

Bolent

MLRA: 71—Central Nebraska Loess Hills
Landform: Flood plains in river valleys
Parent material: Sandy alluvium
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained
Slowest permeability: Rapid (about 5.95 inches per hour)
Available water capacity: Low (about 4.2 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding frequency: Occasional
Depth to seasonal zone of saturation: About 18 to 36 inches
Surface runoff class: Negligible
Ecological site: Subirrigated; Veg. Zone 3
Land capability (irrigated): 4w
Land capability (nonirrigated): 4w

Typical profile:
A1—0 to 4 inches; loamy sand
A2—4 to 8 inches; loamy fine sand
C1—8 to 20 inches; fine sand
C2—20 to 31 inches; stratified fine sand
Cg—31 to 80 inches; sand

Minor components

Almeria
Extent within map unit: About 5 percent
Landform: Flood plains in river valleys
Slope: 0 to 2 percent
Drainage class: Poorly drained

Calamus
Extent within map unit: About 5 percent
Landform: Flood plains in river valleys
Slope: 0 to 3 percent
Drainage class: Moderately well drained

General Considerations

• A few areas of this unit are used for the production of alfalfa or corn. Some areas used as cropland have center-pivot irrigation systems. Many areas support grass and trees.

1704—Bolent-Calamus complex, occasionally flooded

This map unit is on high valley floors. The Bolent soil is in old abandoned channels and flat areas. The Calamus soil is on narrow, convex bars or natural levees, or both, along active channels of the Platte River. The associated Platte soils occur in the slightly lower positions in channels.

Map Unit Composition

Bolent: 65 percent
Calamus: 30 percent
Minor components: 5 percent

Component Descriptions

Bolent

MLRA: 71—Central Nebraska Loess Hills

Landform: Flood plains in river valleys
Parent material: Sandy alluvium
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: Low (about 4.6 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding frequency: Occasional
Depth to seasonal zone of saturation: About 18 to 36 inches
Surface runoff class: Negligible
Ecological site: Subirrigated; Veg. Zone 3
Land capability (irrigated): 4w
Land capability (nonirrigated): 4w

Typical profile:
A1—0 to 6 inches; loam
A2—6 to 9 inches; fine sandy loam
C1—9 to 27 inches; stratified fine sand to very fine sandy loam
C2—27 to 38 inches; sand
2C3—38 to 80 inches; coarse sand

Calamus

MLRA: 71—Central Nebraska Loess Hills
Landform: Flood plains in river valleys
Parent material: Sandy alluvium
Slope: 0 to 3 percent
Drainage class: Moderately well drained
Slowest permeability: Rapid (about 5.95 inches per hour)
Available water capacity: Moderate (about 6.0 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding frequency: Rare
Depth to seasonal zone of saturation: About 36 to 59 inches
Surface runoff class: Negligible
Ecological site: Sandy; Veg. Zone 3
Land capability (irrigated): 4e
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 8 inches; loamy fine sand
C1—8 to 33 inches; fine sand
C2—33 to 44 inches; stratified fine sand to very fine sandy loam
2C3—44 to 80 inches; coarse sand

Minor components

Platte
Extent within map unit: About 5 percent
Landform: Flood plains in river valleys
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained

General Considerations

- About half of the areas of this unit support native pasture. The remaining areas are used as irrigated cropland.

1796—Brocksburg loam, 0 to 1 percent slopes

This map unit occurs on terraces on the north side of the Platte River. These terraces are some of the higher and drier terrace levels associated with the Platte River. The Brocksburg soil is commonly adjacent to Hall and Simeon soils. Hall soils are finer textured than the Brocksburg soil. Simeon soils are shallow to sand and gravel and are generally closer than the Brocksburg soil to the terrace break or riser.

Map Unit Composition

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

Component Descriptions

Brocksburg

MLRA: 71—Central Nebraska Loess Hills
Landform: Terraces in river valleys
Parent material: Loamy alluvium over sandy and gravelly alluvium
Slope: 0 to 1 percent
Drainage class: Well drained
Slowest permeability: Moderately slow (about 0.20 inch per hour)
Available water capacity: Moderate (about 7.5 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Low
Ecological site: Silty; Veg. Zone 3
Land capability (irrigated): 2s
Land capability (nonirrigated): 2s

Typical profile:
Ap—0 to 6 inches; loam
A1—6 to 20 inches; loam
A2—20 to 24 inches; loam
Bt1—24 to 28 inches; clay loam
Bt2—28 to 32 inches; sandy clay loam
BC—32 to 35 inches; coarse sandy loam
2C1—35 to 41 inches; sand
2C2—41 to 80 inches; coarse sand

Similar soils: Soils that have a subsoil of silt loam, loam, or fine sandy loam

Minor components

O'Neill
Extent within map unit: About 8 percent
Landform: Terraces in river valleys
Slope: 0 to 1 percent
Drainage class: Well drained

Hall
Extent within map unit: About 5 percent
Landform: Terraces in river valleys
Slope: 0 to 1 percent
Drainage class: Well drained

Simeon
Extent within map unit: About 2 percent
Landform: Terraces in river valleys
Slope: 0 to 2 percent
Drainage class: Excessively drained

General Considerations

• This map unit is used primarily for the production of corn. Some areas are used for the production of soybeans. Nearly all cultivated areas are irrigated.

1930—Butler silt loam, 0 to 1 percent slopes

This map unit is in swales on interfluves in the uplands. The Butler soil is lower on the landscape than the associated Hastings soils.

Map Unit Composition

Butler: 94 percent
Minor components: 6 percent

Component Descriptions

Butler

MLRA: 75—Central Loess Plains
Landform: Swales on interfluves in the uplands
Parent material: Loess
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained
Slowest permeability: Very slow (about 0.01 inch per hour)
Available water capacity: High (about 10.0 inches)
Shrink-swell potential: Very high (about 11.0 LEP)
Flooding hazard: None
Seasonal zone of saturation: At the surface
Surface runoff class: High
Ecological site: Clayey; Veg. Zone 3
Land capability (irrigated): 2w
Land capability (nonirrigated): 2w

Typical profile:
Ap—0 to 8 inches; silt loam
A—8 to 15 inches; silt loam
Bt1—15 to 24 inches; silty clay
Bt2—24 to 31 inches; silty clay
Bt3—31 to 36 inches; silty clay
BC—36 to 45 inches; silty clay loam
C—45 to 80 inches; silt loam

Minor components

Fillmore
Extent within map unit: About 5 percent
Landform: Playas in the uplands
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained

Hastings
Extent within map unit: About 1 percent
Landform: Flats in the uplands
Slope: 0 to 1 percent
Drainage class: Well drained

General Considerations

• This unit is used for cultivated crops. Small areas of this unit support grass and are used mostly for grazing by livestock.

1942—Calamus loamy fine sand, rarely flooded

This map unit occurs on convex bars or levees, or both. The Calamus soil is slightly above the associated Bolent soils on the landscape.

Map Unit Composition

Calamus: 95 percent
Minor components: 5 percent

Component Descriptions

Calamus

MLRA: 71—Central Nebraska Loess Hills
Landform: Bars and levees on flood plains in river valleys
Parent material: Sandy alluvium
Slope: 0 to 3 percent
Drainage class: Moderately well drained
Slowest permeability: Rapid (about 5.95 inches per hour)
Available water capacity: Moderate (about 6.1 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding frequency: Rare
Depth to seasonal zone of saturation: About 36 to 59 inches

Surface runoff class: Negligible
Ecological site: Sandy; Veg. Zone 3
Land capability (irrigated): 4e
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 9 inches; loamy fine sand
C1—9 to 21 inches; fine sand
C2—21 to 43 inches; stratified fine sand to very fine sandy loam
2C3—43 to 54 inches; coarse sand
2C4—54 to 80 inches; coarse sand

Minor components

Bolent
Extent within map unit: About 5 percent
Landform: Flood plains in river valleys
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained

General Considerations

• More than half of the areas of this map unit are used as rangeland. Other areas are used as irrigated cropland.

2020—Caruso loam, rarely flooded

This map unit is on low valley flats. The Caruso soil occurs at about the same level as the associated Alda soils or is slightly higher on the landscape. It is slightly lower on the landscape than the associated Janude soils.

Map Unit Composition

Caruso: 85 percent
Minor components: 15 percent

Component Descriptions

Caruso

MLRA: 71—Central Nebraska Loess Hills
Landform: Flood plains in river valleys
Parent material: Loamy alluvium
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained
Slowest permeability: Moderately slow (about 0.20 inch per hour)
Available water capacity: High (about 10.6 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)
Flooding frequency: Rare
Depth to seasonal zone of saturation: About 18 to 42 inches
Surface runoff class: Low
Ecological site: Subirrigated; Veg. Zone 3
Land capability (irrigated): 2w
Land capability (nonirrigated): 2w
Note: Alkali salts tend to accumulate in areas where surface drainage is impeded.

Typical profile:
Ap—0 to 7 inches; loam
A—7 to 13 inches; loam
Ck1—13 to 26 inches; very fine sandy loam
Ck2—26 to 41 inches; clay loam
C1—41 to 54 inches; sandy loam
C2—54 to 72 inches; loam
2C3—72 to 80 inches; sand

Minor components

Janude
Extent within map unit: About 8 percent
Landform: Flood plains in river valleys
Slope: 0 to 2 percent
Drainage class: Moderately well drained

Alda
Extent within map unit: About 7 percent
Landform: Flood plains in river valleys
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained

General Considerations

• Nearly all areas of this map unit are used as irrigated cropland. A few areas are used as rangeland.

2168—Coly silt loam, 11 to 30 percent slopes

This map unit occurs on hillslopes on the south side of the Platte River. The associated Thurman and Ortello soils are in the lower areas. These soils are coarser textured than the Coly soil. They formed in small pockets of sandy material blown out of the Platte River Valley. The associated Uly soils have a darker surface layer than that of the Coly soil. They are on strongly sloping hillslopes.

Map Unit Composition

Coly: 90 percent
Minor components: 10 percent

Component Descriptions

Coly

MLRA: 75—Central Loess Plains
Landform: Hillslopes in the uplands
Hillslope position: Backslope
Parent material: Fine-silty calcareous loess

Slope: 11 to 30 percent
Drainage class: Well drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: High (about 12.0 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Medium
Ecological site: Limy Upland; Veg. Zone 3
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 5 inches; silt loam
AC—5 to 9 inches; silt loam
C1—9 to 18 inches; silt loam
C2—18 to 80 inches; silt loam

Minor components

Thurman
Extent within map unit: About 5 percent
Landform: Dunes in the sandhills
Slope: 3 to 6 percent
Drainage class: Somewhat excessively drained

Ortello
Extent within map unit: About 3 percent
Landform: Interfluves in the uplands
Slope: 0 to 3 percent
Drainage class: Well drained

Uly
Extent within map unit: About 2 percent
Landform: Hillslopes on interfluves in the uplands
Slope: 6 to 11 percent
Drainage class: Well drained

General Considerations

• Most areas of this map unit support native grass and are used for grazing by livestock.

2223—Cozad loam, 0 to 1 percent slopes

This map unit occurs on well drained terraces on the north side of the Platte River. The associated Hall and Brocksburg soils are in positions on the landscape similar to those of the Cozad soil. They have a thicker dark surface layer than that of the Cozad soil and have more clay in the subsoil. Also, the Brocksburg soils have coarse sand and gravel in the lower part of the profile.

Map Unit Composition

Cozad and similar soils: 95 percent
Minor components: 5 percent

Component Descriptions

Cozad

MLRA: 71—Central Nebraska Loess Hills
Landform: Terraces in river valleys
Parent material: Coarse-silty alluvium
Slope: 0 to 1 percent
Drainage class: Well drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: Very high (about 14.8 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Negligible
Ecological site: Silty Lowland; Veg. Zone 3
Land capability (irrigated): 1
Land capability (nonirrigated): 2c

Typical profile:
Ap—0 to 12 inches; loam
Bw1—12 to 18 inches; loam
Bw2—18 to 26 inches; loam
BC—26 to 30 inches; loam
Ab—30 to 39 inches; loam
Bwb—39 to 55 inches; loam
Cb1—55 to 75 inches; silty clay loam
2Cb2—75 to 80 inches; stratified coarse sand to fine sand to sand

Similar soils: Soils that have a dark surface layer more than 20 inches thick make up about 5 percent of the map unit. These soils may or may not be stratified.

Minor components

Brocksburg
Extent within map unit: About 3 percent
Landform: Terraces in river valleys
Slope: 0 to 1 percent
Drainage class: Well drained

Hall
Extent within map unit: About 2 percent
Landform: Terraces in river valleys
Slope: 0 to 1 percent
Drainage class: Well drained

General Considerations

• This map unit is used primarily for the production of corn. Some areas are used for the production of alfalfa or soybeans. Nearly all cultivated areas are irrigated.

2238—Cozad loam, sand substratum, 0 to 3 percent slopes

This map unit occurs on terraces in the Platte River Valley. The Cozad soil is associated with Ortello, Blendon, and Hall soils. Ortello and Blendon soils are sandy. They are on the slightly higher ridges. Hall soils have a thicker dark surface layer than that of the Cozad soil and have more clay in the subsoil.

Map Unit Composition

Cozad: 80 percent
Minor components: 20 percent

Component Descriptions

Cozad

MLRA: 71—Central Nebraska Loess Hills
Landform: Terraces in river valleys
Parent material: Coarse-silty loess over sandy alluvium
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: High (about 9.5 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Low
Ecological site: Silty Lowland; Veg. Zone 3
Land capability (irrigated): 2e
Land capability (nonirrigated): 2e

Typical profile:
Ap—0 to 5 inches; loam
A—5 to 10 inches; loam
Bw—10 to 13 inches; loam
C—13 to 31 inches; very fine sandy loam
Ck—31 to 41 inches; very fine sandy loam
2C—41 to 80 inches; stratified loamy fine sand to very fine sandy loam to sand

Minor components

Blendon
Extent within map unit: About 7 percent
Landform: Terraces in river valleys
Slope: 0 to 1 percent
Drainage class: Well drained

Ortello
Extent within map unit: About 7 percent
Landform: Terraces in river valleys
Slope: 0 to 3 percent
Drainage class: Well drained

Hall
Extent within map unit: About 6 percent
Landform: Terraces in river valleys
Slope: 0 to 1 percent
Drainage class: Well drained

General Considerations

- Most areas of this map unit are used for the production of corn. Some areas are used for the production of alfalfa or soybeans. Nearly all of the cropland acreage is irrigated.

2240—Cozad, sand substratum-Hobbs, occasionally flooded, silt loams, 0 to 3 percent slopes

This map unit occurs in nearly level, meandering drainageways on terraces. The Cozad soil is on short side slopes on the sides of the drainageways. The Hobbs soil is on the bottom of the drainageways. The Cozad and Hobbs soils are slightly below the associated Hall soils on the landscape. Erosion from farming or land leveling has removed some of the topsoil from the Cozad soil. Water from overland flow from the terrace collects in areas of the Hobbs soil for short periods of time after rainfall.

Map Unit Composition

Cozad: 60 percent
Hobbs: 30 percent
Minor components: 10 percent

Component Descriptions

Cozad

MLRA: 71—Central Nebraska Loess Hills
Landform: Drainageways on terraces in river valleys
Parent material: Coarse-silty loess over sandy alluvium
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: High (about 9.9 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Low
Ecological site: Silty Lowland; Veg. Zone 3
Land capability (irrigated): 2e
Land capability (nonirrigated): 2e

Typical profile:
Ap—0 to 8 inches; silt loam
A—8 to 13 inches; silt loam
Bw—13 to 22 inches; silt loam
C1—22 to 42 inches; silt loam
2C2—42 to 80 inches; stratified loamy fine sand

Hobbs

MLRA: 71—Central Nebraska Loess Hills
Landform: Drainageways on terraces in river valleys
Parent material: Stratified silty alluvium
Slope: 0 to 2 percent
Drainage class: Well drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: High (about 11.9 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding frequency: Occasional
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Low
Ecological site: Silty Overflow; Veg. Zone 3
Land capability (irrigated): 2w
Land capability (nonirrigated): 2w

Typical profile:
Ap—0 to 7 inches; silt loam
A—7 to 24 inches; silt loam
C1—24 to 49 inches; silt loam
C2—49 to 59 inches; silt loam
C3—59 to 69 inches; silt loam
2C4—69 to 80 inches; stratified loamy fine sand

Minor components

Hall
Extent within map unit: About 10 percent
Landform: Terraces in river valleys
Slope: 0 to 1 percent
Drainage class: Well drained

General Considerations

• Nearly all areas of this map unit are used as irrigated cropland. Corn and soybeans are the major crops. Some small areas are planted to alfalfa.

2371—Cullison fine sandy loam, 0 to 1 percent slopes

This map unit occurs in swales on a sand sheet extending out from sandhill areas over the underlying loamy and silty terrace. The Cullison soil is slightly lower on the landscape than the associated and contrasting Libory soils. It is also associated with and is similar to soils of the Ovina and Lawet series. The Ovina soils are in the slightly higher positions. Lawet soils are in positions on the landscape similar to those of the Cullison soil.

Map Unit Composition

Cullison: 85 percent
Minor components: 15 percent

Component Descriptions

Cullison

MLRA: 71—Central Nebraska Loess Hills
Landform: Swales on sand sheets on terraces in river valleys
Parent material: Loamy alluvium
Slope: 0 to 1 percent
Drainage class: Poorly drained
Slowest permeability: Moderately slow (about 0.20 inch per hour)
Available water capacity: High (about 9.4 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: 0 to 18 inches
Surface runoff class: Negligible
Ecological site: Wet Subirrigated; Veg. Zone 3
Land capability (nonirrigated): 5w

Typical profile:
Akp—0 to 5 inches; fine sandy loam
Ak1—5 to 10 inches; fine sandy loam
Ak2—10 to 13 inches; loamy fine sand
Ak3—13 to 20 inches; fine sandy loam
ACk—20 to 24 inches; fine sandy loam
Ck—24 to 29 inches; fine sandy loam
Cg1—29 to 51 inches; fine sandy loam
2Cg2—51 to 80 inches; silty clay loam

Minor components

Ovina
Extent within map unit: About 10 percent
Landform: Sand sheets on terraces in river valleys
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained

Lawet
Extent within map unit: About 3 percent
Landform: Swales on valley flats on flood plains in river valleys
Slope: 0 to 1 percent
Drainage class: Poorly drained

Libory
Extent within map unit: About 2 percent
Landform: Hummocks on sand sheets on terraces in river valleys

Slope: 0 to 2 percent
Drainage class: Moderately well drained

General Considerations

• About half of the areas of this map unit support native grasses and are used for hayland or pasture. The rest are used as irrigated cropland. Major crops include corn, soybeans, and alfalfa. In wet years, crop failures because of soil wetness are common.

2415—Darr sandy loam, very rarely flooded

This map unit occurs on high valley flats. Slopes range from 0 to 2 percent but are less than a 1 percent in most areas. The Darr soil is higher on the landscape than the associated Alda soils. It is at about the same level as the associated Inavale soils or is slightly lower on the landscape.

Map Unit Composition

Darr: 95 percent
Minor components: 5 percent

Component Descriptions

Darr

MLRA: 71—Central Nebraska Loess Hills
Landform: Flats on flood plains in river valleys
Parent material: Loamy alluvium over sandy and gravelly alluvium
Slope: 0 to 2 percent
Drainage class: Somewhat excessively drained
Slowest permeability: Moderately rapid (about 2.00 inches per hour)
Available water capacity: Low (about 5.6 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding frequency: Very rare
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Low
Ecological site: Sandy Lowland; Veg. Zone 3
Land capability (irrigated): 2s
Land capability (nonirrigated): 2s

Typical profile:
Ap—0 to 6 inches; sandy loam
BA—6 to 12 inches; sandy loam
Bw—12 to 31 inches; coarse sandy loam
2C1—31 to 50 inches; coarse sand
2C2—50 to 58 inches; coarse sand
2C3—58 to 80 inches; gravelly coarse sand

Minor components

Inavale
Extent within map unit: About 3 percent
Landform: Flood plains in river valleys
Slope: 0 to 3 percent
Drainage class: Excessively drained

Alda
Extent within map unit: About 2 percent
Landform: Flood plains in river valleys
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained

General Considerations

• Nearly all areas of this map unit are used as irrigated cropland. A few small areas are used for pasture.

2430—Detroit silt loam, 0 to 1 percent slopes

This map unit occurs on well drained terraces on the north side of the Platte River. The Detroit soil is adjacent to the associated Wood River soils. Wood River soils are in slightly lower positions on the landscape than those of the Detroit soil.

Map Unit Composition

Detroit: 87 percent
Minor components: 13 percent

Component Descriptions

Detroit

MLRA: 71—Central Nebraska Loess Hills
Landform: Terraces in river valleys
Parent material: Silty alluvium over loess
Slope: 0 to 1 percent
Drainage class: Moderately well drained
Slowest permeability: Very slow (about 0.01 inch per hour)
Available water capacity: High (about 10.6 inches)
Shrink-swell potential: High (about 7.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: High
Ecological site: Silty Lowland; Veg. Zone 3
Land capability (irrigated): 1
Land capability (nonirrigated): 2c

Typical profile:
Ap—0 to 7 inches; silt loam
AB—7 to 12 inches; silt loam
Bt1—12 to 17 inches; silty clay loam
Bt2—17 to 26 inches; silty clay
Bt3—26 to 33 inches; silty clay
BC—33 to 46 inches; silty clay loam

C1—46 to 65 inches; silt loam
C2—65 to 80 inches; silt loam

Minor components

Fillmore
Extent within map unit: About 10 percent
Landform: Playas in the uplands
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained

Wood River
Extent within map unit: About 3 percent
Landform: Flats on terraces in river valleys
Slope: 0 to 1 percent
Drainage class: Moderately well drained

General Considerations

• This map unit is used primarily for the production of corn. Some areas are used for the production of alfalfa or soybeans. Nearly all areas are irrigated.

2731—Els-Tryon complex, 0 to 2 percent slopes

This map unit occurs on eolian sand sheets extending out from sandhill areas. Contact with an underlying sandy Loup River Valley paleoterrace normally occurs within a depth of 40 to 80 inches. The slightly convex Els soil is higher on the landscape than the slightly concave and wetter Tryon soils. The associated Ipage soils are on hummocks that are higher than the Els and Tryon soils. The associated Marlake soils are sandy, wet, and ponded. They are in swales or in depressions.

Map Unit Composition

Els: 50 percent
Tryon: 40 percent
Minor components: 10 percent

Component Descriptions

Els

MLRA: 71—Central Nebraska Loess Hills
Landform: Hummocks on sand sheets on terraces in river valleys
Parent material: Sandy eolian deposits over sandy alluvium
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained
Slowest permeability: Moderately rapid (about 2.00 inches per hour)
Available water capacity: Low (about 5.7 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: About 18 to 36 inches
Surface runoff class: Negligible
Ecological site: Subirrigated; Veg. Zone 3
Land capability (irrigated): 4w
Land capability (nonirrigated): 4w

Typical profile:
Ap—0 to 5 inches; loamy fine sand
A—5 to 9 inches; loamy fine sand
AC—9 to 11 inches; loamy fine sand
C1—11 to 17 inches; loamy fine sand
C2—17 to 45 inches; fine sand
Ab—45 to 60 inches; fine sandy loam
Cgb—60 to 80 inches; loamy fine sand

Tryon

MLRA: 71—Central Nebraska Loess Hills
Landform: Swales on flood plains in river valleys
Parent material: Sandy eolian deposits over sandy alluvium
Slope: 0 to 1 percent
Drainage class: Poorly drained
Slowest permeability: Moderately rapid (about 2.00 inches per hour)
Available water capacity: Moderate (about 6.2 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: 0 to 18 inches
Surface runoff class: Low
Ecological site: Wet Subirrigated; Veg. Zone 3
Land capability (nonirrigated): 5w

Typical profile:
Ap—0 to 4 inches; fine sandy loam
A—4 to 7 inches; fine sandy loam
AC—7 to 13 inches; loamy fine sand
C1—13 to 30 inches; loamy fine sand
C2—30 to 47 inches; fine sand
Ab—47 to 55 inches; fine sandy loam
Cgb—55 to 80 inches; loamy fine sand

Minor components

Ipage
Extent within map unit: About 9 percent
Landform: River valleys
Slope: 0 to 3 percent
Drainage class: Moderately well drained

Marlake
Extent within map unit: About 1 percent
Landform: Depressions in river valleys

Slope: 0 to 1 percent
Drainage class: Very poorly drained

General Considerations

• Approximately two-thirds of the areas of this map unit are used as irrigated cropland. Other areas support native grasses and are used for hayland or pasture. The major crops are corn, soybeans, and alfalfa.

2846—Fillmore silty clay loam, occasionally ponded

This map unit is on playas in the uplands. The Fillmore soil is lower on the landscape than the associated Butler soils. It is better drained than the associated Scott soils and is ponded for shorter periods. The Scott soils are in lower positions on the playas than those of the Fillmore soil.

Map Unit Composition

Fillmore: 80 percent
Minor components: 20 percent

Component Descriptions

Fillmore

MLRA: 75—Central Loess Plains
Landform: Playas in the uplands
Parent material: Loess
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained
Slowest permeability: Very slow (about 0.01 inch per hour)
Available water capacity: High (about 9.6 inches)
Shrink-swell potential: Very high (about 11.0 LEP)
Flooding hazard: None
Ponding frequency: Occasional
Seasonal zone of saturation: At the surface
Surface runoff class: Negligible
Ecological site: Clayey Overflow; Veg. Zone 3
Land capability (irrigated): 4w
Land capability (nonirrigated): 3w

Typical profile:
Ap—0 to 5 inches; silty clay loam
A—5 to 9 inches; silty clay loam
E—9 to 11 inches; silt loam
Bt1—11 to 35 inches; silty clay
Bt2—35 to 45 inches; silty clay
BC—45 to 50 inches; silty clay loam
C—50 to 80 inches; silt loam

Minor components

Butler
Extent within map unit: About 10 percent
Landform: Swales on interfluves in the uplands
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained

Scott
Extent within map unit: About 10 percent
Landform: Playas in the uplands
Slope: 0 to 1 percent
Drainage class: Very poorly drained

General Considerations

• This map unit is used for cultivated crops. Small areas support grass and are used mostly for grazing by livestock.

2918—Gates silt loam, 0 to 1 percent slopes

This map unit occurs on level interfluves in the uplands. The Gates soil is associated with Kenesaw and Hersh soils. Kenesaw soils are very similar to the Gates soil but have a thicker dark surface layer. They are in concave areas. Hersh soils are sandy. They are in landscape positions higher than those of the Gates soil.

Map Unit Composition

Gates: 80 percent
Minor components: 20 percent

Component Descriptions

Gates

MLRA: 75—Central Loess Plains
Landform: Flats on interfluves in the uplands
Parent material: Calcareous loess
Slope: 0 to 1 percent
Drainage class: Well drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: High (about 10.5 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Negligible
Ecological site: Silty; Veg. Zone 3
Land capability (irrigated): 1
Land capability (nonirrigated): 2c

Typical profile:
A—0 to 5 inches; silt loam
AC—5 to 17 inches; silt loam
C1—17 to 30 inches; very fine sandy loam
C2—30 to 80 inches; very fine sandy loam

Minor components

Kenesaw
Extent within map unit: About 15 percent
Landform: Interfluves in the uplands
Slope: 0 to 1 percent
Drainage class: Well drained

Hersh
Extent within map unit: About 5 percent
Landform: Hummocks on interfluves in the uplands
Slope: 0 to 3 percent
Drainage class: Well drained

General Considerations

• This map unit is used mainly for the production of corn. Some areas are used for the production of alfalfa or soybeans. Most cultivated areas are irrigated.

2920—Gates silt loam, 1 to 3 percent slopes

This map unit occurs on nearly level interfluves in the uplands. Associated with this map unit are Kenesaw, Coly, Holder, Holdrege, and Hersh soils. Kenesaw soils are similar to the Gates soil but have a darker surface layer. They are in concave areas. Coly soils have a very light-colored, calcareous surface layer. They are on ridges. Holder and Holdrege soils have a darker surface layer than that of the Gates soil and have more clay in the subsoil. Hersh soils are sandy. They are in landscape positions higher than those of the Gates soil.

Map Unit Composition

Gates: 75 percent
Minor components: 25 percent

Component Descriptions

Gates

MLRA: 75—Central Loess Plains
Landform: Interfluves in the uplands
Hillslope position: Summits and shoulders
Parent material: Calcareous loess
Slope: 1 to 3 percent
Drainage class: Well drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: High (about 10.8 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Low
Ecological site: Silty; Veg. Zone 3
Land capability (irrigated): 2e
Land capability (nonirrigated): 2e

Typical profile:
A—0 to 6 inches; silt loam
AC—6 to 13 inches; silt loam
C—13 to 80 inches; silt loam

Minor components

Kenesaw
Extent within map unit: About 15 percent
Landform: Interfluves in the uplands
Slope: 1 to 3 percent
Drainage class: Well drained

Coly
Extent within map unit: About 5 percent
Landform: Hillslopes on interfluves in the uplands
Slope: 1 to 6 percent
Drainage class: Well drained

Holder
Extent within map unit: About 2 percent
Slope: 1 to 3 percent
Drainage class: Well drained

Holdrege
Extent within map unit: About 2 percent
Slope: 1 to 3 percent
Drainage class: Well drained

Hersh
Extent within map unit: About 1 percent
Landform: Hummocks on interfluves in the uplands
Slope: 0 to 6 percent
Drainage class: Well drained

General Considerations

• This map unit is used mainly for the production of corn. Some areas are used for the production of alfalfa or soybeans. Most cultivated areas are irrigated. A few small areas support grass and are used for grazing by livestock.

2924—Gates silt loam, 3 to 6 percent slopes

This map unit occurs on smooth to undulating interfluves in the uplands. Associated are Kenesaw, Coly, and Hersh soils. Kenesaw soils are similar to the Gates soil but have a darker surface layer. They are in concave areas. Coly soils have a very light-colored, calcareous surface layer. They are on low ridges and divides. Hersh soils are sandy. They are in landscape positions higher than those of the Gates soil.

Map Unit Composition

Gates: 85 percent
Minor components: 15 percent

Component Descriptions

Gates

MLRA: 75—Central Loess Plains
Landform: Hillslopes on interfluves in the uplands
Parent material: Calcareous loess
Slope: 3 to 6 percent
Drainage class: Well drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: High (about 10.4 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Medium
Ecological site: Silty; Veg. Zone 3
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 5 inches; silt loam
AC—5 to 9 inches; silt loam
C1—9 to 19 inches; very fine sandy loam
C2—19 to 80 inches; very fine sandy loam

Minor components

Coly
Extent within map unit: About 5 percent
Landform: Hillslopes on interfluves in the uplands
Slope: 3 to 6 percent
Drainage class: Well drained

Hersh
Extent within map unit: About 5 percent
Landform: Hillslopes in the uplands
Slope: 0 to 6 percent
Drainage class: Well drained

Kenesaw
Extent within map unit: About 5 percent
Landform: Hillslopes in the uplands
Slope: 0 to 1 percent
Drainage class: Well drained

General Considerations

• Most areas of this map unit are used for the production of corn. Some areas are used for the production of alfalfa or soybeans. Nearly all the cropland acreage is irrigated. A few small areas support grass and are used for grazing by livestock.

2925—Gates silt loam, 3 to 6 percent slopes, eroded

This map unit occurs on smooth to undulating interfluves in the uplands. It is associated on the landscape with Hersh soils. Hersh soils are sandy. They are in landscape positions higher than those of the Gates soil.

Map Unit Composition

Gates: 95 percent
Minor components: 5 percent

Component Descriptions

Gates

MLRA: 75—Central Loess Plains
Landform: Hillslopes on interfluves in the uplands
Parent material: Calcareous loess
Slope: 3 to 6 percent
Drainage class: Well drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: High (about 10.2 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Medium
Ecological site: Limy Upland; Veg. Zone 3
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 5 inches; silt loam
C1—5 to 30 inches; very fine sandy loam
C2—30 to 80 inches; very fine sandy loam

Minor components

Hersh
Extent within map unit: About 5 percent
Landform: Hummocks on interfluves in the uplands
Slope: 0 to 6 percent
Drainage class: Well drained

General Considerations

• Most areas of this map unit are used for the production of corn. Some areas are used for the production of alfalfa or soybeans. Nearly all the cropland acreage is irrigated. A few small areas support grass and are used for grazing by livestock.

2927—Gates silt loam, 6 to 11 percent slopes

This map unit occurs on the upper slopes of hillsides and on ridges and divides in the uplands. Associated soils are Valentine, Hersh, and Hobbs. Valentine soils are sandy. They are on dunes or ridges in higher positions than those of the Gates soil. Hersh soils are loamy. They are on side slopes. Hobbs soils are stratified. They are on the bottom of drainageways.

Map Unit Composition

Gates: 75 percent
Minor components: 25 percent

Component Descriptions

Gates

MLRA: 75—Central Loess Plains
Landform: Ridges, divides, and hillslopes in the uplands
Parent material: Calcareous loess
Slope: 6 to 11 percent
Drainage class: Well drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: High (about 11.5 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Medium
Ecological site: Silty; Veg. Zone 3
Land capability (irrigated): 4e
Land capability (nonirrigated): 4e

Typical profile:
Ap—0 to 7 inches; silt loam
A—7 to 13 inches; silt loam
AC1—13 to 22 inches; silt loam
AC2—22 to 29 inches; silt loam
C1—29 to 35 inches; silt loam
C2—35 to 46 inches; silt loam
C3—46 to 51 inches; silt loam
C4—51 to 80 inches; silt loam

Minor components

Hersh
Extent within map unit: About 10 percent
Landform: Hummocks in the uplands
Slope: 3 to 6 percent
Drainage class: Well drained

Valentine
Extent within map unit: About 10 percent
Landform: Dunes in the sandhills
Slope: 3 to 9 percent
Drainage class: Excessively drained

Hobbs
Extent within map unit: About 5 percent
Landform: Drainageways in the uplands
Slope: 0 to 2 percent
Drainage class: Well drained

General Considerations

• Most areas of this map unit are used for the production of corn. Some areas are used for the production of alfalfa or soybeans. Nearly all the cropland acreage is irrigated. A few small areas support grass and are used for grazing by livestock.

2940—Gates fine sandy loam, 0 to 3 percent slopes, hummocky

This map unit occurs as flats or small hummocks in the uplands. It is lower on the landscape than the associated Valentine and Hersh soils. The associated Boelus soils are in swales. They have a dark surface layer up to 20 inches thick. The Gates soil has very small depressional areas that are ponded for short periods.

Map Unit Composition

Gates: 85 percent
Minor components: 15 percent

Component Descriptions

Gates

MLRA: 75—Central Loess Plains
Landform: Hummocks on interfluves in valleys
Parent material: Calcareous loess
Slope: 0 to 3 percent
Drainage class: Well drained

Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: High (about 11.0 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Very low
Ecological site: Silty; Veg. Zone 3
Land capability (irrigated): 2e
Land capability (nonirrigated): 2e

Typical profile:
Ap1—0 to 4 inches; fine sandy loam
Ap2—4 to 8 inches; fine sandy loam
Bw1—8 to 13 inches; fine sandy loam
Bw2—13 to 42 inches; loam
C1—42 to 60 inches; loam
C2—60 to 80 inches; loam

Minor components

Hersh
Extent within map unit: About 10 percent
Landform: Hummocks on interfluves in the uplands
Slope: 0 to 3 percent
Drainage class: Well drained

Boelus
Extent within map unit: About 3 percent
Landform: Sand sheets on paleoterraces in river valleys
Slope: 0 to 3 percent
Drainage class: Well drained

Valentine
Extent within map unit: About 2 percent
Landform: Sand sheets on paleoterraces in river valleys
Slope: 0 to 3 percent
Drainage class: Excessively drained

General Considerations

• Most areas of this map unit are used as cropland. Most large cropland areas have center-pivot irrigation systems and are used for the production of corn. Some areas are used for the production of grain sorghum, soybeans, or alfalfa. Many smaller areas are used to grow these crops under dryland conditions. Some areas support grass and are used for grazing by livestock.

2972—Gayville loam, 0 to 2 percent slopes

This map unit occurs on low terraces that are very slightly higher than the nearby flood plains that finger back into the terraces. The Gayville soil is slightly lower on the landscape than the associated and contrasting Libory and Valentine soils. It is in slightly higher positions than those of the associated Loup soils.

Map Unit Composition

Gayville: 85 percent
Minor components: 15 percent

Component Descriptions

Gayville

MLRA: 71—Central Nebraska Loess Hills
Landform: Terraces in river valleys
Parent material: Silty alluvium
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained
Slowest permeability: Moderately slow (about 0.20 inch per hour)
Available water capacity: High (about 11.8 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: About 36 to 60 inches
Surface runoff class: Medium
Ecological site: Saline Subirrigated; Veg. Zone 3
Land capability (irrigated): 4s
Land capability (nonirrigated): 4s

Typical profile:
A—0 to 3 inches; loam
Bt—3 to 6 inches; clay loam
Btn—6 to 28 inches; silty clay loam
Bky—28 to 34 inches; silt loam
C—34 to 54 inches; silt loam
Cg1—54 to 65 inches; silt loam
2Cg2—65 to 80 inches; stratified loamy fine sand to very fine sandy loam to sand

Minor components

Libory
Extent within map unit: About 10 percent
Landform: Terraces in river valleys
Slope: 0 to 2 percent
Drainage class: Moderately well drained

Loup
Extent within map unit: About 3 percent
Landform: Swales on terraces in river valleys
Slope: 0 to 2 percent
Drainage class: Poorly drained

Valentine
Extent within map unit: About 2 percent

Landform: Dunes on terraces in river valleys
Slope: 3 to 9 percent
Drainage class: Excessively drained

General Considerations

• Nearly all areas of this map unit support native grasses and are used for hayland or pasture. A few areas are used as irrigated cropland. The major crops include corn, soybeans, and alfalfa.

3023—Gibbon silt loam, rarely flooded

This map unit occurs on low valley flats. The Gibbon soil occurs at about the same level on the landscape as the associated Alda and Lex soils. It is in slightly lower positions than those of the associated Janude soils.

Map Unit Composition

Gibbon: 90 percent
Minor components: 10 percent

Component Descriptions

Gibbon

MLRA: 71—Central Nebraska Loess Hills
Landform: Flats on flood plains in river valleys
Parent material: Stratified calcareous silty alluvium
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained
Slowest permeability: Moderately slow (about 0.20 inch per hour)
Available water capacity: High (about 10.8 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)
Flooding frequency: Rare
Depth to seasonal zone of saturation: About 12 to 36 inches
Surface runoff class: Low
Ecological site: Subirrigated; Veg. Zone 3
Land capability (irrigated): 2w
Land capability (nonirrigated): 2w
Note: Alkali salts tend to accumulate in areas where surface drainage is impeded.

Typical profile:
Akp—0 to 7 inches; silt loam
Ak—7 to 23 inches; silt loam
Ck—23 to 36 inches; silty clay loam
Cg1—36 to 42 inches; silty clay loam
Cg2—42 to 46 inches; silt loam
2Cg3—46 to 62 inches; stratified loamy sand to sandy loam to sand to clay loam
2Agb—62 to 76 inches; loam
3Cgb—76 to 80 inches; coarse sand

Minor components

Lex
Extent within map unit: About 4 percent
Landform: Flood plains in river valleys
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained

Alda
Extent within map unit: About 3 percent
Landform: Flood plains in river valleys
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained

Janude
Extent within map unit: About 3 percent
Landform: Flood plains in river valleys
Slope: 0 to 2 percent
Drainage class: Moderately well drained

General Considerations

• Nearly all areas of this map unit are used as irrigated cropland. A few small areas are used for pasture.

3045—Gibbon loam, saline, 0 to 1 percent slopes, rarely flooded

This map unit occurs on low valley flats. The Gibbon soil is in slightly lower positions than those of the associated Caruso soils. It is at about the same level on the landscape as the associated Wann soils.

Map Unit Composition

Gibbon: 80 percent
Minor components: 20 percent

Component Descriptions

Gibbon

MLRA: 71—Central Nebraska Loess Hills
Landform: Flood plains on flats in river valleys
Parent material: Stratified calcareous silty alluvium
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained
Slowest permeability: Moderately slow (about 0.20 inch per hour)
Available water capacity: High (about 10.9 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)
Flooding frequency: Rare
Depth to seasonal zone of saturation: About 18 to 36 inches
Surface runoff class: Low
Ecological site: Saline Subirrigated; Veg. Zone 3

Land capability (irrigated): 3s
Land capability (nonirrigated): 4s
Note: Alkali salts tend to accumulate in areas where surface drainage is impeded.

Typical profile:
Ak—0 to 7 inches; loam
Ck—7 to 23 inches; loam
Ab—23 to 34 inches; silty clay loam
Ckb—34 to 48 inches; silty clay loam
2Agb—48 to 52 inches; clay loam
2Cgb1—52 to 62 inches; clay loam
3Cgb2—62 to 80 inches; stratified loamy sand to very fine sandy loam to gravelly sand

Minor components

Wann
Extent within map unit: About 14 percent
Landform: Flood plains in river valleys
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained

Caruso
Extent within map unit: About 6 percent
Landform: Flood plains in river valleys
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained

General Considerations

• Nearly all areas of this map unit are used as rangeland. A few small areas are along the edges of irrigated cropland.

3140—Gothenburg loam, frequently flooded

This map unit consists of broad, flat channels that have very narrow bars in between. Typically, the Gothenburg soils have a surface layer of stratified loam, but the texture ranges from silty clay loam to loamy sand. The soils are dominantly poorly drained, but the drainage class ranges from very poorly drained to somewhat poorly drained. Noncrossable, braided, active river channels flow throughout most delineations. The Gothenburg soils are associated with Platte, Bolent, and Calamus soils. Platte soils occur on broad, nearly level bars in slightly higher positions than those of the Gothenburg soil. Bolent and Calamus soils occur on very narrow bars and are higher on the landscape than the Gothenburg soil. They have short slopes of more than 2 percent.

Map Unit Composition

Gothenburg: 80 percent
Minor components: 20 percent

Component Descriptions

Gothenburg

MLRA: 71—Central Nebraska Loess Hills
Landform: Flats and channels on flood plains in river valleys
Parent material: Sandy and gravelly alluvium
Slope: 0 to 2 percent
Drainage class: Poorly drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: Very low (about 2.5 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding frequency: Frequent
Depth to seasonal zone of saturation: 0 to 18 inches
Surface runoff class: Low
Ecological site: None; Veg. Zone 3
Land capability (nonirrigated): 7s

Typical profile:
A—0 to 4 inches; stratified loam
AC—4 to 5 inches; loamy coarse sand
Cg—5 to 80 inches; stratified coarse sand to gravelly coarse sand

Minor components

Platte
Extent within map unit: About 10 percent
Landform: Flood plains in river valleys
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained

Bolent
Extent within map unit: About 7 percent
Landform: Flood plains in river valleys
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained

Calamus
Extent within map unit: About 3 percent
Landform: Flood plains in river valleys
Slope: 0 to 3 percent
Drainage class: Moderately well drained

General Considerations

• Nearly all areas of this map unit support native grass that is under a canopy of cottonwood, cedar, and shrub species. Some areas are used for pasture.
• Many areas are reserved as wildlife management areas or recreational areas or are used as private hunting grounds.

3290—Hall silt loam, 0 to 1 percent slopes

This map unit occurs on well drained terraces on the north side of the Platte River. The associated

Cozad soils have a thinner dark surface layer than that of the Hall soil. They are in the slightly higher positions on the landscape adjacent to streams and creeks that flow across the terrace.

Map Unit Composition

Hall and similar soils: 90 percent
Minor components: 10 percent

Component Descriptions

Hall

MLRA: 71—Central Nebraska Loess Hills; 75—Central Loess Plains
Landform: Flats on terraces in river valleys
Parent material: Fine-silty loess
Slope: 0 to 1 percent
Drainage class: Well drained
Slowest permeability: Moderately slow (about 0.20 inch per hour)
Available water capacity: High (about 11.5 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Medium
Ecological site: Silty Lowland; Veg. Zone 3
Land capability (irrigated): 1
Land capability (nonirrigated): 2c

Typical profile:
Ap—0 to 7 inches; silt loam
A—7 to 14 inches; silt loam
Bt1—14 to 21 inches; silty clay loam
Bt2—21 to 30 inches; silty clay loam
Bt3—30 to 37 inches; silty clay loam
BC—37 to 47 inches; silt loam
C1—47 to 67 inches; silt loam
C2—67 to 80 inches; silty clay loam

Similar soils: Detroit soils that have more clay in the subsoil and are slightly lower on the landscape; Hord soils that have a silty subsoil; Cozad soils that have a thinner dark surface layer and a silty subsoil; soils that have sand at a depth of 40 to 80 inches

Minor components

Cozad
Extent within map unit: About 10 percent
Landform: Terraces in river valleys
Slope: 0 to 1 percent
Drainage class: Well drained

General Considerations

• This map unit is used primarily for the production of corn. Some areas are used for the production of alfalfa or soybeans. Nearly all cultivated areas are irrigated.

3293—Hall silt loam, 1 to 3 percent slopes, eroded

This map unit occurs on nearly level terraces in the Platte River Valley. The Hall soil is in slightly higher positions on the landscape than those of the associated Detroit soils. Erosion from farming or land leveling has removed some of the topsoil from the Hall soil.

Map Unit Composition

Hall: 95 percent
Minor components: 5 percent

Component Descriptions

Hall

MLRA: 71—Central Nebraska Loess Hills
Landform: Terraces in river valleys
Parent material: Fine-silty loess
Slope: 1 to 3 percent
Drainage class: Well drained
Slowest permeability: Moderately slow (about 0.20 inch per hour)
Available water capacity: High (about 11.6 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: High
Ecological site: Silty; Veg. Zone 3
Land capability (irrigated): 2e
Land capability (nonirrigated): 2e

Typical profile:
Ap—0 to 7 inches; silt loam
A—7 to 10 inches; silty clay loam
Bt1—10 to 17 inches; silty clay loam
Bt2—17 to 21 inches; silty clay loam
BC—21 to 28 inches; silty clay loam
C—28 to 80 inches; silt loam

Minor components

Detroit
Extent within map unit: About 5 percent
Landform: Terraces in river valleys
Slope: 0 to 1 percent
Drainage class: Moderately well drained

General Considerations

• Nearly all areas of this map unit are used as irrigated cropland. Corn and soybeans are the major crops. Some small areas are planted to alfalfa.

3294—Hall silt loam, 3 to 6 percent slopes, eroded

This map unit occurs on gently sloping terrace breaks (terrace risers) and on gently sloping convex ridges (terrace remnants). It is also on the gently sloping side slopes of drainageways on the terrace. The associated Detroit soils are in level positions on the landscape. Erosion from farming or land leveling has removed some of the topsoil from the Hall soil.

Map Unit Composition

Hall: 80 percent
Minor components: 20 percent

Component Descriptions

Hall

MLRA: 71—Central Nebraska Loess Hills
Landform: Ridges on terraces in river valleys
Parent material: Fine-silty loess
Slope: 3 to 6 percent
Drainage class: Well drained
Slowest permeability: Moderately slow (about 0.20 inch per hour)
Available water capacity: High (about 11.7 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Medium
Ecological site: Silty; Veg. Zone 3
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 9 inches; silt loam
A—9 to 15 inches; silty clay loam
Bt1—15 to 22 inches; silty clay loam
Bt2—22 to 26 inches; silty clay loam
BC—26 to 30 inches; silt loam
C1—30 to 39 inches; silt loam
C2—39 to 80 inches; silt loam

Minor components

Hobbs
Extent within map unit: About 10 percent
Landform: Drainageways on flood plains in the uplands
Slope: 0 to 2 percent
Drainage class: Well drained

Detroit
Extent within map unit: About 5 percent
Landform: Terraces in river valleys
Slope: 0 to 1 percent
Drainage class: Moderately well drained

Hord
Extent within map unit: About 5 percent
Landform: Terraces in river valleys
Slope: 0 to 3 percent
Drainage class: Well drained

General Considerations

• Nearly all areas of this map unit are used as irrigated cropland. Corn and soybeans are the major crops. Some small areas are planted to alfalfa.

3300—Hall silt loam, sandy substratum, 0 to 1 percent slopes

This map unit occurs on well drained terraces on the north side of the Platte River. The associated Brocksburg soils are in landscape positions similar to those of the Hall soil. They have coarse sand and gravel in the lower part of the profile.

Map Unit Composition

Hall and similar soils: 95 percent
Minor components: 5 percent

Component Descriptions

Hall

MLRA: 71—Central Nebraska Loess Hills
Landform: Terraces in river valleys
Parent material: Fine-silty loess over sandy alluvium
Slope: 0 to 1 percent
Drainage class: Well drained
Slowest permeability: Moderately slow (about 0.20 inch per hour)
Available water capacity: High (about 11.5 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Medium
Ecological site: Silty Lowland; Veg. Zone 3
Land capability (irrigated): 1
Land capability (nonirrigated): 2c

Typical profile:
Ap—0 to 7 inches; silt loam
A—7 to 18 inches; silt loam
Bt1—18 to 30 inches; silty clay loam
Bt2—30 to 47 inches; silty clay loam
2C1—47 to 60 inches; very fine sandy loam
2C2—60 to 80 inches; stratified fine sand to coarse sand to sand

Similar soils: Detroit soils that have more clay in the subsoil and are slightly lower on the landscape; Hord soils that have a silty subsoil; Cozad soils that have a thinner dark surface layer and a silty subsoil; soils that have sand at a depth of 40 to 80 inches

Minor components

Brocksburg
Extent within map unit: About 5 percent
Landform: Terraces in river valleys
Slope: 0 to 1 percent
Drainage class: Well drained

General Considerations

• This map unit is used primarily for the production of corn. Some areas are used for the production of alfalfa or soybeans. Nearly all cultivated areas are irrigated.

3301—Hall, eroded-Hobbs, occasionally flooded, silt loams, 0 to 3 percent slopes

This map unit occurs on nearly level side slopes on the sides of drainageways on terraces. The Hall and Hobbs soils are slightly below the associated Detroit soils on the landscape. Erosion from farming or land leveling has removed some of the topsoil from the Hall and Hobbs soils.

Map Unit Composition

Hall: 70 percent
Hobbs: 25 percent
Minor components: 5 percent

Component Descriptions

Hall

MLRA: 71—Central Nebraska Loess Hills
Landform: Drainageways on terraces in river valleys
Parent material: Fine-silty loess
Slope: 1 to 3 percent
Drainage class: Well drained
Slowest permeability: Moderately slow (about 0.20 inch per hour)
Available water capacity: High (about 11.6 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)
Flooding frequency: Rare
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Medium
Ecological site: Silty; Veg. Zone 3
Land capability (irrigated): 2e
Land capability (nonirrigated): 2e

Typical profile:
Ap—0 to 8 inches; silt loam
A—8 to 12 inches; silty clay loam
Bt1—12 to 24 inches; silty clay loam
Bt2—24 to 37 inches; silty clay loam
BC—37 to 41 inches; silt loam
C—41 to 80 inches; silt loam

Hobbs

MLRA: 71—Central Nebraska Loess Hills
Landform: Drainageways on terraces in river valleys
Parent material: Stratified silty alluvium
Slope: 0 to 2 percent
Drainage class: Well drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: Very high (about 12.3 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding frequency: Occasional
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Low
Ecological site: Silty Overflow; Veg. Zone 3
Land capability (irrigated): 2w
Land capability (nonirrigated): 2w

Typical profile:
Ap—0 to 6 inches; silt loam
C1—6 to 13 inches; silt loam
C2—13 to 30 inches; silt loam
Ab—30 to 36 inches; silt loam
Cb1—36 to 47 inches; silt loam
Cb2—47 to 73 inches; silt loam
Cb3—73 to 80 inches; silt loam

Minor components

Detroit
Extent within map unit: About 5 percent
Landform: Terraces in river valleys
Slope: 0 to 1 percent
Drainage class: Moderately well drained

General Considerations

• Nearly all areas of this map unit are used as irrigated cropland. Corn and soybeans are the major crops. Some small areas are planted to alfalfa.

3330—Hastings silt loam, 0 to 1 percent slopes

This map unit occurs on level interfluves in the uplands. The associated Butler and Fillmore soils are in swales or basins and are saturated or ponded with runoff water.

Map Unit Composition

Hastings: 95 percent
Minor components: 5 percent

Component Descriptions

Hastings

MLRA: 75—Central Loess Plains
Landform: Flats on interfluves in the uplands
Parent material: Loess
Slope: 0 to 1 percent
Drainage class: Well drained
Slowest permeability: Very slow (about 0.01 inch per hour)
Available water capacity: High (about 11.0 inches)
Shrink-swell potential: Very high (about 11.0 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: High
Ecological site: Silty; Veg. Zone 3
Land capability (irrigated): 1
Land capability (nonirrigated): 1

Typical profile:
Ap—0 to 5 inches; silt loam
A—5 to 14 inches; silt loam
BA—14 to 18 inches; silty clay loam
Bt1—18 to 26 inches; silty clay
Bt2—26 to 30 inches; silty clay
BC—30 to 35 inches; silty clay loam
C1—35 to 42 inches; silty clay loam
C2—42 to 80 inches; silt loam

Minor components

Butler
Extent within map unit: About 3 percent
Landform: Swales on interfluves in the uplands
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained

Fillmore
Extent within map unit: About 2 percent
Landform: Playas in the uplands
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained

General Considerations

• Most areas of this map unit are used as irrigated cropland. Corn is the principal crop.

3331—Hastings silt loam, 1 to 3 percent slopes

This map unit occurs on nearly level interfluves in the uplands. Associated with the Hastings soil are Butler, Coly, and Holder soils. Coly soils are on strongly sloping side slopes. Holder soils are on the higher, gently sloping ridges or hillslopes. Butler soils are in swales.

Map Unit Composition

Hastings: 95 percent
Minor components: 5 percent

Component Descriptions

Hastings

MLRA: 75—Central Loess Plains
Landform: Interfluves in the uplands
Parent material: Loess
Slope: 1 to 3 percent
Drainage class: Well drained
Slowest permeability: Very slow (about 0.01 inch per hour)
Available water capacity: High (about 10.7 inches)
Shrink-swell potential: Very high (about 11.0 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Very high
Ecological site: Silty; Veg. Zone 3
Land capability (irrigated): 2e
Land capability (nonirrigated): 2e

Typical profile:
Ap—0 to 5 inches; silt loam
A—5 to 13 inches; silt loam
BA—13 to 19 inches; silty clay loam
Bt1—19 to 24 inches; silty clay
Bt2—24 to 35 inches; silty clay
BC—35 to 41 inches; silty clay loam
C1—41 to 46 inches; silty clay loam
C2—46 to 80 inches; silt loam

Minor components

Butler
Extent within map unit: About 2 percent
Landform: Swales on interfluves in the uplands
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained

Coly
Extent within map unit: About 2 percent
Slope: 3 to 11 percent
Drainage class: Well drained

Holder
Extent within map unit: About 1 percent
Landform: Hillslopes on interfluves in the uplands
Slope: 3 to 6 percent
Drainage class: Well drained

General Considerations

• Most areas of this map unit are used as irrigated cropland. Corn is the principal crop.

3478—Hersh fine sandy loam, silty substratum, 3 to 6 percent slopes

This map unit occurs in hummocky areas on interfluves in the uplands. The associated Coly and Gates soils are in positions on the landscape similar to those of the Hersh soil. They are silty. Coly soils are calcareous at or very near the surface of the soil.

Map Unit Composition

Hersh: 90 percent
Minor components: 10 percent

Component Descriptions

Hersh

MLRA: 71—Central Nebraska Loess Hills; 75—Central Loess Plains
Landform: Hummocks on interfluves in the uplands
Parent material: Coarse-loamy eolian deposits
Slope: 3 to 6 percent
Drainage class: Well drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: Moderate (about 8.9 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Low
Ecological site: Sandy; Veg. Zone 3
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 6 inches; fine sandy loam
C1—6 to 17 inches; fine sandy loam
C2—17 to 47 inches; fine sandy loam
2C3—47 to 80 inches; silt loam

Minor components

Coly
Extent within map unit: About 5 percent
Landform: Hillslopes in the uplands
Slope: 1 to 6 percent
Drainage class: Well drained

Gates
Extent within map unit: About 5 percent
Landform: Interfluves in the uplands
Slope: 3 to 6 percent
Drainage class: Well drained

General Considerations

• This map unit is used primarily for the production of corn. Some areas are used for the production of alfalfa or soybeans. Most cultivated areas are irrigated. A few small areas support grass and are used for grazing by livestock.

3532—Hobbs silt loam, occasionally flooded

This map unit occurs on nearly level to gently sloping flood plains, footslopes, and fans of small streams and drainageways. The Hobbs soil formed in noncalcareous, silty sediments derived mostly from soils on adjacent loess-mantled uplands.

Map Unit Composition

Hobbs: 90 percent
Minor components: 10 percent

Component Descriptions

Hobbs

MLRA: 71—Central Nebraska Loess Hills
Landform: Drainageways and alluvial fans on flood plains in valleys
Parent material: Stratified silty alluvium
Slope: 0 to 2 percent
Drainage class: Well drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: Very high (about 12.3 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding frequency: Occasional
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Low
Ecological site: Silty Overflow; Veg. Zone 3
Land capability (irrigated): 2w
Land capability (nonirrigated): 2w

Typical profile:
Ap—0 to 6 inches; silt loam
C1—6 to 13 inches; silt loam
C2—13 to 30 inches; silt loam
Ab—30 to 36 inches; silt loam
Cb1—36 to 47 inches; silt loam
Cb2—47 to 73 inches; silt loam
Cb3—73 to 80 inches; silt loam

Minor components

Coly
Extent within map unit: About 5 percent
Landform: Drainageways in the uplands
Slope: 6 to 11 percent
Drainage class: Well drained

Holder
Extent within map unit: About 5 percent
Landform: Hillslopes in the uplands

Slope: 3 to 6 percent
Drainage class: Well drained

3537—Hobbs silt loam, channeled, frequently flooded

This map unit occurs on valley floors and on the flood plain along Dry Creek in northwestern Hall County. The flood plain in this area is superimposed on a paleoterrace originating from the Loup River or Sweet Creek. The Hobbs soil is in concave areas straddling the entrenched channel. It receives sedimentation from frequent runoff in the uplands.

Map Unit Composition

Hobbs: 75 percent
Minor components: 25 percent

Component Descriptions

Hobbs

MLRA: 71—Central Nebraska Loess Hills; 75—Central Loess Plains
Landform: Channels on flood plains in river valleys
Parent material: Stratified silty alluvium
Slope: 0 to 6 percent
Drainage class: Well drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: Very high (about 12.6 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding frequency: Frequent
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Low
Ecological site: Silty Overflow; Veg. Zone 3
Land capability (nonirrigated): 6w

Typical profile:
A—0 to 6 inches; silt loam
AC—6 to 9 inches; stratified silt loam
C1—9 to 33 inches; stratified loam
C2—33 to 43 inches; silt loam
C3—43 to 53 inches; silt loam
C4—53 to 67 inches; very fine sandy loam
C5—67 to 80 inches; silt loam

Minor components

Cozad
Extent within map unit: About 15 percent
Landform: Flats on terraces in river valleys
Slope: 0 to 3 percent
Drainage class: Well drained

Ustorthents
Extent within map unit: About 10 percent
Landform: Breaks in river valleys
Slope: 6 to 30 percent
Drainage class: Well drained

General Considerations

- Nearly all areas of this map unit are used as grazable woodland. A few small areas are used as irrigated cropland. Some areas of Ustorthents are so steep, channeled, and wooded that they are used only for wildlife habitat.

3568—Holder loam, 0 to 3 percent slopes, overblown

This map unit occurs on flats on interfluves in the uplands. It is on landscapes that are much younger than the majority of the uplands in the southeastern part of Hall County. Eolian material from the Platte River Valley has been reworked and deposited in this area of the uplands. Also associated with this map unit are overblown phases of Hastings soils and Ortello soils that have a surface layer of fine sandy loam and a loamy or silty substratum.

Map Unit Composition

Holder: 80 percent
Minor components: 20 percent

Component Descriptions

Holder

MLRA: 75—Central Loess Plains
Landform: Flats on interfluves in the uplands
Parent material: Eolian deposits over loess
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: Moderately slow (about 0.20 inch per hour)
Available water capacity: High (about 11.3 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Medium
Ecological site: Silty; Veg. Zone 3
Land capability (irrigated): 2e
Land capability (nonirrigated): 2e

Typical profile:
Ap—0 to 5 inches; loam
BA—5 to 8 inches; loam
Bw—8 to 16 inches; loam
Ab—16 to 24 inches; silt loam

Bt—24 to 32 inches; silty clay loam
BCb—32 to 37 inches; silty clay loam
Cb1—37 to 42 inches; silt loam
Cb2—42 to 80 inches; silt loam

Minor components

Ortello
Extent within map unit: About 10 percent
Landform: Interfluves in the uplands
Slope: 0 to 3 percent
Drainage class: Well drained

Gates
Extent within map unit: About 5 percent
Landform: Flats and hummocks on interfluves in the uplands
Slope: 0 to 3 percent
Drainage class: Well drained

Hastings
Extent within map unit: About 5 percent
Landform: Interfluves in the uplands
Slope: 0 to 1 percent
Drainage class: Well drained

General Considerations

• Nearly all areas of this map unit are cultivated and are used for the production of corn. Some areas are used for the production of alfalfa or soybeans. Most cultivated areas are irrigated. A few small areas support grass and are used for pasture.

3570—Holder silt loam, 0 to 1 percent slopes

This map unit occurs on flats on interfluves in the uplands. These upland areas are associated with the Beaver Creek and Flat Creek drainageways and uplands adjacent to the Platte River terrace. Associated with the Holder soil are Butler and Hastings soils.

Map Unit Composition

Holder: 85 percent
Minor components: 15 percent

Component Descriptions

Holder

MLRA: 75—Central Loess Plains
Landform: Flats on interfluves in the uplands
Parent material: Loess
Slope: 0 to 1 percent
Drainage class: Well drained
Slowest permeability: Moderately slow (about 0.20 inch per hour)
Available water capacity: High (about 11.6 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Low
Ecological site: Silty; Veg. Zone 3
Land capability (irrigated): 1
Land capability (nonirrigated): 1

Typical profile:
Ap—0 to 5 inches; silt loam
A—5 to 10 inches; silt loam
BA—10 to 14 inches; silty clay loam
Bt1—14 to 20 inches; silty clay loam
Bt2—20 to 30 inches; silty clay loam
BC—30 to 41 inches; silt loam
C1—41 to 57 inches; silt loam
C2—57 to 80 inches; silt loam

Minor components

Hastings
Extent within map unit: About 10 percent
Landform: Flats in the uplands
Slope: 0 to 1 percent
Drainage class: Well drained

Butler
Extent within map unit: About 5 percent
Landform: Swales on interfluves in the uplands
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained

General Considerations

• Nearly all areas of this map unit are used as irrigated cropland. A few small areas support grass and are used for pasture.

3571—Holder silt loam, 1 to 3 percent slopes

This map unit occurs on nearly level interfluves in the uplands. These upland areas are associated with the Beaver and Flat Creek drainageways and upland flats adjacent to the terrace riser on the south side of the Platte River. The associated Butler soils are in swales. The associated Hastings soils are on flat areas. They have a silty surface layer and a thick subsoil.

Map Unit Composition

Holder: 95 percent
Minor components: 5 percent

Component Descriptions

Holder

MLRA: 75—Central Loess Plains
Landform: Interfluves in the uplands
Parent material: Loess
Slope: 1 to 3 percent
Drainage class: Well drained
Slowest permeability: Moderately slow (about 0.20 inch per hour)
Available water capacity: High (about 11.6 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Medium
Ecological site: Silty; Veg. Zone 3
Land capability (irrigated): 2e
Land capability (nonirrigated): 2e

Typical profile:
Ap—0 to 6 inches; silt loam
A—6 to 10 inches; silt loam
BA—10 to 14 inches; silty clay loam
Bt—14 to 28 inches; silty clay loam
BC—28 to 36 inches; silt loam
C1—36 to 52 inches; silt loam
C2—52 to 80 inches; silt loam

Minor components

Hastings
Extent within map unit: About 4 percent
Landform: Interfluves in the uplands
Slope: 1 to 3 percent
Drainage class: Well drained

Butler
Extent within map unit: About 1 percent
Landform: Swales on interfluves in the uplands
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained

General Considerations

• Nearly all areas of this map unit are used as irrigated cropland. A few small areas support grass and are used for pasture.

3578—Holder silty clay loam, 6 to 11 percent slopes, eroded

This map unit occurs on hillslopes in the uplands. Erosion has removed the silty surface layer of the Holder soil and exposed the subsoil. The associated Coly soils have a thin, light-colored surface layer that is calcareous very near the surface. The associated Hobbs soils are stratified and silty. They are in the lower areas in drainageways.

Map Unit Composition

Holder: 80 percent
Minor components: 20 percent

Component Descriptions

Holder

MLRA: 75—Central Loess Plains
Landform: Hillslopes in the uplands
Parent material: Fine-silty loess
Slope: 6 to 11 percent
Drainage class: Well drained
Slowest permeability: Moderately slow (about 0.20 inch per hour)
Available water capacity: Moderate (about 6.1 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Medium
Ecological site: Silty; Veg. Zone 3
Land capability (irrigated): 4e
Land capability (nonirrigated): 4e

Typical profile:
Ap—0 to 4 inches; silty clay loam
C1—4 to 17 inches; silt loam
C2—17 to 31 inches; silt loam

Minor components

Coly
Extent within map unit: About 10 percent
Landform: Drainageways in the uplands
Slope: 6 to 11 percent
Drainage class: Well drained

Hobbs
Extent within map unit: About 10 percent
Landform: Flood plains on drainageways in the uplands; alluvial fans on stream terraces in river valleys
Slope: 0 to 2 percent
Drainage class: Well drained

General Considerations

• This map unit is used primarily as cropland. Most areas are cultivated and have center-pivot irrigation systems. Corn is the most commonly grown crop. Some areas are used for the production of alfalfa, soybeans, or grain sorghum. Some small areas support native grass and are used for grazing by livestock. Stalks in cultivated fields are generally used for grazing by livestock in the fall and winter.

3580—Holder silty clay loam, 3 to 6 percent slopes, eroded

This map unit occurs on convex uplands and on the side slopes of intermittent drainageways in the uplands. Erosion has removed the silty surface layer of the Holder soil and exposed the subsoil. The associated Coly soils have a thin, light-colored surface layer that is calcareous very near the surface. The associated Hobbs soils are stratified and silty. They are in the lower areas in drainageways.

Map Unit Composition

Holder: 80 percent
Minor components: 20 percent

Component Descriptions

Holder

MLRA: 75—Central Loess Plains
Landform: Hillslopes and ridges in the uplands
Parent material: Loess
Slope: 3 to 6 percent
Drainage class: Well drained
Slowest permeability: Moderately slow (about 0.20 inch per hour)
Available water capacity: High (about 11.5 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Low
Ecological site: Silty; Veg. Zone 3
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 4 inches; silty clay loam
Bt1—4 to 10 inches; silty clay loam
Bt2—10 to 15 inches; silty clay loam
BC—15 to 20 inches; silty clay loam
C1—20 to 50 inches; silt loam
C2—50 to 80 inches; silt loam

Minor components

Coly
Extent within map unit: About 15 percent
Landform: Hillslopes on interfluves in the uplands
Slope: 3 to 6 percent
Drainage class: Well drained

Hobbs
Extent within map unit: About 5 percent
Landform: Drainageways in the uplands
Slope: 0 to 2 percent
Drainage class: Well drained

General Considerations

• This map unit is used mainly for the production of corn. Some areas are used for the production of alfalfa or soybeans. Most of the areas are cultivated and are irrigated. A few small areas support native grass and trees and are used for grazing by livestock.

3598—Holdrege silty clay loam, 3 to 6 percent slopes, eroded

This map unit occurs on the lower parts of gently sloping hillsides and ridgetops in the uplands. The Holdrege soil is associated with Uly and Coly soils. These soils are in the steeper areas.

Map Unit Composition

Holdrege: 75 percent
Minor components: 25 percent

Component Descriptions

Holdrege

MLRA: 75—Central Loess Plains
Landform: Ridges and hillslopes in the uplands
Parent material: Fine-silty loess
Slope: 3 to 6 percent
Drainage class: Well drained
Slowest permeability: Moderately slow (about 0.20 inch per hour)
Available water capacity: High (about 11.5 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Medium
Ecological site: Silty; Veg. Zone 3
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 6 inches; silty clay loam
Bt—6 to 13 inches; silty clay loam
BC—13 to 21 inches; silt loam
C1—21 to 31 inches; silt loam
C2—31 to 80 inches; silt loam

Minor components

Uly
Extent within map unit: About 15 percent
Landform: Hillslopes and ridges in the uplands
Slope: 6 to 11 percent
Drainage class: Well drained

Coly
Extent within map unit: About 10 percent
Slope: 6 to 11 percent
Drainage class: Well drained

General Considerations

• Most areas of this map unit are used as cropland. The primary crop is corn. Alfalfa, soybeans, and sorghum also are planted. Most cropland areas have sprinkler irrigation systems. Some smaller areas are used for dryland farming. Some areas support native grass or have been reseeded to grass and are used for grazing by livestock.

3616—Holdrege silt loam, 1 to 3 percent slopes, overblown

This map unit occurs on nearly level interfluves in the uplands. Included in mapping are areas of Holdrege soils that have slopes of 3 to 6 percent and small depressional areas of Fillmore soils.

Map Unit Composition

Holdrege, overblown: 93 percent
Minor components: 7 percent

Component Descriptions

Holdrege, overblown

MLRA: 75—Central Loess Plains
Landform: Interfluves in the uplands
Parent material: Loess
Slope: 1 to 3 percent
Drainage class: Well drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: Very high (about 12.2 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Low
Ecological site: Silty; Veg. Zone 3
Land capability (irrigated): 2e
Land capability (nonirrigated): 2e

Typical profile:
Ap—0 to 6 inches; silt loam
A—6 to 12 inches; silt loam
BA—12 to 17 inches; silt loam
Bt1—17 to 22 inches; silty clay loam
Bt2—22 to 28 inches; silty clay loam
BC—28 to 34 inches; silty clay loam
C1—34 to 65 inches; silt loam
C2—65 to 80 inches; silt loam

Minor components

Holdrege
Extent within map unit: About 5 percent
Landform: Hillslopes and ridges in the uplands
Slope: 3 to 6 percent
Drainage class: Well drained

Fillmore
Extent within map unit: About 2 percent
Landform: Playas in the uplands
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained

General Considerations

• Most areas of this map unit are used as cropland. The primary crop is corn. Alfalfa, soybeans, and sorghum also are planted. Most cropland areas have sprinkler irrigation systems. Many small areas are used for dryland crops or pasture.

3770—Hord silt loam, 0 to 1 percent slopes

This map unit occurs on smooth, level, well drained terraces in the Platte River Valley. The associated Detroit soils have a higher content of clay in the subsoil than the Hord soil. They are generally in the slightly lower positions on the landscape.

Map Unit Composition

Hord: 90 percent
Minor components: 10 percent

Component Descriptions

Hord

MLRA: 71—Central Nebraska Loess Hills
Landform: Terraces in river valleys
Parent material: Silty alluvium and/or loess
Slope: 0 to 1 percent
Drainage class: Well drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: High (about 11.3 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet

Surface runoff class: Low
Ecological site: Silty Lowland; Veg. Zone 3
Land capability (irrigated): 1
Land capability (nonirrigated): 2c

Typical profile:
Ap1—0 to 7 inches; silt loam
Ap2—7 to 14 inches; silt loam
Bw—14 to 22 inches; silt loam
BC—22 to 32 inches; silt loam
C1—32 to 43 inches; silt loam
C2—43 to 59 inches; very fine sandy loam
C3—59 to 80 inches; very fine sandy loam

Minor components

Detroit
Extent within map unit: About 10 percent
Landform: Terraces in river valleys
Slope: 0 to 1 percent
Drainage class: Moderately well drained

General Considerations

• Most areas of this map unit are used for the production of corn. Some areas are used for the production of alfalfa or soybeans. Nearly all of the cropland acreage is irrigated.

3771—Hord silt loam, 1 to 3 percent slopes

This map unit occurs on footslopes adjacent to the steep uplands.

Map Unit Composition

Hord: 90 percent
Minor components: 10 percent

Component Descriptions

Hord

MLRA: 71—Central Nebraska Loess Hills
Landform: Terraces in river valleys
Hillslope position: Footslopes
Parent material: Silty colluvium and/or loess
Slope: 1 to 3 percent
Drainage class: Well drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: High (about 11.7 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Low
Ecological site: Silty Lowland; Veg. Zone 3
Land capability (irrigated): 2e
Land capability (nonirrigated): 2e

Typical profile:
Ap—0 to 10 inches; silt loam
A—10 to 16 inches; silt loam
Bw1—16 to 20 inches; silt loam
Bw2—20 to 30 inches; silt loam
BC—30 to 32 inches; silt loam
C1—32 to 46 inches; silt loam
C2—46 to 80 inches; silt loam

Minor components

Hobbs
Extent within map unit: About 10 percent
Landform: Flood plains in drainageways
Slope: 0 to 2 percent
Drainage class: Well drained

General Considerations

• Nearly all of areas of this map unit are used as irrigated cropland. Corn and soybeans are the major crops. A few small areas are used for the production of alfalfa or for pasture.

3772—Hord silt loam, 3 to 6 percent slopes

This map unit occurs on footslopes adjacent to the steep uplands. The Hord soil is associated with Hobbs, Uly, and Coly soils. Hobbs soils are in the lower swales or drainageways and are occasionally flooded. Uly and Coly soils are on the higher, steeper hillslopes.

Map Unit Composition

Hord: 90 percent
Minor components: 10 percent

Component Descriptions

Hord

MLRA: 71—Central Nebraska Loess Hills
Landform: Terraces in river valleys
Hillslope position: Footslopes
Parent material: Silty colluvium and/or loess
Slope: 3 to 6 percent
Drainage class: Well drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: High (about 11.6 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Low

Ecological site: Silty Lowland; Veg. Zone 3
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 8 inches; silt loam
A—8 to 13 inches; silt loam
Bw1—13 to 20 inches; silt loam
Bw2—20 to 30 inches; silt loam
BC—30 to 32 inches; silt loam
C1—32 to 46 inches; silt loam
C2—46 to 80 inches; silt loam

Minor components

Hobbs
Extent within map unit: About 5 percent
Landform: Flood plains in drainageways
Slope: 0 to 2 percent
Drainage class: Well drained

Uly
Extent within map unit: About 3 percent
Slope: 6 to 11 percent
Drainage class: Well drained

Coly
Extent within map unit: About 2 percent
Slope: 6 to 11 percent
Drainage class: Well drained

General Considerations

• Nearly all areas of this map unit are used as irrigated cropland. Corn and soybeans are the major crops. A few small areas are used for the production of alfalfa or for pasture.

3782—Hord silt loam, sandy substratum, 0 to 1 percent slopes

This map unit occurs on level, well drained terraces on the north side of the Platte River. It is mapped in association with Detroit and Brocksburg soils. Detroit soils have more clay in the subsoil than the Hord soil. They are generally in the slightly lower positions on the landscape. Brocksburg soils are in landscape positions similar to those of the Hord soil. They have coarse sand and gravel in the lower part of the profile.

Map Unit Composition

Hord: 90 percent
Minor components: 10 percent

Component Descriptions

Hord

MLRA: 71—Central Nebraska Loess Hills
Landform: Flats on terraces in river valleys
Parent material: Silty alluvium and/or loess over sandy alluvium
Slope: 0 to 1 percent
Drainage class: Well drained
Slowest permeability: Slow (about 0.06 inch per hour)
Available water capacity: Very high (about 12.5 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Medium
Ecological site: Silty Lowland; Veg. Zone 3
Land capability (irrigated): 1
Land capability (nonirrigated): 2e
Note: In some areas, the content of clay in the subsoil is more than 35 percent. In other areas, the dark surface layer is stratified with loam or very fine sandy loam.

Typical profile:
Ap—0 to 7 inches; silt loam
A—7 to 18 inches; silt loam
Bw1—18 to 22 inches; silty clay loam
Bw2—22 to 44 inches; silty clay loam
BC—44 to 54 inches; loam
2C1—54 to 57 inches; loamy sand
2C2—57 to 80 inches; stratified coarse sand to fine sand to sand

Minor components

Brocksburg
Extent within map unit: About 5 percent
Landform: Terraces in river valleys
Slope: 0 to 1 percent
Drainage class: Well drained

Detroit
Extent within map unit: About 5 percent
Landform: Terraces in river valleys
Slope: 0 to 1 percent
Drainage class: Moderately well drained

General Considerations

• This map unit is used primarily for the production of corn. Some areas are used for the production of alfalfa or soybeans. Nearly all cultivated areas are irrigated.

3869—Inavale loamy fine sand, very rarely flooded

This map unit occurs on sandy, convex natural levees. In areas where the Inavale soil has not been leveled, it is aproximately 2 to 5 feet higher on the landscape than the associated Janude soils.

Map Unit Composition

Inavale: 95 percent
Minor components: 5 percent

Component Descriptions

Inavale

MLRA: 71—Central Nebraska Loess Hills
Landform: Flood plains in river valleys
Parent material: Sandy alluvium
Slope: 0 to 3 percent
Drainage class: Excessively drained
Slowest permeability: Rapid (about 5.95 inches per hour)
Available water capacity: Low (about 5.9 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding frequency: Very rare
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Negligible
Ecological site: Sandy Lowland; Veg. Zone 3
Land capability (irrigated): 3e
Land capability (nonirrigated): 4e

Typical profile:
Ap—0 to 5 inches; loamy fine sand
AC—5 to 9 inches; loamy fine sand
C1—9 to 50 inches; stratified loamy fine sand to very fine sandy loam to fine sandy loam
C2—50 to 70 inches; loamy fine sand
2C3—70 to 80 inches; coarse sand

Minor components

Janude
Extent within map unit: About 5 percent
Landform: Flood plains in river valleys
Slope: 0 to 2 percent
Drainage class: Moderately well drained

General Considerations

• Most areas of this map unit are used as irrigated cropland. The remaining areas are used as rangeland.

3875—Inavale loamy sand, 3 to 9 percent slopes, very rarely flooded

The Inavale soil occurs as very high bars or levees, or both, that are about 5 to 10 feet higher on the landscape than the associated Calamus soils. Eolian reworking has altered many of these high bars to a depth of approximately 40 inches.

Map Unit Composition

Inavale: 95 percent
Minor components: 5 percent

Component Descriptions

Inavale

MLRA: 71—Central Nebraska Loess Hills
Landform: Levees and bars on flood plains in river valleys
Parent material: Sandy alluvium
Slope: 3 to 9 percent
Drainage class: Excessively drained
Slowest permeability: Rapid (about 5.95 inches per hour)
Available water capacity: Low (about 5.6 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding frequency: Very rare
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Very low
Ecological site: Sandy Lowland; Veg. Zone 3
Land capability (irrigated): 4e
Land capability (nonirrigated): 6e
Note: Small blown-out areas can occur on areas of this soil used for pasture. These blown-out areas are approximately 6 to 20 feet in diameter and make up about 1 to 5 percent of some delineations.

Typical profile:
Ap—0 to 5 inches; loamy sand
C1—5 to 40 inches; sand
C2—40 to 57 inches; stratified very fine sandy loam to fine sandy loam
C3—57 to 65 inches; loamy fine sand
C4—65 to 80 inches; sand

Minor components

Calamus
Extent within map unit: About 5 percent
Landform: Flood plains in river valleys
Slope: 0 to 3 percent
Drainage class: Moderately well drained

General Considerations

• Nearly all aeas of this map unit are used as rangeland. A few areas are used for wildlife habitat.

3927—Ipage loamy fine sand, 0 to 3 percent slopes

This map unit occurs on eolian sand sheets extending out from sandhill areas. Contact with an underlying sandy Loup River Valley paleoterrace is within a depth of 80 inches in some areas. Els and Tryon soils are associated with the Ipage soil. Els soils are slightly convex or level and are slightly lower on the landscape than the Ipage soil. Tryon soils are concave and are lower on the landscape than the Ipage and Els soils. The associated Valentine soils occur on small dunes higher on the landscape than the Ipage soil.

Map Unit Composition

Ipage: 85 percent
Minor components: 15 percent

Component Descriptions

Ipage

MLRA: 71—Central Nebraska Loess Hills
Landform: Sand sheets on terraces in river valleys
Parent material: Eolian sands over sandy alluvium
Slope: 0 to 3 percent
Drainage class: Moderately well drained
Slowest permeability: Rapid (about 5.95 inches per hour)
Available water capacity: Low (about 4.5 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: About 36 to 60 inches
Surface runoff class: Negligible
Ecological site: Sandy Lowland; Veg. Zone 3
Land capability (irrigated): 4e
Land capability (nonirrigated): 6e

Typical profile:
Ap—0 to 5 inches; loamy fine sand
A—5 to 9 inches; loamy fine sand
C1—9 to 38 inches; fine sand
C2—38 to 54 inches; loamy fine sand
Ab—54 to 58 inches; loamy fine sand
Cb—58 to 80 inches; loamy fine sand

Minor components

Els
Extent within map unit: About 10 percent
Landform: Hummocks on stream terraces in river valleys
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained

Valentine
Extent within map unit: About 4 percent
Landform: Dunes in the sandhills
Slope: 3 to 9 percent
Drainage class: Excessively drained

Tryon
Extent within map unit: About 1 percent
Landform: Swales on stream terraces in river valleys
Slope: 0 to 1 percent
Drainage class: Poorly drained

General Considerations

• Approximately two-thirds of the areas of this map unit are used as irrigated cropland. Major crops include corn, soybeans, and alfalfa. The remaining areas support native grasses and are used for hayland or pasture.

3948—Ipage-Tryon, wet, complex, silty substratum, 0 to 3 percent slopes

This map unit occurs on sand sheets within and extending out from sandhill areas. Contact with the underlying silty terrace normally occurs within a depth of 80 inches in both the Ipage and Tryon soils. A seasonal high water table occurs in all components, except the included Valentine soils. During extended wet climatic cycles (for example, the years 1900 through 1915 and 1984 through 2000), the swales are saturated to the surface and are occasionally ponded for long periods. The associated Valentine soils are on dunes. The associated Marlake soils are in the slightly lower depressions. They are ponded for very long periods in all but the driest years.

Map Unit Composition

Ipage: 70 percent
Tryon: 25 percent
Minor components: 5 percent

Component Descriptions

Ipage

MLRA: 65—Nebraska Sand Hills
Landform: Hummocks on interdunes in the sandhills
Parent material: Eolian sands over silty alluvium
Slope: 0 to 3 percent
Drainage class: Moderately well drained
Slowest permeability: Moderately slow (about 0.20 inch per hour)
Available water capacity: Low (about 4.1 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: About 36 to 60 inches
Surface runoff class: Negligible
Ecological site: Sandy Lowland; Veg. Zone 3
Land capability (irrigated): 4e
Land capability (nonirrigated): 6e

Typical profile:
Ap—0 to 5 inches; fine sand
C1—5 to 18 inches; fine sand
C2—18 to 36 inches; fine sand
C3—36 to 78 inches; fine sand
2Cg—78 to 80 inches; silty clay loam

Tryon

MLRA: 65—Nebraska Sand Hills
Landform: Swales on interdunes in the sandhills
Parent material: Sandy eolian deposits over silty alluvium
Slope: 0 to 2 percent
Drainage class: Very poorly drained
Slowest permeability: Moderately slow (about 0.20 inch per hour)
Available water capacity: Moderate (about 6.2 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Ponding frequency: Occasional
Depth to seasonal zone of saturation: 0 to 12 inches
Surface runoff class: Negligible
Ecological site: Wetland; Veg. Zone 3
Land capability (nonirrigated): 5w

Typical profile:
A—0 to 5 inches; loamy fine sand
AC—5 to 9 inches; fine sand
Cg—9 to 42 inches; fine sand
Agb—42 to 47 inches; fine sandy loam
2Cgb—47 to 80 inches; silty clay loam

Minor components

Marlake
Extent within map unit: About 4 percent
Landform: Depressions on interdunes in the sandhills
Slope: 0 to 1 percent
Drainage class: Very poorly drained

Valentine
Extent within map unit: About 1 percent
Landform: Dunes on sand plains
Slope: 3 to 9 percent
Drainage class: Excessively drained

General Considerations

• About half of the areas of this map unit support native grasses and are used for hayland or pasture. The remaining areas are used as irrigated cropland. The major crops include corn, soybeans, and alfalfa.
• Crop failures occur during extended wet climatic cycles in areas of the wet Tryon soil due to excessive wetness and ponding.

3993—Jansen fine sandy loam, overblown, leveled

This map unit occurs on the first terrace north of the Platte River flood plain. This terrace is slightly higher and drier than some other terrace levels associated with the Platte River. The Jansen soil has been leveled for irrigation. Before leveling, the areas of this map unit contained small, convex, loamy and sandy sand sheets. These have been leveled and the materials moved generally to the upper ends of irrigation runs. Low spots were filled in.

Map Unit Composition

Jansen: 80 percent
Minor components: 20 percent

Component Descriptions

Jansen

MLRA: 71—Central Nebraska Loess Hills
Landform: Terraces in river valleys
Parent material: Sandy eolian deposits over loamy alluvium over sandy and gravelly alluvium
Slope: 0 to 1 percent
Drainage class: Well drained
Slowest permeability: Moderately slow (about 0.20 inch per hour)
Available water capacity: Moderate (about 6.8 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Low
Ecological site: Silty; Veg. Zone 3
Land capability (irrigated): 2e
Land capability (nonirrigated): 2e

Typical profile:
A1—0 to 7 inches; fine sandy loam
A2—7 to 13 inches; fine sandy loam
Ab—13 to 17 inches; loam
Btb1—17 to 27 inches; clay loam
Btb2—27 to 32 inches; clay loam
BCb—32 to 38 inches; coarse sandy loam
2Cb—38 to 80 inches; stratified gravelly coarse sand to coarse sand

Minor components

Boelus
Extent within map unit: About 10 percent
Landform: Sand sheets on terraces in river valleys
Slope: 0 to 2 percent
Drainage class: Well drained

Ortello

Extent within map unit: About 8 percent
Landform: Terraces in river valleys
Slope: 0 to 1 percent
Drainage class: Well drained

Hall

Extent within map unit: About 2 percent
Landform: Terraces in river valleys
Slope: 0 to 1 percent
Drainage class: Well drained

General Considerations

- This map unit is used primarily for the production of corn. Some areas are used for the production of soybeans. Nearly all of the cultivated areas are irrigated.
- A few areas are being developed for urban subdivision.

4019—Janude sandy loam, very rarely flooded

This map unit occurs on valley flats. The Janude soil is slightly higher on the landscape than the associated Alda and Caruso soils and is slightly lower on the landscape than the associated Inavale soils.

Map Unit Composition

Janude: 80 percent
Minor components: 20 percent

Component Descriptions

Janude

MLRA: 71—Central Nebraska Loess Hills
Landform: Flats on flood plains in river valleys
Parent material: Loamy alluvium
Slope: 0 to 2 percent
Drainage class: Moderately well drained
Slowest permeability: Moderate (about 0.57 inch per hour)
Available water capacity: High (about 9.3 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding frequency: Very rare
Depth to seasonal zone of saturation: About 48 to 72 inches
Surface runoff class: Low
Ecological site: Sandy Lowland; Veg. Zone 3
Land capability (irrigated): 2c
Land capability (nonirrigated): 2c

Typical profile:
Ap—0 to 6 inches; sandy loam
A—6 to 21 inches; sandy loam
C1—21 to 31 inches; sandy loam
C2—31 to 42 inches; loam
C3—42 to 57 inches; stratified very fine sandy loam to silty clay loam
C4—57 to 70 inches; loamy sand
Cg—70 to 80 inches; very fine sandy loam

Minor components

Inavale

Extent within map unit: About 10 percent
Landform: Flood plains in river valleys
Slope: 0 to 3 percent
Drainage class: Excessively drained

Alda

Extent within map unit: About 5 percent
Landform: Valley flats on flood plains in river valleys
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained

Caruso

Extent within map unit: About 5 percent
Landform: Flood plains in river valleys
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained

General Considerations

- Nearly all areas of this map unit are used as irrigated cropland. A few areas are used for rangeland or pasture.

4020—Janude loam, calcareous, rarely flooded

This map unit occurs on valley flats. The Janude soil is slightly higher on the landscape than the associated Alda and Gibbon soils and is slightly lower on the landscape than the associated Inavale soils.

Map Unit Composition

Janude: 90 percent
Minor components: 10 percent

Component Descriptions

Janude

MLRA: 71—Central Nebraska Loess Hills
Landform: Flats on flood plains in river valleys
Parent material: Loamy alluvium
Slope: 0 to 1 percent
Drainage class: Moderately well drained
Slowest permeability: Moderate (about 0.57 inch per hour)
Available water capacity: Moderate (about 8.8 inches)

Shrink-swell potential: Low (about 1.5 LEP)
Flooding frequency: Very rare
Depth to seasonal zone of saturation: About 48 to 72 inches
Surface runoff class: Negligible
Ecological site: Silty Lowland; Veg. Zone 3
Land capability (irrigated): 2c
Land capability (nonirrigated): 2c

Typical profile:
Ap—0 to 5 inches; loam
Ak1—5 to 14 inches; loam
Ak2—14 to 23 inches; sandy loam
Ck1—23 to 39 inches; sandy loam
Ck2—39 to 46 inches; loam
C—46 to 65 inches; loamy sand
2Cg—65 to 80 inches; coarse sand

Minor components

Alda
Extent within map unit: About 5 percent
Landform: Flood plains in river valleys
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained

Gibbon
Extent within map unit: About 3 percent
Landform: Flood plains in river valleys
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained

Inavale
Extent within map unit: About 2 percent
Landform: Flood plains in river valleys
Slope: 0 to 3 percent
Drainage class: Excessively drained

General Considerations

• Most areas of this map unit are used as irrigated cropland. A few areas are used as rangeland.

4417—Lamo silt loam, sand substratum, 0 to 1 percent slopes

This map unit occurs on low valley flats. The Lamo soil is associated with Caruso, Janude, Lex, and Wann soils. It is slightly lower on the landscape than the Caruso and Janude soils and is at the same level or slightly lower on the landscape than the Lex and Wann soils. Some areas of the Lamo soil are known to have been shallow lake areas in the early 1900s.

Map Unit Composition

Lamo: 85 percent
Minor components: 15 percent

Component Descriptions

Lamo

MLRA: 71—Central Nebraska Loess Hills
Landform: Flats on flood plains in river valleys
Parent material: Calcareous loamy alluvium
Slope: 0 to 1 percent
Drainage class: Poorly drained
Slowest permeability: Moderately slow (about 0.20 inch per hour)
Available water capacity: High (about 10.5 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)
Flooding frequency: Rare
Depth to seasonal zone of saturation: About 12 to 36 inches
Surface runoff class: Low
Ecological site: Wet Subirrigated; Veg. Zone 3
Land capability (irrigated): 3w
Land capability (nonirrigated): 3w
Note: Alkali salts tend to accumulate in areas where surface drainage is impeded.

Typical profile:
Akp—0 to 6 inches; silt loam
Ak1—6 to 17 inches; silt loam
Ak2—17 to 29 inches; silty clay loam
Ak3—29 to 36 inches; silty clay loam
Cg1—36 to 43 inches; clay loam
2Cg2—43 to 54 inches; fine sandy loam
2Cg3—54 to 80 inches; fine sand

Minor components

Caruso
Extent within map unit: About 7 percent
Landform: Flood plains in river valleys
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained

Lex
Extent within map unit: About 3 percent
Landform: Flood plains in river valleys
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained

Wann
Extent within map unit: About 3 percent
Landform: Flood plains in river valleys
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained

Janude
Extent within map unit: About 2 percent
Landform: Flood plains in river valleys
Slope: 0 to 1 percent
Drainage class: Moderately well drained

General Considerations

• Nearly all areas of this map unit are used as irrigated cropland. A few small areas are used for pasture.

4586—Lex silt loam, rarely flooded

This map unit occurs on low valley flats. The Lex soil is associated with Gibbon, Lamo, and Wann soils and occurs at about the same level on the landscape. The associated Janude soils are slightly higher on the landscape than Lex soil. The associated Barney soils are in low, marshy drainageways.

Map Unit Composition

Lex: 85 percent
Minor components: 15 percent

Component Descriptions

Lex

MLRA: 71—Central Nebraska Loess Hills
Landform: Flats on flood plains in river valleys
Parent material: Loamy alluvium over sandy and gravelly alluvium
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: Moderate (about 8.2 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding frequency: Rare
Depth to seasonal zone of saturation: About 12 to 36 inches
Surface runoff class: Negligible
Ecological site: Subirrigated; Veg. Zone 3
Land capability (irrigated): 3w
Land capability (nonirrigated): 3w
Note: Alkali salts tend to accumulate in areas where surface drainage is impeded.

Typical profile:
Akp—0 to 8 inches; silt loam
Ak—8 to 20 inches; silt loam
AC—20 to 23 inches; loam
Cg1—23 to 31 inches; loam
Cg2—31 to 34 inches; stratified very fine sandy loam to loamy sand to sand
2Cg3—34 to 80 inches; stratified coarse sand to sand

Minor components

Janude
Extent within map unit: About 5 percent
Landform: Flood plains in river valleys
Slope: 0 to 1 percent
Drainage class: Moderately well drained

Wann
Extent within map unit: About 5 percent
Landform: Flood plains in river valleys
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained

Barney
Extent within map unit: About 2 percent
Landform: Channels on flood plains in river valleys
Slope: 0 to 2 percent
Drainage class: Very poorly drained

Gibbon
Extent within map unit: About 2 percent
Landform: Flood plains in river valleys
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained

Lamo
Extent within map unit: About 1 percent
Landform: Flood plains in river valleys
Slope: 0 to 1 percent
Drainage class: Poorly drained

General Considerations

• Nearly all areas of this map unit are used as irrigated cropland. A few small areas are used as hayland or rangeland.

4613—Libory loamy fine sand, 0 to 2 percent slopes

This map unit occurs on thin sand sheets extending out from sandhill areas. Contact with the underlying silty terrace normally occurs within a depth of 20 to 40 inches. Most of the areas have been leveled for gravity irrigation. As a result, this Libory soil has a thinner dark surface layer than is typical.

Map Unit Composition

Libory: 85 percent
Minor components: 15 percent

Component Descriptions

Libory

MLRA: 65—Nebraska Sand Hills
Landform: Sand sheets in the sandhills
Parent material: Eolian sands over loamy alluvium
Slope: 0 to 2 percent
Drainage class: Moderately well drained
Slowest permeability: Moderately slow (about 0.20 inch per hour)
Available water capacity: Moderate (about 8.9 inches)

Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: About 12 to 24 inches
Surface runoff class: Medium
Ecological site: Sandy Lowland; Veg. Zone 3
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e
Note: This soil has a perched water table. In wet years it also has an apparent water table that rises to overlap the perched water table. The soil moisture data are based on the apparent water table.

Typical profile:
Ap—0 to 6 inches; loamy fine sand
A—6 to 10 inches; loamy fine sand
Bw1—10 to 25 inches; loamy fine sand
2Bw2—25 to 31 inches; silty clay loam
2Bk—31 to 38 inches; silt loam
2C1—38 to 44 inches; silt loam
2C2—44 to 80 inches; silt loam

Minor components

Ovina
Extent within map unit: About 9 percent
Landform: Terraces in river valleys
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained

Valentine
Extent within map unit: About 3 percent
Landform: Dunes in the sandhills
Slope: 9 to 24 percent
Drainage class: Excessively drained

Cullison
Extent within map unit: About 1 percent
Landform: Swales on terraces in river valleys
Slope: 0 to 1 percent
Drainage class: Poorly drained

Loup
Extent within map unit: About 1 percent
Landform: Swales on interdunes in the sandhills
Slope: 0 to 2 percent
Drainage class: Poorly drained

Tryon
Extent within map unit: About 1 percent
Landform: Swales on terraces in river valleys
Slope: 0 to 2 percent
Drainage class: Very poorly drained

General Considerations

- About half of the areas of this map unit are used as irrigated cropland. The major crops include corn, soybeans, and alfalfa. Other areas support native grasses and are used for hayland or pasture.

4650—Lockton loam, 0 to 1 percent slopes

This map unit occurs on a low terrace. The Lockton soil is associated with Hall and Blendon soils. The associated soils are in slightly higher positions on the landscape than those of the Lockton soil. The Hall soils have a sandy substratum.

Map Unit Composition

Lockton: 90 percent
Minor components: 10 percent

Component Descriptions

Lockton

MLRA: 71—Central Nebraska Loess Hills
Landform: Terraces in river valleys
Parent material: Loamy alluvium over sandy and gravelly alluvium
Slope: 0 to 1 percent
Drainage class: Moderately well drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: Moderate (about 6.8 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: About 36 to 60 inches
Surface runoff class: Low
Ecological site: Subirrigated; Veg. Zone 3
Land capability (irrigated): 3s
Land capability (nonirrigated): 3s

Typical profile:
Ap—0 to 5 inches; loam
A1—5 to 12 inches; loam
A2—12 to 21 inches; loam
AC—21 to 25 inches; loam
C1—25 to 33 inches; coarse sandy loam
2C2—33 to 41 inches; loamy coarse sand
2C3—41 to 80 inches; coarse sand

Minor components

Blendon
Extent within map unit: About 6 percent
Landform: Terraces in river valleys
Slope: 0 to 1 percent
Drainage class: Well drained

Hall
Extent within map unit: About 4 percent
Landform: Terraces in river valleys
Slope: 0 to 1 percent
Drainage class: Well drained

General Considerations

• Nearly all areas of this map unit are used as irrigated cropland. The major crops are corn, soybeans, and alfalfa.

4744—Loup fine sandy loam, loamy substratum, 0 to 2 percent slopes

This map unit occurs in swales on sand sheets extending out from sandhill areas over the underlying loamy and silty terrace. The Loup soil is slightly lower on the landscape than the associated Libory soils. It is slightly higher on the landscape than the associated Marlake soils.

Map Unit Composition

Loup: 90 percent
Minor components: 10 percent

Component Descriptions

Loup

MLRA: 71—Central Nebraska Loess Hills
Landform: Swales on sand sheets in the sandhills
Parent material: Sandy alluvium
Slope: 0 to 2 percent
Drainage class: Poorly drained
Slowest permeability: Slow (about 0.06 inch per hour)
Available water capacity: Low (about 5.8 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: 0 to 18 inches
Surface runoff class: Negligible
Ecological site: Wet Subirrigated; Veg. Zone 3
Land capability (nonirrigated): 5w

Typical profile:
A—0 to 7 inches; fine sandy loam
AC—7 to 11 inches; loamy fine sand
Cg1—11 to 23 inches; loamy fine sand
Cg2—23 to 26 inches; fine sandy loam
Cg3—26 to 48 inches; fine sand
Cg4—48 to 65 inches; loamy fine sand
2Cg5—65 to 80 inches; silty clay loam

Minor components

Libory
Extent within map unit: About 7 percent
Landform: Hummocks on interdunes in the sandhills
Slope: 0 to 2 percent
Drainage class: Moderately well drained

Marlake
Extent within map unit: About 3 percent
Landform: Depressions on sand sheets on terraces in river valleys
Slope: 0 to 1 percent
Drainage class: Very poorly drained

General Considerations

• Most areas of this map unit are used as cropland. The major crops are corn, soybeans, and alfalfa. Other areas are used for hayland or pasture. Crop failures are very common during wet years.

4932—Marlake loamy fine sand, frequently ponded

This map unit occurs in depressions that are ponded for very long periods. It is on sandhill interdunes and on sand sheets extending out over the underlying terrace from the sandhills. The Marlake soil is associated with Valentine, Ipage, Loup, and Tryon soils. All of these soils are in higher positions on the landscape than those of the Marlake soil.

Map Unit Composition

Marlake: 80 percent
Minor components: 20 percent

Component Descriptions

Marlake

MLRA: 65—Nebraska Sand Hills
Landform: Depressions on sand sheets in the sandhills; depressions on interdunes in the sandhills
Parent material: Sandy eolian deposits over alluvium
Slope: 0 to 1 percent
Drainage class: Very poorly drained
Slowest permeability: Moderately slow (about 0.20 inch per hour)
Available water capacity: Low (about 5.0 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Ponding frequency: Frequent

Seasonal zone of saturation: At the surface
Surface runoff class: Negligible
Ecological site: None; Veg. Zone 3
Land capability (nonirrigated): 8w

Typical profile:
A—0 to 8 inches; loamy fine sand
ACg—8 to 13 inches; loamy fine sand
Cg1—13 to 34 inches; fine sand
Cg2—34 to 41 inches; loamy fine sand
Cg3—41 to 55 inches; fine sand
Cg4—55 to 60 inches; fine sandy loam
2Cg5—60 to 80 inches; clay loam

Minor components

Tryon
Extent within map unit: About 9 percent
Landform: Swales on sand sheets on terraces in river valleys
Slope: 0 to 2 percent
Drainage class: Very poorly drained

Loup
Extent within map unit: About 6 percent
Landform: Swales on sand sheets on terraces in the sandhills
Slope: 0 to 2 percent
Drainage class: Poorly drained

Ipage
Extent within map unit: About 4 percent
Landform: Hummocks on sand sheets on terraces in river valleys
Slope: 0 to 3 percent
Drainage class: Moderately well drained

Valentine
Extent within map unit: About 1 percent
Landform: Dunes on sand sheets on terraces in the sandhills
Slope: 3 to 9 percent
Drainage class: Excessively drained

General Considerations

• Nearly all areas of this map unit support native grass and are used for pasture or hayland. This map unit provides limited grazing or haying potential because of the very long periods of ponding and the coarseness of the native vegetation. Livestock often congregate in the shallow water areas to keep cool during hot summer weather.

5705—O'Neill and Pivot loams, 0 to 2 percent slopes

This map unit occurs on terraces on the north and south sides of the Platte River. These terraces are on some of the higher and drier terrace levels associated with the Platte River. The O'Neill soil consists of coarse-loamy material 10 to 20 inches thick over sand and gravel deposits. The Pivot soil consists of coarse-loamy material 10 to 20 inches thick over sand and gravel deposits. The associated Brocksburg, Hord, and Simeon soils are in the slightly lower positions on the landscape. Brocksburg soils have more clay in the subsoil than the O'Neill soil. Hord soils are fine-silty to a depth of more than 40 inches. Simeon soils have less than 10 inches of sandy loam over sand and gravel deposits.

Map Unit Composition

O'Neill and similar soils: 50 percent
Pivot: 35 percent
Minor components: 15 percent

Component Descriptions

O'Neill

MLRA: 71—Central Nebraska Loess Hills
Landform: Terraces in river valleys
Parent material: Coarse-loamy alluvium over sandy and gravelly alluvium
Slope: 0 to 1 percent
Drainage class: Well drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: Moderate (about 6.1 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Negligible
Ecological site: Sandy; Veg. Zone 3
Land capability (irrigated): 2s
Land capability (nonirrigated): 2s
Note: Many areas do not have a subsoil horizon. Instead, they have a very dark sandy transitional horizon just above the sand and gravel layers.

Typical profile:
Ap—0 to 6 inches; loam
A—6 to 14 inches; loam
Bw1—14 to 19 inches; loam
Bw2—19 to 22 inches; loam
BC—22 to 26 inches; coarse sandy loam
C1—26 to 35 inches; sand
2C2—35 to 80 inches; coarse sand

Similar soils: Areas of O'Neill sandy loam make up 10 to 20 percent of the map unit.

Pivot

MLRA: 71—Central Nebraska Loess Hills

Landform: Sand sheets on terraces in river valleys
Parent material: Sandy eolian deposits over gravelly alluvium
Slope: 0 to 2 percent
Drainage class: Somewhat excessively drained
Slowest permeability: Moderately rapid (about 2.00 inches per hour)
Available water capacity: Low (about 4.4 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Negligible
Ecological site: Sandy; Veg. Zone 3
Land capability (irrigated): 3s
Land capability (nonirrigated): 4s

Typical profile:
Ap—0 to 7 inches; loam
A1—7 to 15 inches; sandy loam
A2—15 to 23 inches; loamy coarse sand
AC—23 to 27 inches; loamy coarse sand
2C1—27 to 32 inches; gravelly coarse sand
2C2—32 to 80 inches; stratified coarse sand to gravelly coarse sand

Minor components

Brocksburg
Extent within map unit: About 10 percent
Landform: Terraces in river valleys
Slope: 0 to 1 percent
Drainage class: Well drained

Hord
Extent within map unit: About 3 percent
Landform: Terraces in river valleys
Slope: 0 to 1 percent
Drainage class: Well drained

Simeon
Extent within map unit: About 2 percent
Landform: Terraces in river valleys
Slope: 0 to 2 percent
Drainage class: Excessively drained

General Considerations

• This map unit is used primarily for the production of corn. Some areas are used for the production of soybeans. Nearly all cultivated areas are irrigated.

5713—O'Neill sandy loam, 2 to 6 percent slopes

This map unit occurs on terrace breaks along the Wood River and on the north side of the Platte River. These terraces are some of the higher and drier terrace levels associated with the Platte River Valley terrace. The associated Hall and Brocksburg soils are generally in higher landscape positions than those of the O'Neill soil. Brocksburg and Hall soils have a thicker dark surface layer than that of the O'Neill soil and have more clay in the subsoil.

Map Unit Composition

O'Neill and similar soils: 90 percent
Minor components: 10 percent

Component Descriptions

O'Neill

MLRA: 71—Central Nebraska Loess Hills
Landform: Breaks on terraces in river valleys
Parent material: Coarse-loamy alluvium over sandy and gravelly alluvium
Slope: 2 to 6 percent
Drainage class: Well drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: Moderate (about 6.4 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Low
Ecological site: Sandy; Veg. Zone 3
Land capability (irrigated): 4e
Land capability (nonirrigated): 4e

Typical profile:
Ap—0 to 6 inches; sandy loam
A—6 to 14 inches; sandy loam
Bw—14 to 24 inches; sandy loam
BC—24 to 28 inches; loamy coarse sand
2C1—28 to 37 inches; coarse sand
2C2—37 to 80 inches; gravelly coarse sand

Similar soils: Areas where the sandy material is at or near the surface and the surface layer is not dark; areas where the coarse sand containing gravel material is at or near the surface

Minor components

Meadin
Extent within map unit: About 5 percent
Landform: Breaks and terraces in river valleys
Slope: 3 to 24 percent
Drainage class: Excessively drained
Ecological site: Shallow to Gravel; Veg. Zone 3

Brocksburg
Extent within map unit: About 3 percent
Landform: Terraces in river valleys

Slope: 0 to 1 percent
Drainage class: Well drained

Hall
Extent within map unit: About 2 percent
Landform: Terraces in river valleys
Slope: 0 to 1 percent
Drainage class: Well drained

General Considerations

• In prior years, this map unit was generally left as grassed areas within cultivated fields. In recent years, these grassed areas have been converted to cropland. They are included in center-pivot irrigation systems and are used primarily for the production of corn. Some areas are used for the production of soybeans.

5905—Ortello fine sandy loam, silty substratum, 0 to 3 percent slopes

This map unit occurs on well drained terraces on the north and south sides of the Platte River. Associated with the Ortello soil are Cozad, Valentine, and Wood River soils. Cozad soils are in landscape positions that are similar to or slightly lower than those of the Ortello soil. They have a silty surface layer and subsoil. Valentine soils are on the higher sand ridges blown over areas of the Ortello soil. Wood River soils are only on the north side of the Platte River. They are in landscape positions that are slightly lower than those of the Ortello soil and are moderately well drained. They are deep and have more clay in the subsoil than the Ortello soil.

Map Unit Composition

Ortello: 85 percent
Minor components: 15 percent

Component Descriptions

Ortello

MLRA: 71—Central Nebraska Loess Hills
Landform: Terraces in river valleys
Parent material: Sandy eolian deposits over silty alluvium
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: Moderately slow (about 0.20 inch per hour)
Available water capacity: Moderate (about 8.6 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Negligible
Ecological site: Sandy; Veg. Zone 3
Land capability (irrigated): 2e
Land capability (nonirrigated): 2e
Note: Areas of this soil on the terrace south of the Platte River formed in mixed sandy and loamy alluvium washed out from the adjacent uplands onto a silty or loamy terrace. This variation from the mode of deposition in the northern part of the county does not affect the use and management of this soil.

Typical profile:
Ap—0 to 6 inches; fine sandy loam
A—6 to 12 inches; fine sandy loam
Bw—12 to 27 inches; fine sandy loam
C1—27 to 39 inches; loamy fine sand
C2—39 to 55 inches; fine sandy loam
2Ab—55 to 62 inches; loam
2Btb—62 to 78 inches; silty clay loam
2Cb—78 to 80 inches; silt loam

Minor components

Cozad
Extent within map unit: About 7 percent
Landform: Terraces in river valleys
Slope: 0 to 1 percent
Drainage class: Well drained

Valentine
Extent within map unit: About 5 percent
Landform: Terraces in river valleys
Slope: 0 to 3 percent
Drainage class: Excessively drained

Wood River
Extent within map unit: About 3 percent
Landform: Flats on terraces in river valleys
Slope: 0 to 2 percent
Drainage class: Moderately well drained

General Considerations

• This map unit is used primarily for the production of corn. Some areas are used for the production of soybeans. Nearly all cultivated areas are irrigated.

5909—Ortello, silty substratum-Holder, overblown, complex, 0 to 3 percent slopes

This map unit occurs on convex uplands. The Ortello soil formed in loamy material that has blown over a silty landscape. The overblown Holder soil is in the lower areas where the loamy deposits are thinnest. Associated with this map unit are Thurman, Hastings, and Holder soils. Thurman soils are on high, sandy ridges. Hastings soils have a silty surface layer and a subsoil that contains more clay than that of the Ortello soil. Holder soils do not have the overblown material and are silty. The associated Holder and Hastings soils are in level or nearly level areas adjacent to the major soils.

Map Unit Composition

Ortello: 70 percent
Holder, overblown: 25 percent
Minor components: 5 percent

Component Descriptions

Ortello

MLRA: 75—Central Loess Plains
Landform: Interfluves in the uplands
Parent material: Sandy eolian deposits over loess
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: High (about 9.2 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Low
Ecological site: Sandy; Veg. Zone 3
Land capability (irrigated): 2e
Land capability (nonirrigated): 2e

Typical profile:
Ap—0 to 8 inches; fine sandy loam
A—8 to 14 inches; fine sandy loam
Bw1—14 to 19 inches; sandy loam
Bw2—19 to 24 inches; coarse sandy loam
BC—24 to 29 inches; sandy loam
C1—29 to 35 inches; coarse sandy loam
C2—35 to 43 inches; loam
2C3—43 to 80 inches; silt loam

Holder, overblown

MLRA: 75—Central Loess Plains
Landform: Interfluves in the uplands
Parent material: Loamy eolian deposits over loess
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: Moderately slow (about 0.20 inch per hour)
Available water capacity: High (about 11.3 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Medium
Ecological site: Silty; Veg. Zone 3
Land capability (irrigated): 2e
Land capability (nonirrigated): 2e

Typical profile:
Ap—0 to 5 inches; loam
BA—5 to 8 inches; loam
Bw—8 to 16 inches; loam
Ab—16 to 24 inches; silt loam
Btb—24 to 32 inches; silty clay loam
BCb—32 to 37 inches; silty clay loam to silt loam
Cb1—37 to 42 inches; silt loam
Cb2—42 to 80 inches; silt loam

Minor components

Holder
Extent within map unit: About 2 percent
Landform: Flats on interfluves in the uplands
Slope: 1 to 3 percent
Drainage class: Well drained

Thurman
Extent within map unit: About 2 percent
Landform: Sand sheets on terraces in river valleys
Slope: 0 to 3 percent
Drainage class: Somewhat excessively drained

Hastings
Extent within map unit: About 1 percent
Landform: Interfluves in the uplands
Slope: 0 to 1 percent
Drainage class: Well drained

5914—Ortello loam, 0 to 1 percent slopes

This map unit occurs on a low terrace. The associated Thurman soils are in positions similar to those of the Ortello soil. The associated Cozad soils have a substratum of sand. They are in the slightly higher landscape positions.

Map Unit Composition

Ortello: 85 percent
Minor components: 15 percent

Component Descriptions

Ortello

MLRA: 75—Central Loess Plains
Landform: Terraces in river valleys
Parent material: Sandy eolian deposits
Slope: 0 to 1 percent
Drainage class: Well drained
Slowest permeability: Moderate (about 0.57 inch per hour)
Available water capacity: Moderate (about 8.9 inches)
Shrink-swell potential: Low (about 1.5 LEP)

Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Negligible
Ecological site: Sandy; Veg. Zone 3
Land capability (irrigated): 1
Land capability (nonirrigated): 2c
Note: In about 35 to 40 percent of the areas of this soil, there is a silty or loamy buried soil beneath the sandy substratum material. The presence of this deep or very deeply buried layer does not affect the use or management of this soil.

Typical profile:
Ap—0 to 6 inches; loam
A—6 to 11 inches; loam
Bw1—11 to 16 inches; fine sandy loam
Bw2—16 to 29 inches; fine sandy loam
C1—29 to 50 inches; loamy sand
C2—50 to 61 inches; very fine sandy loam
2C3—61 to 80 inches; coarse sand

Minor components

Thurman
Extent within map unit: About 10 percent
Landform: Sand sheets on terraces in river valleys
Slope: 0 to 3 percent
Drainage class: Somewhat excessively drained

Cozad
Extent within map unit: About 5 percent
Landform: Terraces in river valleys
Slope: 0 to 3 percent
Drainage class: Well drained

General Considerations

• Nearly all areas of this map unit are used as irrigated cropland. The major crops are corn, soybeans, and alfalfa. A few areas support native grass and are used for grazing by livestock.

5985—Ovina fine sandy loam, 0 to 2 percent slopes

This map unit occurs on nearly level sand sheets extending out from sandhill areas over the underlying loamy and silty terrace. The Ovina soil is slightly lower on the landscape than the associated Libory soils and is slightly higher on the landscape than the associated Cullison soil.

Map Unit Composition

Ovina: 85 percent
Minor components: 15 percent

Component Descriptions

Ovina

MLRA: 71—Central Nebraska Loess Hills
Landform: Sand sheets on terraces in river valleys
Parent material: Loamy eolian deposits over loamy alluvium
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained
Slowest permeability: Moderately slow (about 0.20 inch per hour)
Available water capacity: High (about 9.8 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: About 12 to 36 inches
Surface runoff class: Low
Ecological site: Subirrigated; Veg. Zone 3
Land capability (irrigated): 3w
Land capability (nonirrigated): 3w

Typical profile:
Akp—0 to 5 inches; fine sandy loam
Ak—5 to 8 inches; fine sandy loam
ACk—8 to 13 inches; fine sandy loam
Ck—13 to 21 inches; loamy fine sand
2Akb—21 to 38 inches; loam
2Bkb—38 to 58 inches; loam
3Cgb1—58 to 77 inches; clay loam
3Cgb2—77 to 80 inches; silty clay loam

Minor components

Libory
Extent within map unit: About 10 percent
Landform: Sand sheets on terraces in river valleys
Slope: 0 to 2 percent
Drainage class: Moderately well drained

Cullison
Extent within map unit: About 5 percent
Landform: Swales on sand sheets on terraces in river valleys
Slope: 0 to 1 percent
Drainage class: Poorly drained

General Considerations

• Nearly all areas of this map unit are used as irrigated cropland. The major crops include corn, soybeans, and alfalfa. Other areas support native grasses and are used for hayland or pasture. Crop failures are possible as a result of soil wetness during very wet years.

6136—Platte-Alda loams, channeled, frequently flooded

This map unit is on valley foors. The Platte soil occurs in concave or flat areas, and the Alda soil occurs in slightly convex areas. Wet channels (generally uncrossable) that range from shallow to somewhat deeply entrenched occur throughout the map unit. Also, the main channel of the Wood River meanders throughout the length of this map unit. The associated Calamus soils are higher on the landscape than the Platte and Alda soils and are moderately well drained. The associated Gothenburg soils are coarse textured. They are adjacent to the drainageways.

Map Unit Composition

Platte: 60 percent
Alda and similar soils: 35 percent
Minor components: 5 percent

Component Descriptions

Platte

MLRA: 71—Central Nebraska Loess Hills
Landform: Swales on flood plains in river valleys
Parent material: Loamy alluvium over sandy and gravelly alluvium
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: Low (about 4.9 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding frequency: Frequent
Depth to seasonal zone of saturation: About 12 to 36 inches
Surface runoff class: Negligible
Ecological site: Subirrigated; Veg. Zone 3
Land capability (nonirrigated): 7w

Typical profile:
A1—0 to 6 inches; loam
A2—6 to 16 inches; silt loam
2Cg—16 to 80 inches; stratified coarse sand to gravelly coarse sand

Alda

MLRA: 71—Central Nebraska Loess Hills
Landform: Bars on flood plains in river valleys
Parent material: Loamy alluvium over sandy and gravelly alluvium
Slope: 0 to 3 percent
Drainage class: Somewhat poorly drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: Moderate (about 6.1 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding frequency: Frequent
Depth to seasonal zone of saturation: About 18 to 36 inches
Surface runoff class: Low
Ecological site: Subirrigated; Veg. Zone 3
Land capability (nonirrigated): 6w

Typical profile:
A—0 to 10 inches; loam
AC—10 to 15 inches; silt loam
C—15 to 26 inches; stratified very fine sandy loam to sand
2Cg1—26 to 36 inches; coarse sand
2Cg2—36 to 80 inches; stratified coarse sand to gravelly coarse sand

Similar soils: Soils that have a surface layer of silty clay loam; in areas below the confluence of the Wood River

Minor components

Calamus
Extent within map unit: About 4 percent
Landform: Flood plains in river valleys
Slope: 0 to 3 percent
Drainage class: Moderately well drained

Gothenburg
Extent within map unit: About 1 percent
Landform: Flood plains
Slope: 0 to 2 percent
Drainage class: Poorly drained

General Considerations

- Nearly all areas of this map unit are used as rangeland. A few small areas are used as irrigated cropland.

6139—Platte-Bolent complex, 0 to 2 percent slopes, occasionally flooded

This map unit is on high valley floors in nearly level areas characterized by bar-channel topography. The Platte soil is in concave or flat areas and in channels. The Bolent soil is on bars that are slightly convex. Associated with the Platte and Bolent soils are Calamus and Barney soils. Calamus soils are moderately well drained and are on the slightly higher sand bars or ridges. Barney soils are poorly drained or very poorly drained and are in channels and in the lowest parts of drainageways.

Map Unit Composition

Platte: 50 percent
Bolent: 45 percent
Minor components: 5 percent

Component Descriptions

Platte

MLRA: 71—Central Nebraska Loess Hills
Landform: Swales on flood plains in river valleys
Parent material: Loamy alluvium over sandy and gravelly alluvium
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: Low (about 5.3 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding frequency: Occasional
Depth to seasonal zone of saturation: About 12 to 36 inches
Surface runoff class: Negligible
Ecological site: Subirrigated; Veg. Zone 3
Land capability (irrigated): 4w
Land capability (nonirrigated): 6w

Typical profile:
Ap—0 to 6 inches; loam
A—6 to 9 inches; stratified sandy loam to loam
C—9 to 13 inches; stratified very fine sandy loam to loamy fine sand
2Cg—13 to 80 inches; stratified coarse sand to gravelly coarse sand

Bolent

MLRA: 71—Central Nebraska Loess Hills
Landform: Bars on flood plains in river valleys
Parent material: Loamy alluvium over sandy and gravelly alluvium
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained
Slowest permeability: Moderately rapid (about 2.00 inches per hour)
Available water capacity: Low (about 5.1 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding frequency: Occasional
Depth to seasonal zone of saturation: About 18 to 36 inches
Surface runoff class: Negligible
Ecological site: Subirrigated; Veg. Zone 3
Land capability (irrigated): 4w
Land capability (nonirrigated): 4w
Note: Alkali salts tend to accumulate in areas where surface drainage is impeded.

Typical profile:
Ap—0 to 6 inches; fine sandy loam
A—6 to 9 inches; fine sandy loam
C1—9 to 17 inches; very fine sandy loam
C2—17 to 28 inches; stratified sand to very fine sandy loam
C3—28 to 39 inches; sand
2C4—39 to 80 inches; coarse sand

Minor components

Calamus
Extent within map unit: About 4 percent
Landform: Flood plains in river valleys
Slope: 0 to 3 percent
Drainage class: Moderately well drained

Barney
Extent within map unit: About 1 percent
Landform: Bars on flood plains in river valleys
Slope: 0 to 2 percent
Drainage class: Poorly drained

General Considerations

• Most areas of this map unit are used as rangeland or hayland. The remaining areas are used as irrigated cropland.

6143—Platte-Inavale complex, 0 to 9 percent slopes, occasionally flooded

This map unit is on high valley floors. The Platte soil is in concave positions and in channels, and the Inavale soil is on very high bars interspersed between areas of the Platte soil.

Map Unit Composition

Platte: 55 percent
Inavale: 44 percent
Minor components: 1 percent

Component Descriptions

Platte

MLRA: 71—Central Nebraska Loess Hills
Landform: Channels on flood plains in river valleys
Parent material: Loamy alluvium over sandy and gravelly alluvium
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: Low (about 3.4 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding frequency: Occasional

Depth to seasonal zone of saturation: About 12 to 36 inches
Surface runoff class: Negligible
Ecological site: Subirrigated; Veg. Zone 3
Land capability (irrigated): 4w
Land capability (nonirrigated): 6w

Typical profile:
A—0 to 6 inches; loam
AC—6 to 10 inches; stratified loamy fine sand to loam
2Cg—10 to 80 inches; coarse sand

Inavale

MLRA: 71—Central Nebraska Loess Hills
Landform: Bars on flood plains in river valleys
Parent material: Sandy alluvium
Slope: 3 to 9 percent
Drainage class: Excessively drained
Slowest permeability: Rapid (about 5.95 inches per hour)
Available water capacity: Low (about 5.6 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding frequency: Very rare
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Very low
Ecological site: Sandy Lowland; Veg. Zone 3
Land capability (irrigated): 3e
Land capability (nonirrigated): 4e
Note: Small blown-out areas are in some pastures. These blown-out areas are approximately 6 to 20 feet in diameter and make up between 1 to 5 percent of some delineations.

Typical profile:
Ap—0 to 9 inches; loamy fine sand
C1—9 to 39 inches; fine sand
C2—39 to 53 inches; stratified fine sand to very fine sandy loam to fine sandy loam
C3—53 to 65 inches; loamy fine sand
C4—65 to 80 inches; stratified sand to coarse sand

Minor components

Barney
Extent within map unit: About 1 percent
Landform: Bars on flood plains in river valleys
Slope: 0 to 2 percent
Drainage class: Poorly drained

General Considerations

• Nearly all areas of this map unit are used as rangeland. A few areas are used as irrigated cropland or wildlife habitat.

6800—Scott silty clay loam, 0 to 1 percent slopes

This map unit is in depressions in the uplands. In approximately 70 percent of the mapped areas, the Scott soil has a surface layer of silty clay loam. In the remaining areas, the surface layer is silt loam. The higher content of clay in the surface layer in 70 percent of the mapped areas is a result of deep tillage activities, during which the lighter-colored, silty alluvial horizon has been destroyed. Cultivated crops grow poorly in areas of this map unit because of the content of clay and the frequent ponding.

Map Unit Composition

Scott: 90 percent
Minor components: 10 percent

Component Descriptions

Scott

MLRA: 75—Central Loess Plains
Landform: Playas in the uplands
Parent material: Loess
Slope: 0 to 1 percent
Drainage class: Very poorly drained
Slowest permeability: Very slow (about 0.01 inch per hour)
Available water capacity: High (about 9.5 inches)
Shrink-swell potential: Very high (about 11.0 LEP)
Flooding hazard: None
Ponding frequency: Frequent
Seasonal zone of saturation: At the surface
Surface runoff class: Negligible
Ecological site: None; Veg. Zone 3
Land capability (nonirrigated): 4w

Typical profile:
Ap—0 to 9 inches; silty clay loam
Bt1—9 to 12 inches; silty clay
Bt2—12 to 26 inches; clay
Bt3—26 to 37 inches; clay
BC1—37 to 45 inches; silty clay loam
BC2—45 to 59 inches; silty clay loam
C—59 to 80 inches; silt loam

Minor components

Fillmore
Extent within map unit: About 10 percent
Landform: Playas in the uplands
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained

General Considerations

• About 60 percent of the areas this map unit are farmed. The rest have been abandoned and are being returned to native vegetation. A few areas contain pits that are filled with water.

6956—Silver Creek fine sandy loam, ponded, 0 to 2 percent slopes, overblown

This map unit occurs on terraces on the north side of the Platte River, where thin sand sheets extend out from sandhill areas. The Silver Creek soil is in swales that are ponded during wet periods. The associated Wood River soils are very slightly higher on the landscape than the Silver Creek soil and are not ponded. The associated Libory and Ovina soils are in convex areas above the Silver Creek soil on the landscape. They are not ponded.

Map Unit Composition

Silver Creek: 85 percent
Minor components: 15 percent

Component Descriptions

Silver Creek

MLRA: 71—Central Nebraska Loess Hills
Landform: Swales on sand sheets on terraces in river valleys
Parent material: Silty alluvium
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained
Slowest permeability: Very slow (about 0.01 inch per hour)
Available water capacity: High (about 9.1 inches)
Shrink-swell potential: High (about 7.5 LEP)
Flooding hazard: None
Ponding frequency: Occasional
Depth to seasonal zone of saturation: 0 to 18 inches
Surface runoff class: Negligible
Ecological site: Saline Subirrigated; Veg. Zone 3
Land capability (irrigated): 4s
Land capability (nonirrigated): 4s

Typical profile:
A1—0 to 6 inches; fine sandy loam
A2—6 to 10 inches; fine sandy loam
2Btnyg—10 to 18 inches; silty clay
2Btng1—18 to 36 inches; silty clay
2Btng2—36 to 48 inches; clay loam
2Cg1—48 to 60 inches; loam
3Cg2—60 to 80 inches; fine sand

Minor components

Wood River
Extent within map unit: About 8 percent
Landform: Flats on terraces in river valleys
Slope: 0 to 2 percent
Drainage class: Moderately well drained

Ovina
Extent within map unit: About 5 percent
Landform: Flats on terraces in river valleys
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained

Libory
Extent within map unit: About 2 percent
Landform: Sand sheets on terraces in river valleys
Slope: 0 to 2 percent
Drainage class: Moderately well drained

General Considerations

• This map unit mainly supports native grasses used for grazing by livestock. Cultivated areas are used for irrigated corn or alfalfa. During wet years, crop failures are common. Winter wheat is being harvested with limited success.

6957—Silver Creek complex, saline-alkali, 0 to 2 percent slopes

This map unit occurs on terraces on the north side of the Platte River. These terraces reach some of their lowest terrace levels relative to the elevation of the Platte River in the vicinity of this map unit. Some areas of this map unit in north-central Hall County are nearly basin-like, making soil drainage more difficult. The associated Wood River soils are higher on the landscape than the Silver Creek soils and are better drained.

Map Unit Composition

Silver Creek, alkali: 55 percent
Silver Creek, saline, alkali: 35 percent
Minor components: 10 percent

Component Descriptions

Silver Creek, alkali

MLRA: 71—Central Nebraska Loess Hills
Landform: Swales on terraces in river valleys
Parent material: Silty alluvium
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained
Slowest permeability: Very slow
Available water capacity: High (about 10.4 inches)
Shrink-swell potential: High (about 7.5 LEP)
Flooding frequency: Rare
Depth to seasonal zone of saturation: About 24 to 48 inches

Surface runoff class: High
Ecological site: Saline Subirrigated; Veg. Zone 3
Land capability (irrigated): 4s
Land capability (nonirrigated): 4s

Typical profile:
Akp—0 to 6 inches; silt loam
Ak—6 to 11 inches; silt loam
Btkn1—11 to 19 inches; silty clay loam
Btkn2—19 to 24 inches; clay loam
BCk—24 to 44 inches; clay loam
BAb—44 to 50 inches; clay loam
Btb—50 to 65 inches; silty clay
Cgb—65 to 80 inches; silty clay loam

Silver Creek, saline, alkali

MLRA: 71—Central Nebraska Loess Hills
Landform: Swales on terraces in river valleys
Parent material: Silty alluvium
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained
Slowest permeability: Very slow
Available water capacity: High (about 10.4 inches)
Shrink-swell potential: High (about 7.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: About 36 to 72 inches
Surface runoff class: High
Ecological site: Saline Lowland; Veg. Zone 3
Land capability (irrigated): 6s
Land capability (nonirrigated): 6s

Typical profile:
E—0 to 3 inches; silt loam
Btn—3 to 5 inches; silty clay loam
Btkn—5 to 11 inches; silty clay
Akb—11 to 14 inches; silt loam
Btknb—14 to 22 inches; silty clay
BCkb—22 to 50 inches; clay loam
2Cb—50 to 65 inches; stratified loamy sand to fine sandy loam
2Cgb—65 to 80 inches; very fine sandy loam

Minor components

Wood River
Extent within map unit: About 10 percent
Landform: Flats on terraces in river valleys
Slope: 0 to 1 percent
Drainage class: Moderately well drained

General Considerations

• This map unit is used primarily for the production of corn. Other major crops include alfalfa and soybeans. Most cultivated areas are irrigated. A few areas support native grasses and are used for grazing by livestock.

6978—Simeon sandy loam, 0 to 2 percent slopes

This map unit occurs on a low terrace. The Simeon soil is slightly lower on the landscape than the associated O'Neill and Pivot soils. The associated Meadin soils are on the terrace riser below the Simeon soil on the landscape.

Map Unit Composition

Simeon and similar soils: 70 percent
Minor components: 30 percent

Component Descriptions

Simeon

MLRA: 71—Central Nebraska Loess Hills
Landform: Terraces in river valleys
Parent material: Sandy and gravelly alluvium
Slope: 0 to 2 percent
Drainage class: Excessively drained
Slowest permeability: Moderately rapid (about 2.00 inches per hour)
Available water capacity: Very low (about 3.0 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Negligible
Ecological site: Shallow to Gravel; Veg. Zone 3
Land capability (irrigated): 4s
Land capability (nonirrigated): 6s

Typical profile:
A—0 to 8 inches; sandy loam
AC—8 to 15 inches; loamy coarse sand
C—15 to 80 inches; stratified coarse sand to gravelly coarse sand

Similar soils: Soils that have a dark surface layer of loamy sand or sandy loam less than 7 inches thick; soils that have more than 15 percent gravel in some parts of the substratum

Minor components

Pivot
Extent within map unit: About 15 percent
Slope: 0 to 2 percent
Drainage class: Somewhat excessively drained

Meadin
Extent within map unit: About 10 percent

Landform: Terraces in river valleys
Slope: 3 to 24 percent
Drainage class: Excessively drained

O'Neill
Extent within map unit: About 5 percent
Landform: Terraces in river valleys
Slope: 0 to 2 percent
Drainage class: Well drained

General Considerations

• Nearly all areas of this map unit are used as irrigated cropland. The major crops are corn, soybeans, and alfalfa. A few areas support native grass and are used for grazing by livestock.

7225—Thurman fine sandy loam, 0 to 3 percent slopes

This map unit occurs on sand sheets extending out from sandhills onto a paleoterrace of the Loup River. The sandy alluvial sediments of this paleoterrace are typically contacted within a depth of 40 to 80 inches. The associated Ortello soils have loamy textures extending to a depth of more than 20 inches. They are in landscape positions similar to those of the Thurman soil. The associated Valentine soils are higher on the landscape than the Thurman soil. They are on deep, convex sand sheets.

Map Unit Composition

Thurman: 85 percent
Minor components: 15 percent

Component Descriptions

Thurman

MLRA: 75—Central Loess Plains
Landform: Sand sheets on terraces in river valleys
Parent material: Sandy eolian deposits
Slope: 0 to 3 percent
Drainage class: Somewhat excessively drained
Slowest permeability: Moderately rapid (about 2.00 inches per hour)
Available water capacity: Low (about 5.7 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Negligible
Ecological site: Sandy; Veg. Zone 3
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 5 inches; fine sandy loam
A—5 to 12 inches; fine sandy loam
C1—12 to 19 inches; fine sandy loam
C2—19 to 36 inches; loamy fine sand
C3—36 to 62 inches; stratified loamy sand to sand
2C4—62 to 80 inches; stratified fine sandy loam to loamy sand to very fine sandy loam

Minor components

Ortello
Extent within map unit: About 10 percent
Landform: Terraces in river valleys
Slope: 0 to 3 percent
Drainage class: Well drained

Valentine
Extent within map unit: About 5 percent
Landform: Sand sheets on terraces in river valleys
Slope: 0 to 3 percent
Drainage class: Excessively drained

General Considerations

• Nearly all areas of this map unit are used as irrigated cropland. The major crops are corn, soybeans, and alfalfa. A few areas support native grass and are used for grazing by livestock.

7249—Thurman loamy fine sand, loamy substratum, 3 to 6 percent slopes

This map unit occurs on gently sloping sand sheets deposited over silty interfluves in the uplands. Of minor extent in this map unit are areas of Ortello and Holder soils. Ortello soils have a silty substratum. They are generally in the lower positions on the landscape where loamy material has covered the silty uplands. Holder soils are in overblown areas. They are loamy in the upper part and silty in the lower part. They are in the lower positions on uplands.

Map Unit Composition

Thurman: 90 percent
Minor components: 10 percent

Component Descriptions

Thurman

MLRA: 75—Central Loess Plains
Landform: Sand sheets on interfluves in the uplands
Parent material: Sandy eolian deposits
Slope: 3 to 6 percent
Drainage class: Somewhat excessively drained
Slowest permeability: Moderately rapid (about 1.98 inches per hour)
Available water capacity: Low (about 4.9 inches)
Shrink-swell potential: Low (about 1.5 LEP)

Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Negligible
Ecological site: Sandy; Veg. Zone 3
Land capability (irrigated): 4e
Land capability (nonirrigated): 4e

Typical profile:
A—0 to 12 inches; loamy fine sand
C1—12 to 21 inches; loamy sand
C2—21 to 54 inches; sand
Ab—54 to 61 inches; sandy loam
Cb1—61 to 68 inches; sandy loam
Cb2—68 to 80 inches; fine sandy loam

Minor components

Ortello
Extent within map unit: About 8 percent
Landform: Interfluves in the uplands
Slope: 0 to 3 percent
Drainage class: Well drained

Holder
Extent within map unit: About 2 percent
Slope: 0 to 3 percent
Drainage class: Well drained

General Considerations

• About half of the areas of this map unit are used as cropland, and half support native grass used for grazing by livestock. The cropland areas are irrigated and are generally used for the production of corn. Some areas are used for the production of alfalfa or soybeans.

7250—Thurman loamy fine sand, loamy substratum, 0 to 3 percent slopes

This map unit occurs on level or nearly level sand sheets deposited over silty interfluves in the uplands. Of minor extent in this map unit are areas of Ortello and Holder soils. Ortello soils have a silty substratum. They are generally in the lower positions on the landscape where loamy material has covered the silty uplands. Holder soils are in overblown areas. They are loamy in the upper part and silty in the lower part. They are in the lower positions on uplands.

Map Unit Composition

Thurman: 90 percent
Minor components: 10 percent

Component Descriptions

Thurman

MLRA: 75—Central Loess Plains
Landform: Sand sheets on interfluves in the uplands
Parent material: Sandy eolian deposits
Slope: 0 to 3 percent
Drainage class: Somewhat excessively drained
Slowest permeability: Moderately rapid (about 2.00 inches per hour)
Available water capacity: Moderate (about 6.7 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Negligible
Ecological site: Sandy; Veg. Zone 3
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 6 inches; loamy sand
A—6 to 12 inches; loamy sand
C1—12 to 26 inches; loamy sand
C2—26 to 42 inches; loamy sand
Ab—42 to 50 inches; sandy loam
Cb1—50 to 55 inches; sandy loam
Cb2—55 to 80 inches; sandy loam

Minor components

Ortello
Extent within map unit: About 8 percent
Landform: Interfluves in the uplands
Slope: 0 to 3 percent
Drainage class: Well drained

Holder
Extent within map unit: About 2 percent
Slope: 0 to 3 percent
Drainage class: Well drained

General Considerations

• Most areas of this map unit are used as cropland. Corn is the major crop. Some areas are used for the production of alfalfa or soybeans. Most of the cropland acreage is irrigated. Smaller areas support native grass and are used for grazing by livestock.

7429—Uly silt loam, 1 to 3 percent slopes, eroded

This map unit occurs on level or nearly level interfluves in the uplands. The Uly soil is associated with Coly and Holder soils. Coly soils are in the more sloping areas. They have a light-colored surface layer and are calcareous at or near the surface. Holder soils have a thicker subsoil than that of the Uly soil. They are in landscape positions similar to those of the Uly soil.

Map Unit Composition

Uly: 85 percent
Minor components: 15 percent

Component Descriptions

Uly

MLRA: 75—Central Loess Plains
Landform: Interfluves in the uplands
Parent material: Fine-silty calcareous loess
Slope: 1 to 3 percent
Drainage class: Well drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: High (about 10.9 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Low
Ecological site: Silty; Veg. Zone 3
Land capability (irrigated): 2e
Land capability (nonirrigated): 2e

Typical profile:
Ap—0 to 5 inches; silt loam
Bw—5 to 10 inches; silt loam
C—10 to 80 inches; silt loam

Minor components

Coly
Extent within map unit: About 10 percent
Landform: Hillslopes and flats in the uplands
Slope: 1 to 6 percent
Drainage class: Well drained

Holder
Extent within map unit: About 5 percent
Landform: Flats on interfluves in the uplands
Slope: 0 to 1 percent
Drainage class: Well drained

General Considerations

• This map unit is used primarily for the production of corn. Smaller areas are used for the production of alfalfa and soybeans. Nearly all of the cropland acreage is irrigated. Small areas support grass and are used mostly for grazing by livestock.

7436—Uly, eroded-Coly silt loams, 6 to 11 percent slopes

This map unit occurs on the slopes of hillsides and on ridges in the uplands. Of minor extent in this map unit are Hobbs and Holdrege soils. Holdrege soils are in gently sloping areas. They have a thick subsoil that may be exposed at the surface by erosion. Hobbs soils are in drainageways. They are very stratified because of erosional deposition.

Map Unit Composition

Uly: 75 percent
Coly: 20 percent
Minor components: 5 percent

Component Descriptions

Uly

MLRA: 75—Central Loess Plains
Landform: Ridges and hillslopes in the uplands
Parent material: Fine-silty calcareous loess
Slope: 6 to 11 percent
Drainage class: Well drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: High (about 11.2 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Medium
Ecological site: Silty; Veg. Zone 3
Land capability (irrigated): 4e
Land capability (nonirrigated): 4e

Typical profile:
Ap—0 to 6 inches; silt loam
Bw—6 to 15 inches; silt loam
C1—15 to 31 inches; silt loam
C2—31 to 80 inches; silt loam

Coly

MLRA: 75—Central Loess Plains
Landform: Ridges and hillslopes in the uplands
Parent material: Fine-silty calcareous loess
Slope: 6 to 11 percent
Drainage class: Well drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: High (about 11.1 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Medium

Ecological site: Limy Upland; Veg. Zone 3
Land capability (irrigated): 4e
Land capability (nonirrigated): 4e

Typical profile:
Ap1—0 to 6 inches; silt loam
Ap2—6 to 9 inches; silt loam
AC—9 to 21 inches; silt loam
C1—21 to 35 inches; silt loam
C2—35 to 80 inches; silt loam

Minor components

Holdrege
Extent within map unit: About 3 percent
Landform: Hillslopes and ridges in the uplands
Slope: 3 to 6 percent
Drainage class: Well drained

Hobbs
Extent within map unit: About 2 percent
Landform: Drainageways on flood plains in the uplands
Slope: 0 to 2 percent
Drainage class: Well drained

General Considerations

• Most areas of this map unit are used for the production of corn. Nearly all of the cropland acreage is irrigated. Some irrigated and dryland areas are used for the production of alfalfa, grain sorghum, or soybeans. Some areas support native grass and are used as pasture for grazing by livestock.

7438—Uly silt loam, 3 to 6 percent slopes, eroded

This map unit occurs on gently sloping side slopes in the uplands. Of minor extent in this map unit are Coly and Holder soils. Coly soils are in the more sloping areas. They have a light-colored surface layer and are calcareous at or near the surface. Holder soils have a thicker subsoil than that of the Uly soil. They are in landscape positions similar to those of the Uly soil.

Map Unit Composition

Uly: 90 percent
Minor components: 10 percent

Component Descriptions

Uly

MLRA: 75—Central Loess Plains
Landform: Hillslopes on interfluves in the uplands
Parent material: Fine-silty calcareous loess
Slope: 3 to 6 percent
Drainage class: Well drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: High (about 11.1 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Medium
Ecological site: Silty; Veg. Zone 3
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 5 inches; silt loam
Bw—5 to 16 inches; silt loam
C1—16 to 42 inches; silt loam
C2—42 to 80 inches; silt loam

Minor components

Coly
Extent within map unit: About 7 percent
Landform: Hillslopes on interfluves in the uplands
Slope: 3 to 6 percent
Drainage class: Well drained

Holder
Extent within map unit: About 3 percent
Landform: Hillslopes in the uplands
Slope: 3 to 6 percent
Drainage class: Well drained

General Considerations

• Most areas of this map unit are used for the production of corn. Smaller areas are used for the production of alfalfa or soybeans. Nearly all of the cropland is irrigated. Some small areas support grass and are used as pasture for grazing by livestock.

7439—Uly, eroded-Coly silt loams, 11 to 17 percent slopes

This map unit occurs on the upper side slopes of moderately steep or steep hillsides and ridges in the uplands. The associated Holdrege soils are on the lower slopes. They are less sloping than the major soils and have a thicker subsoil, which may be exposed at the surface by erosion.

Map Unit Composition

Uly: 70 percent
Coly: 25 percent
Minor components: 5 percent

Component Descriptions

Uly

MLRA: 75—Central Loess Plains
Landform: Ridges and hillslopes in the uplands
Parent material: Fine-silty calcareous loess
Slope: 11 to 17 percent
Drainage class: Well drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: High (about 11.3 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Medium
Ecological site: Silty; Veg. Zone 3
Land capability (irrigated): 6e
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 8 inches; silt loam
Bw—8 to 16 inches; silt loam
C1—16 to 35 inches; silt loam
C2—35 to 80 inches; silt loam

Coly

MLRA: 75—Central Loess Plains
Landform: Ridges and hillslopes in the uplands
Parent material: Fine-silty calcareous loess
Slope: 11 to 17 percent
Drainage class: Well drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: Very high (about 17.4 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Medium
Ecological site: Limy Upland; Veg. Zone 3
Land capability (irrigated): 6e
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 4 inches; silt loam
AC—4 to 9 inches; silt loam
C1—9 to 39 inches; silt loam
C2—39 to 80 inches; silt loam

Minor components

Holdrege
Extent within map unit: About 5 percent
Landform: Hillslopes and ridges in the uplands
Slope: 3 to 6 percent
Drainage class: Well drained

General Considerations

• This map unit is equally divided into areas of cropland and native grass. Native grass areas are used for grazing by livestock. Cropland areas are used for the production of corn. Some areas are used for the production of alfalfa. Most cultivated areas have center-pivot irrigation systems.

7440—Uly, eroded-Hobbs silt loams, 2 to 40 percent slopes

This map unit occurs on the upper parts of drainageways in the uplands. The Hobbs soil is in narrow, flat-bottomed drainageways, and the Uly soil is on steep or very steep side slopes. The associated Coly soils are on the steepest part of the landscape. They have a thin, light-colored surface layer and are calcareous very near the surface.

Map Unit Composition

Uly: 65 percent
Hobbs: 20 percent
Minor components: 15 percent

Component Descriptions

Uly

MLRA: 75—Central Loess Plains
Landform: Hillslopes and ridges in the uplands
Parent material: Fine-silty calcareous loess
Slope: 8 to 17 percent
Drainage class: Well drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: High (about 11.1 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Medium
Ecological site: Silty; Veg. Zone 3
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 7 inches; silt loam
Bw—7 to 13 inches; silt loam
C1—13 to 24 inches; silt loam
C2—24 to 80 inches; silt loam

Hobbs

MLRA: 75—Central Loess Plains
Landform: Drainageways in the uplands
Parent material: Stratified silty alluvium

Slope: 0 to 4 percent
Drainage class: Well drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: Very high (about 12.2 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding frequency: Occasional
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Low
Ecological site: Silty Overflow; Veg. Zone 3
Land capability (nonirrigated): 5w

Typical profile:
A—0 to 12 inches; stratified silt loam
C1—12 to 21 inches; stratified silt loam
C2—21 to 35 inches; stratified silt loam
C3—35 to 59 inches; silt loam
C4—59 to 80 inches; stratified silt loam

Minor components

Coly
Extent within map unit: About 15 percent
Landform: Ridges and hillslopes in the uplands
Slope: 17 to 40 percent
Drainage class: Well drained

General Considerations

• Most areas of this map unit support native grass and are used for grazing by livestock.

7652—Valentine fine sand, 3 to 9 percent slopes

This map unit occurs as dunes on sand sheets extending out from and within sandhill areas.

Map Unit Composition

Valentine: 95 percent
Minor components: 5 percent

Component Descriptions

Valentine

MLRA: 65—Nebraska Sand Hills
Landform: Dunes on sand sheets in the sandhills
Parent material: Eolian sands
Slope: 3 to 9 percent
Drainage class: Excessively drained
Slowest permeability: Rapid (about 5.95 inches per hour)
Available water capacity: Low (about 3.5 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Very low
Ecological site: Sands; Veg. Zone 3
Land capability (irrigated): 4e
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 5 inches; fine sand
C1—5 to 19 inches; fine sand
C2—19 to 80 inches; fine sand

Minor components

Libory
Extent within map unit: About 5 percent
Landform: Hummocks on sand sheets on terraces in river valleys
Slope: 0 to 3 percent
Drainage class: Moderately well drained

General Considerations

• About half of the areas of this map unit are used as irrigated cropland. The major crops are corn, alfalfa, and soybeans. Other areas support native grass and are used for grazing by livestock.

7656—Valentine fine sand, rolling

This map unit occurs as rolling dunes of sandhills that were blown out of the Loup River Valley at some point in the geologic past. The dunes are probably of Holocene age. Slopes of less than 9 percent occur in small interdunal areas. The associated Thurman soils are in these concave areas. Concave, blown-out areas of bare sand are a minor component. These areas are predominantly devoid of vegetation and occur mainly in the more sloping convex positions. They commonly occur along fences or in other high traffic areas used by livestock.

Map Unit Composition

Valentine: 95 percent
Minor components: 5 percent

Component Descriptions

Valentine

MLRA: 65—Nebraska Sand Hills
Landform: Dunes in the sandhills
Parent material: Eolian sands
Slope: 9 to 24 percent
Drainage class: Excessively drained
Slowest permeability: Rapid (about 5.95 inches per hour)
Available water capacity: Low (about 3.5 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None

Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Very low
Ecological site: Sands; Veg. Zone 3
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 5 inches; fine sand
AC—5 to 12 inches; fine sand
C1—12 to 48 inches; fine sand
C2—48 to 80 inches; fine sand

Minor components

Thurman
Extent within map unit: About 4 percent
Landform: Interdunes in the sandhills
Slope: 0 to 6 percent
Drainage class: Somewhat excessively drained

Blown-out land
Extent within map unit: About 1 percent
Landform: Blowouts on dunes in the sandhills
Slope: 0 to 60 percent
Drainage class: Excessively drained

General Considerations

• A few areas of cropland have center-pivot irrigation systems. The major crops are corn, soybeans, and alfalfa. Nearly all areas support native grass and are used for grazing by livestock. The blown-out areas are predominantly devoid of vegetation and have little or no grazing potential.

7659—Valentine fine sand, rolling and hilly

This map unit occurs as rolling and hilly dunes of sandhills that were blown out of the Loup River Valley at some point in the geologic past. The dunes are probably of Holocene age. The depth to the contact of the underlying silty terrace of the Platte River exceeds 80 inches in virtually all areas. Blown-out areas of bare sand are included in areas of this map unit. These areas are predominantly devoid of vegetation and are most common in areas of the hilly Valentine soil.

Map Unit Composition

Valentine, rolling: 60 percent
Valentine, hilly: 38 percent
Minor components: 2 percent

Component Descriptions

Valentine, rolling

MLRA: 65—Nebraska Sand Hills
Landform: Dunes in the sandhills
Parent material: Eolian sands
Slope: 9 to 24 percent
Drainage class: Excessively drained
Slowest permeability: Rapid (about 5.95 inches per hour)
Available water capacity: Low (about 3.5 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Low
Ecological site: Sands; Veg. Zone 3
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 6 inches; fine sand
AC—6 to 16 inches; fine sand
C1—16 to 31 inches; fine sand
C2—31 to 80 inches; fine sand

Valentine, hilly

MLRA: 65—Nebraska Sand Hills
Landform: Dunes in the sandhills
Parent material: Eolian sands
Slope: 24 to 45 percent
Drainage class: Excessively drained
Slowest permeability: Rapid (about 5.95 inches per hour)
Available water capacity: Low (about 3.5 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Low
Ecological site: Choppy Sands; Veg. Zone 3
Land capability (nonirrigated): 7e
Note: The hilly component is best identified by that portion of the dune covered with terracettes, commonly referred to as "catsteps." They begin to form where the slope is approximately 24 percent. Catsteps become more pronounced with increasing slope. Included with the hilly Valentine soil are a few areas that have slopes of 60 percent or more. These areas are partially tree covered and are a mixture of Valentine soils and coarse-loamy deep soils or two-storied soils, or both, that have eolian sand deposited over residual loamy or silty material.

Typical profile:
A—0 to 7 inches; fine sand
C1—7 to 12 inches; fine sand
C2—12 to 80 inches; fine sand

Minor components

Blown-out land
Extent within map unit: About 2 percent

Landform: Blowouts on dunes in the sandhills
Slope: 0 to 60 percent
Drainage class: Excessively drained

General Considerations

• Nearly all areas of this map unit support native grass and are used for grazing by livestock. The blown-out areas are devoid of vegetation and have little or no grazing potential.

7662—Valentine loamy fine sand, 3 to 9 percent slopes

This map unit occurs in gently sloping to strongly sloping sandhill areas adjacent to the terrace on the south side of the Platte River Valley. Associated with the Valentine soil are Hersh, Gates, and Coly soils. The silty Coly and Gates soils are in strongly sloping areas. The loamy Hersh soils are in gently sloping areas.

Map Unit Composition

Valentine: 90 percent
Minor components: 10 percent

Component Descriptions

Valentine

MLRA: 65—Nebraska Sand Hills
Landform: Dunes in the sandhills
Parent material: Eolian sands
Slope: 3 to 9 percent
Drainage class: Excessively drained
Slowest permeability: Rapid (about 5.95 inches per hour)
Available water capacity: Low (about 3.5 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Very low
Ecological site: Sands; Veg. Zone 3
Land capability (irrigated): 4e
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 4 inches; loamy fine sand
AC—4 to 7 inches; loamy fine sand
C1—7 to 40 inches; fine sand
C2—40 to 60 inches; fine sand
C3—60 to 80 inches; fine sand

Minor components

Hersh
Extent within map unit: About 5 percent
Landform: Hummocks on interfluves in the uplands
Slope: 0 to 6 percent
Drainage class: Well drained

Gates
Extent within map unit: About 3 percent
Slope: 3 to 6 percent
Drainage class: Well drained

Coly
Extent within map unit: About 2 percent
Slope: 6 to 11 percent
Drainage class: Well drained

General Considerations

• Approximately 75 percent of the acreage of this map unit is cultivated. The majority of the cultivated acreage is used for the production of corn. Some areas are used for the production of alfalfa. Most of the cropland areas have center-pivot irrigation systems. Areas that are not cultivated support native grass and are used for grazing by livestock.

7664—Valentine loamy fine sand, rolling

This map unit occurs in rolling sandhill areas adjacent to the terrace on the south side of the Platte River Valley. Associated with the Valentine soil are Hersh, Gates, and Coly soils. The silty Coly and Gates soils are in strongly sloping areas. The loamy Hersh soils are in gently sloping areas.

Map Unit Composition

Valentine: 90 percent
Minor components: 10 percent

Component Descriptions

Valentine

MLRA: 65—Nebraska Sand Hills
Landform: Dunes in the sandhills
Parent material: Eolian sands
Slope: 9 to 24 percent
Drainage class: Excessively drained
Slowest permeability: Rapid (about 5.95 inches per hour)
Available water capacity: Low (about 3.5 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Very low
Ecological site: Sands; Veg. Zone 3
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 6 inches; fine sand
AC—6 to 16 inches; fine sand
C1—16 to 31 inches; fine sand
C2—31 to 80 inches; fine sand

Minor components

Hersh
Extent within map unit: About 5 percent
Landform: Hummocks on interfluves in the uplands
Slope: 0 to 6 percent
Drainage class: Well drained

Gates
Extent within map unit: About 3 percent
Slope: 3 to 6 percent
Drainage class: Well drained

Coly
Extent within map unit: About 2 percent
Slope: 6 to 11 percent
Drainage class: Well drained

General Considerations

• Most areas of this map unit support grass and are used for grazing by livestock. Some areas are cultivated and are used for the production of corn. Most cultivated areas have center-pivot irrigation systems.

7669—Valentine loamy fine sand, loamy substratum, 0 to 3 percent slopes

This map unit occurs on sand sheets extending out from sandhill areas onto terraces of the Platte River Valley. The loamy and silty sediments of these underlying terraces are typically contacted within a depth of 40 to 80 inches. The associated Boelus, Thurman, and Ortello soils are in positions similar to those of the Valentine soil. Boelus soils are eolian sands 20 to 40 inches thick over the loamy buried terrace soil. Ortello soils are coarse-loamy to a depth of more than 40 inches over the silty (or fine-loamy) contact with the underlying terrace soil. Thurman soils have a dark surface layer of fine sandy loam more than 10 inches thick. There are various textures within the buried terrace soils of Thurman soils, and this contact commonly occurs below a depth of 60 inches.

Map Unit Composition

Valentine: 80 percent
Minor components: 20 percent

Component Descriptions

Valentine

MLRA: 65—Nebraska Sand Hills
Landform: Sand sheets on terraces in river valleys
Parent material: Eolian sands
Slope: 0 to 3 percent
Drainage class: Excessively drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: Low (about 4.3 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Negligible
Ecological site: Sands; Veg. Zone 3
Land capability (irrigated): 4e
Land capability (nonirrigated): 6e

Typical profile:
Ap—0 to 5 inches; loamy fine sand
AC—5 to 8 inches; loamy fine sand
C1—8 to 22 inches; fine sand
C2—22 to 56 inches; stratified fine sand to loamy coarse sand to sand
2Ab—56 to 70 inches; clay loam
2Cb—70 to 80 inches; sandy loam

Minor components

Boelus
Extent within map unit: About 10 percent
Landform: Sand sheets on terraces in river valleys
Slope: 0 to 3 percent
Drainage class: Well drained

Thurman
Extent within map unit: About 8 percent
Landform: Sand sheets on terraces in river valleys
Slope: 0 to 3 percent
Drainage class: Somewhat excessively drained

Ortello
Extent within map unit: About 2 percent
Landform: Terraces in river valleys
Slope: 0 to 3 percent
Drainage class: Well drained

General Considerations

• Most areas of this map unit are used as irrigated cropland. The major crops are corn, soybeans, and alfalfa. A few areas support native grass and are used for grazing by livestock.

7721—Valentine-Libory complex, 0 to 9 percent slopes

This map unit occurs as hummocky sand sheets extending out from and within sandhill areas. The Valentine soil occurs on low dunes. The Libory soil occurs on hummocks and in swales below the Valentine soil on the landscape. The hummocks and swales typically have contact with the underlying silty terrace of the Platte River within a depth of 1 meter. Water perches at or above this contact for some time in most years. The associated Rusco soils are in small closed depressions within the swales and are ponded for brief periods after heavy rainfall and for slightly longer periods during very wet climatic cycles.

Map Unit Composition

Valentine: 60 percent
Libory: 35 percent
Minor components: 5 percent

Component Descriptions

Valentine

MLRA: 65—Nebraska Sand Hills
Landform: Dunes on sand sheets in the sandhills
Parent material: Eolian sands
Slope: 0 to 9 percent
Drainage class: Excessively drained
Slowest permeability: Rapid (about 5.95 inches per hour)
Available water capacity: Low (about 3.5 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Very low
Ecological site: Sands; Veg. Zone 3
Land capability (irrigated): 4e
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 4 inches; fine sand
AC—4 to 8 inches; fine sand
C1—8 to 16 inches; fine sand
C2—16 to 80 inches; fine sand

Libory

MLRA: 65—Nebraska Sand Hills
Landform: Swales and hummocks on sand sheets in the sandhills
Parent material: Eolian sands over silty alluvium
Slope: 0 to 3 percent
Drainage class: Moderately well drained
Slowest permeability: Moderately slow (about 0.20 inch per hour)
Available water capacity: Moderate (about 7.9 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: About 11 to 36 inches
Surface runoff class: Medium
Ecological site: Subirrigated; Veg. Zone 3
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
A1—0 to 6 inches; loamy fine sand
A2—6 to 11 inches; loamy fine sand
Bw1—11 to 28 inches; loamy fine sand
Bw2—28 to 38 inches; loamy fine sand
2Bw3—38 to 46 inches; silty clay loam
2BC—46 to 62 inches; silty clay loam
2C—62 to 80 inches; silt loam

Minor components

Rusco
Extent within map unit: About 5 percent
Landform: Depressions on sand sheets on terraces in river valleys
Slope: 0 to 1 percent
Drainage class: Moderately well drained

General Considerations

• Nearly half of the areas of this map unit are used as irrigated cropland. The major crops are corn, alfalfa, and soybeans. Other areas support native grass and are used for grazing by livestock.
• Crop failures occur during extended wet climatic cycles in the small depressional areas of the Rusco soils as a result of ponding.

7748—Valentine-Tryon, silty substratum, complex, 0 to 9 percent slopes

This map unit occurs as hummocky sand sheets extending out from and within sandhill areas. The Valentine soil occurs on dunes. The Tryon soil is in low swales. The associated Libory soils are on hummocks or in high swales. They are moderately well drained. The associated Marlake soils are in closed depressions in swales and are ponded for very long periods. The hummocks and swales typically have contact with the underlying silty terrace of the Platte River within a depth of 1 to 2 meters. A seasonal high water table is associated with the hummocks and swales. During extended wet climatic cycles (for example, the years 1900 through 1915 and 1984 to 2004), the Tryon and Marlake soils are saturated to the surface and occasionally are ponded for long and very long periods, respectively.

Map Unit Composition

Valentine: 65 percent
Tryon: 25 percent
Minor components: 10 percent

Component Descriptions

Valentine

MLRA: 65—Nebraska Sand Hills
Landform: Dunes on sand sheets in the sandhills
Parent material: Eolian sands
Slope: 3 to 9 percent
Drainage class: Excessively drained
Slowest permeability: Rapid (about 5.95 inches per hour)
Available water capacity: Low (about 3.5 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Very low
Ecological site: Sands; Veg. Zone 3
Land capability (irrigated): 4e
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 4 inches; fine sand
C1—4 to 16 inches; fine sand
C2—16 to 80 inches; fine sand

Tryon

MLRA: 65—Nebraska Sand Hills
Landform: Swales on sand sheets in the sandhills
Parent material: Sandy eolian deposits over sandy alluvium
Slope: 0 to 2 percent
Drainage class: Very poorly drained
Slowest permeability: Moderately slow (about 0.20 inch per hour)
Available water capacity: Moderate (about 6.4 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: None
Ponding frequency: Occasional
Depth to seasonal zone of saturation: 0 to 12 inches
Surface runoff class: Negligible
Ecological site: Wetland; Veg. Zone 3
Land capability (nonirrigated): 5w

Typical profile:
A—0 to 7 inches; loamy fine sand
ACg—7 to 12 inches; loamy fine sand
Cg1—12 to 44 inches; fine sand
2Cg2—44 to 80 inches; silty clay loam

Minor components

Libory
Extent within map unit: About 5 percent
Landform: Hummocks on sand sheets on terraces in river valleys
Slope: 0 to 3 percent
Drainage class: Moderately well drained

Marlake
Extent within map unit: About 5 percent
Landform: Depressions on sand sheets on terraces in river valleys
Slope: 0 to 1 percent
Drainage class: Very poorly drained

General Considerations

- Nearly half of the areas of this map unit are used as irrigated cropland. The major crops are corn, alfalfa, and soybeans. Other areas support native grass and are used for grazing by livestock.
- Crop failures occur during extended wet climatic cycles in areas of the Tryon soil as a result of excessive soil wetness and ponding.

7924—Wann loam, 0 to 1 percent slopes, rarely flooded

This map unit occurs on low valley flats. The Wann soil occurs at about the same level or slightly higher on the landscape than the associated Gibbon, Lex, and Lamo soils.

Map Unit Composition

Wann: 90 percent
Minor components: 10 percent

Component Descriptions

Wann

MLRA: 71—Central Nebraska Loess Hills
Landform: Valley flats on flood plains in river valleys
Parent material: Calcareous loamy alluvium
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained
Slowest permeability: Moderate (about 0.60 inch per hour)
Available water capacity: Moderate (about 8.3 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding frequency: Rare
Depth to seasonal zone of saturation: About 18 to 42 inches

Surface runoff class: Low
Ecological site: Subirrigated; Veg. Zone 3
Land capability (irrigated): 2w
Land capability (nonirrigated): 2w
Note: Alkali salts tend to accumulate in areas where surface drainage is impeded.

Typical profile:
Ap—0 to 8 inches; loam
C1—8 to 12 inches; fine sandy loam
C2—12 to 15 inches; loamy fine sand
C3—15 to 26 inches; loam
C4—26 to 39 inches; sandy loam
C5—39 to 46 inches; loamy sand
Cg1—46 to 61 inches; stratified very fine sandy loam to loamy sand
2Cg2—61 to 80 inches; stratified coarse sand to very fine sandy loam to sand

Minor components

Gibbon
Extent within map unit: About 4 percent
Landform: Flood plains in river valleys
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained

Lamo
Extent within map unit: About 3 percent
Landform: Flood plains in river valleys
Slope: 0 to 1 percent
Drainage class: Poorly drained

Lex
Extent within map unit: About 3 percent
Landform: Flood plains in river valleys
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained

General Considerations

• Most areas of this map unit are used as irrigated cropland. A few areas are used as rangeland.

7927—Wann sandy loam, 0 to 2 percent slopes, rarely flooded

This map unit occurs on low valley flats. The Wann soil occurs slightly below the associated Darr and Inavale soils on the landscape and at about the same level or slightly higher on the landscape than the associated Gibbon and Lamo soils.

Map Unit Composition

Wann: 90 percent
Minor components: 10 percent

Component Descriptions

Wann

MLRA: 71—Central Nebraska Loess Hills
Landform: Valley flats on flood plains in river valleys
Parent material: Calcareous loamy alluvium
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained
Slowest permeability: Moderately rapid (about 2.00 inches per hour)
Available water capacity: Moderate (about 6.7 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding frequency: Rare
Depth to seasonal zone of saturation: About 18 to 42 inches
Surface runoff class: Negligible
Ecological site: Subirrigated; Veg. Zone 3
Land capability (irrigated): 2w
Land capability (nonirrigated): 2w

Typical profile:
A—0 to 12 inches; sandy loam
C—12 to 24 inches; loamy fine sand
Ab—24 to 31 inches; sandy loam
Cb—31 to 54 inches; sandy loam
2Cgb—54 to 80 inches; gravelly coarse sand

Minor components

Inavale
Extent within map unit: About 5 percent
Landform: Flood plains in river valleys
Slope: 0 to 3 percent
Drainage class: Excessively drained

Darr
Extent within map unit: About 3 percent
Landform: Valley flats on flood plains in river valleys
Slope: 0 to 2 percent
Drainage class: Somewhat excessively drained

Gibbon
Extent within map unit: About 1 percent
Landform: Flood plains in river valleys
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained

Lamo
Extent within map unit: About 1 percent
Landform: Flood plains in river valleys
Slope: 0 to 1 percent
Drainage class: Poorly drained

General Considerations

• Most areas of this map unit are used as irrigated cropland. A few areas are used as rangeland.

8020—Wood River silt loam, 0 to 1 percent slopes

This map unit occurs on terraces on the north side of the Platte River. The Wood River soil is in some of the lowest positions on these terraces. The associated Hall soils have less clay in the subsoil than the Wood River soil and are less alkaline in the lower part. The associated Silver Creek soils are slightly lower on the landscape than the Wood River soil. They have a water table within the profile. They are more alkaline in the subsurface layer and the upper part of the subsoil than the Wood River soil.

Map Unit Composition

Wood River: 85 percent
Minor components: 15 percent

Component Descriptions

Wood River

MLRA: 71—Central Nebraska Loess Hills
Landform: Flats on terraces in river valleys
Parent material: Silty alluvium
Slope: 0 to 1 percent
Drainage class: Moderately well drained
Slowest permeability: Slow (about 0.06 inch per hour)
Available water capacity: High (about 10.2 inches)
Shrink-swell potential: High (about 7.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Medium
Ecological site: Saline Lowland; Veg. Zone 3
Land capability (irrigated): 3s
Land capability (nonirrigated): 4s

Typical profile:
Ap—0 to 7 inches; silt loam
A—7 to 13 inches; silt loam
Bt1—13 to 19 inches; silty clay loam
Bt2—19 to 29 inches; silty clay loam
Btkn—29 to 36 inches; silty clay loam
BCk—36 to 56 inches; clay loam
2C—56 to 80 inches; stratified coarse sand to gravelly coarse sand

Minor components

Hall
Extent within map unit: About 8 percent
Landform: Terraces in river valleys
Slope: 0 to 1 percent
Drainage class: Well drained

Silver Creek
Extent within map unit: About 7 percent
Landform: Swales on terraces in river valleys
Slope: 0 to 1 percent
Drainage class: Poorly drained

General Considerations

• This map unit is used primarily for the production of corn. Other major crops include alfalfa and soybeans. Most cultivated areas are irrigated. A few small areas support native grasses and are used for grazing by livestock.

8022—Wood River-Silver Creek fine sandy loams, 0 to 2 percent slopes

This map unit occurs on terraces on the north side of the Platte River where thin sand sheets extend out from sandhill areas. The Wood River soil is very slightly higher on the landscape than the Silver Creek soil. The associated Libory and Ovina soils are on the slightly thicker, convex, sand sheets.

Map Unit Composition

Wood River: 65 percent
Silver Creek: 20 percent
Minor components: 15 percent

Component Descriptions

Wood River

MLRA: 71—Central Nebraska Loess Hills
Landform: Flats on terraces in river valleys
Parent material: Silty alluvium
Slope: 0 to 2 percent
Drainage class: Moderately well drained
Slowest permeability: Slow (about 0.06 inch per hour)
Available water capacity: High (about 10.5 inches)
Shrink-swell potential: High (about 7.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: About 60 to 72 inches
Surface runoff class: Medium
Ecological site: Saline Lowland; Veg. Zone 3
Land capability (irrigated): 3s
Land capability (nonirrigated): 4s

Typical profile:
Ap—0 to 8 inches; fine sandy loam
A—8 to 15 inches; fine sandy loam

2Bt1—15 to 20 inches; silty clay loam
2Bt2—20 to 25 inches; silty clay loam
2Btn—25 to 30 inches; silty clay loam
2Btkn—30 to 37 inches; silty clay loam
2BCk—37 to 46 inches; silty clay loam
2C1—46 to 84 inches; silt loam
3C2—84 to 85 inches; loamy sand

Silver Creek

MLRA: 71—Central Nebraska Loess Hills
Landform: Swales on terraces in river valleys
Parent material: Silty alluvium
Slope: 0 to 1 percent
Drainage class: Poorly drained
Slowest permeability: Slow (about 0.06 inch per hour)
Available water capacity: High (about 10.6 inches)
Shrink-swell potential: High (about 7.5 LEP)
Flooding frequency: Rare
Ponding frequency: Occasional
Seasonal zone of saturation: At the surface
Surface runoff class: Medium
Ecological site: Saline Lowland; Veg. Zone 3
Land capability (irrigated): 4s
Land capability (nonirrigated): 4s

Typical profile:
Ap—0 to 6 inches; fine sandy loam
A—6 to 11 inches; fine sandy loam
2Btn—11 to 16 inches; silty clay loam
2Btkn1—16 to 30 inches; silty clay loam
2Btkn2—30 to 40 inches; silty clay loam
2C—40 to 58 inches; silt loam
2Cg1—58 to 65 inches; silt loam
3Cg2—65 to 80 inches; loamy sand

Minor components

Ovina
Extent within map unit: About 7 percent
Landform: Flats on terraces in river valleys
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained

Silver Creek, alkali
Extent within map unit: About 5 percent
Landform: Swales on sand sheets on terraces in river valleys
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained

Libory
Extent within map unit: About 3 percent
Landform: Sand sheets on terraces in river valleys
Slope: 0 to 2 percent
Drainage class: Moderately well drained

General Considerations

• This map unit is used primarily for the production of corn. Other major crops include alfalfa and soybeans. Most cultivated areas are irrigated. Some areas support native grasses and are used for grazing by livestock.

8023—Wood River-Silver Creek silt loams, 0 to 1 percent slopes

This map unit occurs on terraces on the north side of the Platte River. It is in some of the lowest positions on these terraces. The Wood River soil is slightly higher on the landscape than the Silver Creek soil. The associated Hall soils have a less clayey subsoil than that of the Wood River soil and are less alkaline in the lower part.

Map Unit Composition

Wood River: 55 percent
Silver Creek: 40 percent
Minor components: 5 percent

Component Descriptions

Wood River

MLRA: 71—Central Nebraska Loess Hills
Landform: Flats on terraces in river valleys
Parent material: Silty alluvium
Slope: 0 to 1 percent
Drainage class: Moderately well drained
Slowest permeability: Slow (about 0.06 inch per hour)
Available water capacity: High (about 10.5 inches)
Shrink-swell potential: High (about 7.5 LEP)
Flooding hazard: None
Depth to seasonal zone of saturation: More than 6 feet
Surface runoff class: Medium
Ecological site: Saline Lowland; Veg. Zone 3
Land capability (irrigated): 3s
Land capability (nonirrigated): 4s

Typical profile:
Ap—0 to 6 inches; silt loam
BA—6 to 12 inches; silty clay loam
Bt—12 to 20 inches; silty clay loam
Btk—20 to 36 inches; silty clay loam
Btkn—36 to 50 inches; silty clay loam
BCk—50 to 60 inches; clay loam
2C—60 to 80 inches; coarse sand

Silver Creek

MLRA: 71—Central Nebraska Loess Hills
Landform: Swales on terraces in river valleys

Parent material: Silty alluvium
Slope: 0 to 1 percent
Drainage class: Poorly drained
Slowest permeability: Very slow
Available water capacity: High (about 9.2 inches)
Shrink-swell potential: High (about 7.5 LEP)
Flooding frequency: Rare
Depth to seasonal zone of saturation: About 24 to 48 inches
Surface runoff class: High
Ecological site: Saline Lowland; Veg. Zone 3
Land capability (irrigated): 4s
Land capability (nonirrigated): 4s

Typical profile:
Ap—0 to 8 inches; silt loam
BAk—8 to 14 inches; silty clay loam
Btkn1—14 to 18 inches; silty clay
Btkn2—18 to 30 inches; silty clay
Btkn3—30 to 41 inches; silty clay
Ab—41 to 48 inches; silty clay
Bwb—48 to 59 inches; clay loam
2Cb—59 to 64 inches; stratified fine sandy loam to loamy sand to loam
3Cgb—64 to 80 inches; gravelly coarse sand

Minor components

Hall
Extent within map unit: About 5 percent
Landform: Terraces in river valleys
Slope: 0 to 1 percent
Drainage class: Well drained

General Considerations

• This map unit is used primarily for the production of corn. Other major crops include alfalfa and soybeans. Most cultivated areas are irrigated. A few small areas support native grasses and are used for grazing by livestock.

9975—Sanitary landfill

Component Description

This map unit consists of accumulated waste products of human habitation, either above or below the natural ground level. The unit is poorly suited to use as cropland or as a site for engineering practices.

9985—Gravel pits

Component Description

This map unit consists of areas from which gravel has been removed for construction purposes.

9995—Miscellaneous water, sewage lagoons

Component Description

This map unit consists of bodies of water constructed for sewage lagoons, industrial waste ponds, or other miscellaneous uses.

9998—Water

Component Description

This map unit includes streams, lakes, ponds, and estuaries. These areas are covered with water in most years, at least during the period that is warm enough for plants to grow. Many areas are covered with water throughout the year.

Prime Farmland

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

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

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

The map units in the survey area that are considered prime farmland are listed in table 5. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps. The soil qualities that affect use and management are described under the heading "Detailed Soil Map Units."

Use and Management of the Soils

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

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

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

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

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

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

Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various uses. Many of the tables identify the limitations that affect specified uses and indicate the severity of those limitations.

Rating Class Terms

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

Crops and Pasture

General management needed for crops and pasture is suggested in this section. The estimated yields of the main crops and pasture plants are listed and the system of land capability classification used by the Natural Resources Conservation Service is explained.

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

Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 6. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of map units in the survey area also is shown in the table.

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

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

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

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

Crops other than those shown in table 6 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification (USDA, 1961) shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland or for engineering purposes.

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

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

Class 1 soils have slight limitations that restrict their use.

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

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

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

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

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

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

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

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, 2e. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c,* used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

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

Capability units are soil groups within a subclass. The soils in a capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity. Capability units are generally designated by adding an Arabic numeral to the subclass symbol, for example, 2e-4 and 3e-6. These units are not given in all soil surveys.

The capability classification of map units in this survey area is given in the section "Detailed Soil Map Units" and in the yields table.

Rangeland

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

Table 7 shows, for each soil that supports vegetation suitable for grazing, the ecological site; the total annual production of vegetation in favorable, normal, and unfavorable years; the characteristic vegetation; and the average percentage of each species. An explanation of the column headings in table 7 follows.

An *ecological site* is the product of all the environmental factors responsible for its development. It has characteristic soils that have developed over time throughout the soil development process; a characteristic hydrology, particularly infiltration and runoff, that has developed over time; and a characteristic plant community (kind and amount of vegetation). The hydrology of the site is influenced by development of the soil and plant community. The vegetation, soils, and hydrology are all interrelated. Each is influenced by the others and influences the development of the others. The plant community on an ecological site is typified by an association of species that differs from that of other ecological sites in the kind and/or proportion of species or in total production. Descriptions of ecological sites are provided in the Field Office Technical Guide, which is available in local offices of the Natural Resources Conservation Service.

Total dry-weight production is the amount of vegetation that can be expected to grow annually in a well managed area that is supporting the potential natural plant community. It includes all vegetation, whether or not it is palatable to grazing animals. It includes the current year's growth of leaves, twigs, and fruits of woody plants. It does not include the increase in stem diameter of trees and shrubs. It is expressed in pounds per acre of air-dry vegetation for favorable, normal, and unfavorable years. In a favorable year, the amount and distribution of precipitation and the temperatures make growing conditions substantially better than average. In a normal year, growing conditions are about average. In an unfavorable year, growing conditions are well below average, generally because of low available soil moisture. Yields are adjusted to a common percent of air-dry moisture content.

Characteristic vegetation—the grasses, forbs, and shrubs that make up most of the potential natural plant community on each soil—is listed by common name. Under *rangeland composition*, the expected percentage of the total annual production is given for each species making up the characteristic vegetation. The amount that can be used as forage depends on the kinds of grazing animals and on the grazing season.

Range management requires a knowledge of the kinds of soil and of the potential natural plant community. It also requires an evaluation of the present range similarity index and rangeland trend. Range similarity index is determined by comparing the present plant community with the potential natural plant community on a particular rangeland ecological site. The more closely the existing community resembles the potential community, the higher the range similarity index. Rangeland trend is defined as the direction of change in an existing plant community relative to the potential natural plant community. Further information about the range similarity index and rangeland trend is available on the Internet in chapter 4 of the "National Range and Pasture Handbook."

The objective in range management is to control grazing so that the plants growing on a site are about the same in kind and amount as the potential natural plant community for that site. Such management generally results in the optimum production of vegetation, control of undesirable brush species, conservation of water, and control of erosion. Sometimes, however, an area with a range similarity index somewhat below the potential meets grazing needs, provides wildlife habitat, and protects soil and water resources.

Windbreaks and Environmental Plantings

Windbreaks protect livestock, buildings, yards, fruit trees, gardens, and cropland from wind and snow; help to keep snow on fields; and provide food and cover for wildlife. Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To ensure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition.

Table 8 shows the height that locally grown trees and shrubs are expected to reach in 20 years on various soils. The estimates in table 8 are based on measurements and observation of established plantings that have been given adequate care. They can be used as a guide in planning windbreaks and screens. Additional information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from the local office of the Natural Resources Conservation Service or of the Cooperative Extension Service or from a commercial nursery.

Recreation

The soils of the survey area are rated in table 9 according to limitations that affect their suitability for recreation. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the recreational uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

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

The information in table 9 can be supplemented by other information in this survey, for example, interpretations for agricultural waste, building site development, construction materials, sanitary facilities, and water management.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a cemented pan are the main concerns affecting the development of camp areas. The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

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

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

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

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

Wildlife Habitat

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

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

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

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

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

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture also are considerations. Examples of grasses and legumes are fescue, reed canarygrass, smooth bromegrass, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of wild herbaceous plants are bluestem, goldenrod, sunflowers, smart weed, giant ragweed, and foxtail.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness.

Examples of these plants are oak, cottonwood, chokecherry, wild plum, gooseberry, black walnut, and mulberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are Russian-olive, autumn-olive, and skunkbush sumac.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, cedar, and juniper.

Shrubs are bushy woody plants that produce fruit, buds, twigs, bark, and foliage. Soil properties and features that affect the growth of shrubs are depth of the root zone, available water capacity, salinity, and soil moisture. Examples of shrubs are American plum, chokecherry, buckbrush, and sumac.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, reed canarygrass, cordgrass, rushes, sedges, and cattails.

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

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

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas include bobwhite quail, pheasant, meadowlark, field sparrow, cottontail, mourning dove, killdeer, and coyote.

Habitat for woodland wildlife consists of areas of deciduous and/or coniferous plants and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, song birds, woodpeckers, squirrels, opossum, raccoon, whitetail deer, and skunks.

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

Habitat for rangeland wildlife consists of areas of shrubs and wild herbaceous plants. Wildlife attracted to rangeland include whitetail deer, coyote, and meadowlark.

Engineering

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

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

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

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

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

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

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

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

Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Table 11 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping.

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

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

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

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

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

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

Sanitary Facilities

Table 12 shows the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill. 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.

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

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

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

A *trench sanitary landfill* is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a cemented pan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

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

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

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

In an *area sanitary landfill*, solid waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, depth to a water table, ponding, slope, and depth to bedrock or a cemented pan.

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

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

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

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

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.

Agricultural Waste Management

Soil properties are important considerations in areas where soils are used as sites for the treatment and disposal of organic waste and wastewater. Selection of soils with properties that favor waste management can help to prevent environmental damage.

Table 13 shows the degree and kind of soil limitations affecting the treatment of agricultural waste, including municipal and food-processing wastewater and effluent from lagoons or storage ponds. Municipal wastewater is the waste stream from a municipality. It contains domestic waste and may contain industrial waste. It may have received primary or secondary treatment. It is rarely untreated sewage. Food-processing wastewater results from the preparation of fruits, vegetables, milk, cheese, and meats for public consumption. In places it is high in content of sodium and chloride. In the context of these tables, the effluent in lagoons and storage ponds is from facilities used to treat or store food-processing wastewater or domestic or animal waste. Domestic and food-processing wastewater is very dilute, and the effluent from the facilities that treat or store it commonly is very low in content of carbonaceous and nitrogenous material; the content of nitrogen commonly ranges from 10 to 30 milligrams per liter. The wastewater from animal waste treatment lagoons or storage ponds, however, has much higher concentrations of these materials, mainly because the manure has not been diluted as much as the domestic waste. The content of nitrogen in this wastewater generally ranges from 50 to 2,000 milligrams per liter. When wastewater is applied, checks should be made to ensure that nitrogen, heavy metals, and salts are not added in excessive amounts.

The ratings in the tables are for waste management systems that not only dispose of and treat organic waste or wastewater but also are beneficial to crops (application of manure and food-processing waste, application of sewage sludge, and disposal of wastewater by irrigation) and for waste management systems that are designed only for the purpose of wastewater disposal and treatment (overland flow of wastewater, rapid infiltration of wastewater, and slow rate treatment of wastewater).

Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect agricultural waste management. *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.

Application of manure and food-processing waste not only disposes of waste material but also can improve crop production by increasing the supply of nutrients in the soils where the material is applied. Manure is the excrement of livestock and poultry, and food-processing waste is damaged fruit and vegetables and the peelings, stems, leaves, pits, and soil particles removed in food preparation. The manure and food-processing waste are either solid, slurry, or liquid. Their nitrogen content varies. A high content of nitrogen limits the application rate. Toxic or otherwise dangerous wastes, such as those mixed with the lye used in food processing, are not considered in the ratings.

The ratings are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the waste is applied, and the method by which the waste is applied. The properties that affect absorption include permeability, depth to a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, and available water capacity. The properties that affect plant growth and microbial activity include reaction, the sodium adsorption ratio, salinity, and bulk density. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood that wind erosion or water erosion will transport the waste material from the application site. Stones, cobbles, a water table, ponding, and flooding can hinder the application of waste. Permanently frozen soils are unsuitable for waste treatment.

Application of sewage sludge not only disposes of waste material but also can improve crop production by increasing the supply of nutrients in the soils where the material is applied. In the context of this table, sewage sludge is the residual product of the treatment of municipal sewage. The solid component consists mainly of cell mass, primarily bacteria cells that developed during secondary treatment and have incorporated soluble organics into their own bodies. The sludge has small amounts of sand, silt, and other solid debris. The content of nitrogen varies. Some sludge has constituents that are toxic to plants or hazardous to the food chain, such as heavy metals and exotic organic compounds, and should be analyzed chemically prior to use.

The content of water in the sludge ranges from about 98 percent to less than 40 percent. The sludge is considered liquid if it is more than about 90 percent water, slurry if it is about 50 to 90 percent water, and solid if it is less than about 50 percent water.

The ratings in the table are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the sludge is applied, and the method by which the sludge is applied. The properties that affect absorption, plant growth, and microbial activity include permeability, depth to a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, available water capacity, reaction, salinity, and bulk density. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood that wind erosion or water erosion will transport the waste material from the application site. Stones, cobbles, a water table, ponding, and flooding can hinder the application of sludge. Permanently frozen soils are unsuitable for waste treatment.

Disposal of wastewater by irrigation not only disposes of municipal wastewater and wastewater from food-processing plants, lagoons, and storage ponds but also can improve crop production by increasing the amount of water available to crops. The ratings in the table are based on the soil properties that affect the design, construction, management, and performance of the irrigation system. The properties that affect design and management include the sodium adsorption ratio, depth to a water table, ponding, available water capacity, permeability, slope, and flooding. The properties that affect construction include stones, cobbles, depth to bedrock or a cemented pan, depth to a water table, and ponding. The properties that affect performance include depth to bedrock or a cemented pan, bulk density, the sodium adsorption ratio, salinity, reaction, and the cation-exchange capacity, which is used to estimate the capacity of a soil to adsorb heavy metals. Permanently frozen soils are not suitable for disposal of wastewater by irrigation.

Overland flow of wastewater is a process in which wastewater is applied to the upper reaches of sloped land and allowed to flow across vegetated surfaces, sometimes called terraces, to runoff-collection ditches. The length of the run generally is 150 to 300 feet. The application rate ranges from 2.5 to 16.0 inches per week. It commonly exceeds the rate needed for irrigation of cropland. The wastewater leaves solids and nutrients on the vegetated surfaces as it flows downslope in a thin film. Most of the water reaches the collection ditch, some is lost through evapotranspiration, and a small amount may percolate to the ground water.

The ratings in the table are based on the soil properties that affect absorption, plant growth, microbial activity, and the design and construction of the system. Reaction and the cation-exchange capacity affect absorption. Reaction, salinity, and the sodium adsorption ratio affect plant growth and microbial activity. Slope, permeability, depth to a water table, ponding, flooding, depth to bedrock or a cemented pan, stones, and cobbles affect design and construction. Permanently frozen soils are unsuitable for waste treatment.

Rapid infiltration of wastewater is a process in which wastewater applied in a level basin at a rate of 4 to 120 inches per week percolates through the soil. The wastewater may eventually reach the ground water. The application rate commonly exceeds the rate needed for irrigation of cropland. Vegetation is not a necessary part of the treatment; hence, the basins may or may not be vegetated. The thickness of the soil material needed for proper treatment of the wastewater is more than 72 inches. As a result, geologic and hydrologic investigation is needed to ensure proper design and performance and to determine the risk of ground-water pollution.

The ratings in the table are based on the soil properties that affect the risk of pollution and the design, construction, and performance of the system. Depth to a water table, ponding, flooding, and depth to bedrock or a cemented pan affect the risk of pollution and the design and construction of the system. Slope, stones, and cobbles also affect design and construction. Permeability and reaction affect performance. Permanently frozen soils are unsuitable for waste treatment.

Slow rate treatment of wastewater is a process in which wastewater is applied to land at a rate normally between 0.5 inch and 4.0 inches per week. The application rate commonly exceeds the rate needed for irrigation of cropland. The applied wastewater is treated as it moves through the soil. Much of the treated water may percolate to the ground water, and some enters the atmosphere through evapotranspiration. The applied water generally is not allowed to run off the surface. Waterlogging is prevented either through control of the application rate or through the use of tile drains, or both.

The ratings in the table are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, and the application of waste. The properties that affect absorption include the sodium adsorption ratio, depth to a water table, ponding, available water capacity, permeability, depth to bedrock or a cemented pan, reaction, the cation-exchange capacity, and slope. Reaction, the sodium adsorption ratio, salinity, and bulk density affect plant growth and microbial activity. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood of wind erosion or water erosion. Stones, cobbles, a water table, ponding, and flooding can hinder the application of waste. Permanently frozen soils are unsuitable for waste treatment.

Construction Materials

Tables 14a and 14b give information about the soils as potential sources of gravel, sand, topsoil, reclamation material, and roadfill. Normal compaction, minor processing, and other standard construction practices are assumed.

Gravel and *sand* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 14a, only the likelihood of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of gravel or sand are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the bottom layer of the soil contains sand or gravel, the soil is considered a likely source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness. The soils are rated *good, fair,* or *poor* as potential sources of sand and gravel. A rating of *good* or *fair* means that the source material is likely to be in or below the soil.

The soils are rated *good, fair,* or *poor* as potential sources of reclamation material, roadfill, and topsoil. The features that limit the soils as sources of these materials are specified in table 14b.

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

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

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

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

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

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

Water Management

Table 15 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. 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.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. Embankments that have zoned construction (core and shell) are not considered. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

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

Soil Properties

Data relating to soil properties are collected during the course of the soil survey.

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

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

The estimates of soil properties are shown in tables. They include engineering index properties, physical and chemical properties, and pertinent soil and water features.

Engineering Index Properties

Table 16 gives the engineering classifications and the range of index properties for the layers of each soil in the survey area.

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

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

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2001) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2000).

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

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

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

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

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

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

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

Physical Properties

Table 17 shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

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

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In table 17, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In table 17, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In table 17, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

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

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $^1/_3$- or $^1/_{10}$-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability (K_{sat}) refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity (K_{sat}). The estimates in the table indicate the rate of water movement, in inches per hour, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

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

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table

17, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

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

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

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

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

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

1. Coarse sands, sands, fine sands, and very fine sands.

2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, ash material, and sapric soil material.

3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams.

4L. Calcareous loams, silt loams, clay loams, and silty clay loams.

4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay.

5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material.

6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay.

7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material.

8. Soils that are not subject to wind erosion because of rock fragments on the surface or because of surface wetness.

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

Chemical Properties

Table 18 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

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

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

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

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

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 permeability and aeration, and a general degradation of soil structure.

Soil Features

Table 19 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

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

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

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

Water Features

Table 20 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

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

The four hydrologic soil groups are:

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

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

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

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

Soil saturation refers to a saturated zone in the soil. Table 20 indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. Table 20 indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

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

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

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

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

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff, 1998 and 1999). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 21 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol.* An example is Mollisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Ustoll (*Ust*, meaning intermittently dry, plus *oll*, from Mollisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Haplustolls (*Hapl*, meaning minimal horizonation, plus *ustoll*, the suborder of the Mollisols that has an ustic moisture regime).

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

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is coarse-silty, mixed, superactive, mesic Fluventic Haplustolls.

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

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the “Soil Survey Manual” (Soil Survey Division Staff, 1993). Many of the technical terms used in the descriptions are defined in “Soil Taxonomy” (Soil Survey Staff, 1999) and in “Keys to Soil Taxonomy” (Soil Survey Staff, 1998). Unless otherwise indicated, matrix colors in the descriptions are for dry soil. Following the pedon description is the range of important characteristics of the soils in the series.

Alda Series

The Alda series consists of very deep, somewhat poorly drained or moderately well drained soils that formed in 20 to 40 inches of stratified loamy alluvium over coarse sand or gravelly sand. These soils are on flood plains. They are moderately deep over coarse sand or gravelly sand. Permeability is moderately rapid in the upper part and very rapid in the lower part. Slopes range from 0 to 3 percent. The mean annual temperature is 51 degrees F, and the mean annual precipitation is 25 inches.

Typical Pedon

Alda fine sandy loam, in a cultivated field about 12 miles north and 2 miles east of Shelby, in Polk County, Nebraska; 1,600 feet north and 25 feet east of the southwest corner of sec. 12, T. 16 N., R. 1 W.; Columbus South USGS topographic quadrangle; lat. 41 degrees 22 minutes 14 seconds N. and long. 97 degrees 23 minutes 13 seconds W. When this pedon was described, the water table was at a depth of 60 inches.

Ap—0 to 8 inches; dark gray (10YR 4/1) fine sandy loam, very dark gray (10YR 3/1) moist; weak fine granular structure; soft, friable; many medium roots; neutral; abrupt smooth boundary.

A—8 to 11 inches; dark gray (10YR 4/1) fine sandy loam, very dark gray (10YR 3/1) moist; weak medium subangular blocky structure parting to weak fine granular; soft, very friable; common fine roots; neutral; clear wavy boundary.

AC—11 to 17 inches; grayish brown (10YR 5/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; soft, very friable; common fine roots; strong effervescence; moderately alkaline; clear wavy boundary.

C—17 to 29 inches; light brownish gray (10YR 6/2) fine sandy loam, dark grayish brown (10YR 4/2) moist; common fine distinct dark yellowish brown (10YR 4/4) iron stains in the matrix; weak fine subangular blocky structure; soft, very friable; few fine roots; fine strata of fine sand and coarse sand; strong effervescence; moderately alkaline; clear wavy boundary.

2Cg1—29 to 34 inches; light gray (10YR 7/2) coarse sand, light brownish gray (10YR 6/2) moist; single grain; loose; slightly alkaline; gradual wavy boundary.

2Cg2—34 to 80 inches; light brownish gray (10YR 6/2) coarse sand and gravelly sand, grayish brown (10YR 5/2) moist; common medium prominent dark reddish brown (5YR 2/2) iron masses in the soil matrix; single grain; loose; neutral.

Range in Characteristics

Soil moisture: The soil is moist in the solum from December through April and intermittently moist from May through December. July through September, the driest period, is within the intermittently moist period from May through December.

Depth to secondary calcium carbonates: 0 to 36 inches

Redoximorphic features: Distinct or prominent olive brown to brown (2.5Y to 7.5YR) masses of iron-manganese starting at a depth of 18 to 36 inches in most pedons

Depth to endosaturation: 18 to 54 inches (somewhat poorly drained or moderately well drained)

Thickness of the mollic epipedon: 7 to 20 inches

Thickness of the solum: 10 to 28 inches

Content of clay in the particle-size control section (weighted average): 2 to 12 percent

Content of silt in the particle-size control section (weighted average): 15 to 27 percent

Content of sand in the particle-size control section (weighted average): 60 to 75 percent

A horizon:

Hue—10YR
Value—4 or 5 dry, 2 or 3 moist
Chroma—1 or 2
Texture—typically loam, fine sandy loam, sandy loam, silt loam, or very fine sandy loam; strata of finer and coarser material in some pedons
Content of clay—2 to 27 percent
Content of rock fragments—0 to 2 percent rounded gravel, by volume (2 to 75 mm in diameter)
Electrical conductivity (mmhos/cm)—0 to 4 (near the surface)
Reaction—neutral to moderately alkaline

C horizon:

Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 8 dry, 3 to 6 moist
Chroma—1 to 3
Texture—sandy loam, fine sandy loam, very fine sandy loam, sand, fine sand, or loamy fine sand; stratified textures are common in some pedons near natural drainageways
Content of clay—2 to 27 percent
Content of rock fragments—2 to 15 percent rounded gravel, by volume (2 to 75 mm in diameter)
Reaction—slightly alkaline or moderately alkaline

2Cg horizon:

Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 8 dry, 3 to 6 moist
Chroma—1 to 3
Texture—coarse sand, gravelly sand, or gravelly coarse sand
Content of clay—2 to 10 percent

Content of rock fragments—3 to 35 percent rounded gravel, by volume (2 to 75 mm in diameter)
Reaction—neutral to moderately alkaline

Almeria Series

The Almeria series consists of very deep, poorly drained and very poorly drained soils that formed in stratified sandy alluvium. These soils are on flood plains. Permeability is rapid. Slopes range from 0 to 2 percent. The mean annual temperature is about 49 degrees F, and the mean annual precipitation is about 20 inches.

Typical Pedon

Almeria loamy fine sand, on a slope of 1 percent, in an area of rangeland about 18 miles north and 10 miles east of Mullen, in Cherry County, Nebraska; 1,500 feet south and 1,450 feet west of the northeast corner of sec. 17, T. 27 N., R. 30 W.; Bull Lake USGS topographic quadrangle; lat. 42 degrees 18 minutes 52 seconds N. and long. 100 degrees 50 minutes 00 seconds W.

A—0 to 5 inches; dark gray (10YR 4/1) loamy fine sand, very dark gray (10YR 3/1) moist; weak fine granular structure; soft, very friable; common fine and very fine roots throughout; neutral; clear smooth boundary.

Cg1—5 to 13 inches; stratified gray (10YR 5/1) and brown (10YR 5/3) fine sand, dark gray (10YR 4/1) and brown (10YR 4/3) moist; common fine and medium distinct brown (7.5YR 4/4) iron masses along root channels and in the matrix; single grain; loose; common fine and very fine roots throughout; neutral; abrupt smooth boundary.

Cg2—13 to 26 inches; stratified gray (10YR 5/1) and pale brown (10YR 6/3) fine sand, dark gray (10YR 4/1) and brown (10YR 5/3) moist; common fine and medium distinct yellowish brown (10YR 5/6) (moist) iron masses along root channels and in the matrix; single grain; loose; few fine and very fine roots throughout; slightly acid; abrupt smooth boundary.

2Cg3—26 to 36 inches; very dark gray (10YR 3/1) fine sandy loam, black (10YR 2/1) moist; massive; soft, very friable; few fine and very fine roots throughout; slightly acid; abrupt smooth boundary.

3Cg4—36 to 80 inches; gray (10YR 6/1) fine sand, dark gray (10YR 4/1) moist; single grain; loose; few fine and very fine roots throughout; neutral.

Range in Characteristics

Soil moisture regime: Aquic; the soil moisture control section is generally saturated to or near the surface during most of the growing season.
Depth to free carbonates: Generally more than 80 inches; carbonates within the upper 40 inches in some pedons
Redoximorphic features: Few to many faint or distinct yellowish and brownish (2.5Y or 10YR) iron masses; reduced matrix colors and redoximorphic depletions with hues of 5GY and 5G that rapidly change upon exposure to air in the lower part of some pedons
Depth to endosaturation: 0 to 1.5 feet (poorly drained phase); 0.5 to 1.0 foot (very poorly drained phase)
Textural features: Strata of loamy very fine sand or finer sand between depths of 10 and 40 inches
Content of rock fragments: Less than 2 to 10 percent, by volume
Other features: Some pedons have an AC horizon, which is 1 to 5 inches thick.

A horizon:
Hue—2.5Y or 10YR
Value—3 to 6 dry, 2 to 5 moist
Chroma—1 to 3
Texture—loamy fine sand, loamy sand, fine sandy loam, sandy loam, fine sand, very fine sandy loam, or loam; thin strata of light and dark, finer and coarser textured material are common; a thin layer of partially decomposed plant litter is on the surface of some pedons.
Reaction—slightly acid to moderately alkaline
Special feature—this horizon is too thin or light colored to be classified in a mollic subgroup.

Cg horizon:
Hue—2.5Y, 5Y, or 10YR
Value—3 to 8 dry, 2 to 7 moist
Chroma—1 to 3
Texture—sand, fine sand, loamy sand, or loamy fine sand; strata of loamy very fine sand, fine sandy loam, very fine sandy loam, or loam $\frac{1}{8}$ inch to 10 inches thick in some pedons; thin strata of coarse sand or gravelly coarse sand and fine to coarse sandstone fragments in some pedons; thin organic layers in some pedons

Reaction—dominantly moderately acid to neutral; strata are slightly alkaline in some pedons.

Barney Series

The Barney series consists of very deep, poorly drained and very poorly drained soils that formed in stratified loamy material deposited over sandy and gravelly alluvium. These soils are on flood plains along major streams. Permeability is rapid or very rapid below the loamy material. Slopes range from 0 to 2 percent. The mean annual temperature is about 51 degrees F, and the mean annual precipitation is about 23 inches.

Typical Pedon

Barney loam, on a slope of 0.5 percent, in an area of rangeland about 2 miles south and 2 miles west of Verdigre, in Knox County, Nebraska; 500 feet south and 100 feet west of the northeast corner of sec. 24, T. 30 N., R. 7 W.; Verdigre USGS topographic quadrangle; lat. 42 degrees 34 minutes 02 seconds N. and long. 98 degrees 04 minutes 18 seconds W. When described, the soil was moist throughout.

A—0 to 7 inches; gray (10YR 5/1) loam, very dark gray (10YR 3/1) moist; common fine distinct strong brown (7.5YR 5/6) (moist) iron accumulations in the matrix; weak thin platy structure; slightly hard, friable; few thin strata of fine sandy loam and loamy fine sand; strong effervescence; moderately alkaline; clear smooth boundary.

ACg—7 to 10 inches; gray (10YR 6/1) loam, dark gray (10YR 4/1) moist; common fine prominent strong brown (7.5YR 5/6) (moist) iron accumulations in the matrix; weak thin platy structure; slightly hard, friable; few thin strata of fine sandy loam and loamy fine sand; common fine and very fine roots; strong effervescence; moderately alkaline; clear smooth boundary.

Cg1—10 to 30 inches; light gray (10YR 7/2) fine sand, light brownish gray (10YR 6/2) moist; few fine prominent strong brown (7.5YR 5/6) (moist) iron accumulations in the matrix; single grain; loose; few very fine roots in the upper part; few thin strata of silt loam; moderately alkaline; clear smooth boundary.

Cg2—30 to 80 inches; light gray (10YR 7/2) coarse sand, light brownish gray (10YR 6/2) moist; single grain; loose; 5 percent gravel, by volume; moderately alkaline.

Range in Characteristics

Soil moisture regime: Aquic; the soil is generally saturated to or near the surface during most of the growing season.

Depth to secondary carbonates: 0 to 15 inches (some pedons do not have free carbonates)

Redoximorphic features: Common fine distinct and prominent brownish to yellowish brown iron masses near the surface to a depth of 80 inches

Depth to endosaturation: 0 to 18 inches (poorly drained phase); 6 to 12 inches (very poorly drained phase)

Thickness of the mollic epipedon: 6 to 9 inches

Content of clay in the particle-size control section (weighted average): 3 to 10 percent

Content of sand in the particle-size control section (weighted average): 70 to 97 percent

Content of rock fragments in the particle-size control section (weighted average): 0 to 25 percent (below a depth of 10 inches)

A horizon:
Hue—10YR or 2.5Y
Value—3 to 5 dry, 2 or 3 moist
Chroma—1 or 2
Texture—silty clay loam, silt loam, loam, fine sandy loam, sandy loam, loamy fine sand, fine sand, or sand; commonly stratified
Content of clay—5 to 35 percent
Reaction—neutral to moderately alkaline

ACg horizon:
Hue—10YR or 2.5Y
Value—4 to 6 dry, 3 to 5 moist
Chroma—1 or 2
Texture—silty clay loam, silt loam, loam, fine sandy loam, sandy loam, loamy fine sand, fine sand, or sand
Content of clay—5 to 35 percent
Content of rock fragments—0 to 10 percent rounded gravel, by volume (2 to 75 mm in diameter)
Reaction—neutral to moderately alkaline

Cg1 horizon:
Hue—10YR or 2.5Y
Value—5 to 7 dry, 4 to 6 moist
Chroma—1 to 3
Texture—loamy fine sand, loamy sand, fine sand, or sand; 1- to 5-inch strata of loamy material; stratified loam, very fine sandy loam, fine sandy loam, or sandy loam in the upper few inches in some pedons
Content of clay—3 to 10 percent
Content of rock fragments—0 to 15 percent rounded gravel, by volume (2 to 75 mm in diameter)
Reaction—neutral to moderately alkaline

Cg2 horizon:
Hue—10YR or 2.5Y
Value—5 to 8 dry, 4 to 7 moist
Chroma—1 to 3
Texture—coarse sand, sand, gravelly coarse sand, or fine sand
Content of clay—0 to 5 percent
Content of rock fragments—0 to 25 percent rounded gravel, by volume (2 to 75 mm in diameter)
Reaction—neutral or slightly alkaline

Blendon Series

The Blendon series consists of very deep, well drained soils that formed in sandy glacial sediments or eolian sediments. These soils are on terraces and alluvial fans. Permeability is moderate or moderately rapid in the solum and moderately rapid or rapid in the underlying material. Slopes range from 0 to 6 percent. The mean annual precipitation is about 20 inches, and the mean annual temperature is about 46 degrees F.

Typical Pedon

Blendon fine sandy loam, on a slope of 1 percent, in an area of tame pasture about 6 miles north and 3 miles west of Reyville, in Beadle County, South Dakota; 1,510 feet south and 38 feet west of the northeast corner of sec. 6, T. 109 N., R. 61 W. When described, the soil was dry throughout.

Ap—0 to 10 inches; very dark gray (10YR 3/1) fine sandy loam, black (10YR 2/1) moist; weak fine and medium granular structure; slightly hard, friable; common fine roots; slightly acid; clear smooth boundary.

Bw—10 to 24 inches; dark grayish brown (10YR 4/2) fine sandy loam, very dark brown (10YR 2/2) moist; moderate medium prismatic structure parting to weak medium subangular blocky; slightly hard, friable; common fine roots; slightly acid; gradual wavy boundary.

BC—24 to 32 inches; dark grayish brown (10YR 4/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium prismatic structure parting to weak medium subangular blocky; slightly hard, very friable; common fine roots; slightly acid; gradual wavy boundary.

C1—32 to 55 inches; brown (10YR 5/3) loamy fine sand, dark brown (10YR 3/3) moist; single grain; loose; neutral; gradual wavy boundary.

C2—55 to 60 inches; brown (10YR 5/3) loamy sand, dark brown (10YR 3/3) moist; single grain; soft; neutral.

Range in Characteristics

Thickness of the mollic epipedon: Mainly 24 to 36 inches; ranges from 20 to 50 inches
Depth to calcium carbonate: Generally more than 60 inches; ranges from 40 to more than 60 inches. Some pedons have weak zones of calcium carbonate accumulation in the lower part of the B horizon and the upper part of the C horizon, where finer textured materials are in the substratum.
Other features: Some pedons have a Bk horizon.

A horizon:
Value—3 or 4 dry, 2 or 3 moist
Chroma—1 or 2
Texture—fine sandy loam, sandy loam, or loam
Reaction—neutral to moderately acid

Bw horizon:
Value—3 to 5 dry, 2 or 3 moist
Chroma—1 to 3
Texture—fine sandy loam, sandy loam, or loam
Reaction—slightly acid or neutral

BC horizon:
Hue—10YR or 2.5Y
Value—4 to 7 dry, 3 to 5 moist
Chroma—2 or 3
Texture—fine sandy loam or sandy loam; loamy sand or loamy fine sand in some pedons
Content of rock fragments—5 to 15 percent gravel, by volume
Reaction—slightly acid to slightly alkaline

C horizon:
Hue—10YR or 2.5Y
Value—5 to 7 dry, 3 to 6 moist
Chroma—2 to 4
Texture—loamy fine sand, loamy sand, sandy loam, fine sandy loam, gravelly sandy loam, or gravelly fine sandy loam; sand or fine sand in the lower part in some pedons; loam or clay loam glacial till between depths of 40 and 60 inches in some pedons
Reaction—neutral to moderately alkaline

Boelus Series

The Boelus series consists of very deep, well drained soils that formed in eolian sand deposited over silty sediments. These soils are on uplands and stream terraces. Permeability is rapid in the sandy part and moderate in the silty part. Slopes range from 0 to 11 percent. The mean annual precipitation is about 26 inches, and the mean annual air temperature is about 50 degrees F at the type location.

Typical Pedon

Boelus loamy fine sand, on a slope of about 4 percent, in an area of rangeland about 3 miles south and 3 miles east of Stanton, in Stanton County, Nebraska; 450 feet west and 600 feet south of the northeast corner of sec. 12, T. 22 N., R. 2 E.

A—0 to 11 inches; dark grayish brown (10YR 4/2) loamy fine sand, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable; slightly acid; clear smooth boundary.

Bw1—11 to 24 inches; brown (10YR 5/3) loamy fine sand, dark brown (10YR 4/3) moist; weak coarse angular blocky structure; soft, very friable; slightly acid; abrupt wavy boundary.

2Bw2—24 to 40 inches; pale brown (10YR 6/3) silty clay loam, dark brown (10YR 4/3) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; hard, friable; slightly acid; clear smooth boundary.

2Bw3—40 to 50 inches; light yellowish brown (10YR 6/4) silty clay loam, yellowish brown (10YR 5/4) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; hard, friable; slightly acid; clear smooth boundary.

2C—50 to 60 inches; light yellowish brown (10YR 6/4) silt loam, yellowish brown (10YR 5/4) moist; few fine faint brownish yellow (10YR 6/8) (moist) mottles; massive; slightly hard, very friable; neutral.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 20 inches
Thickness of the solum: 32 to 60 inches
Depth to free carbonates: 36 to more than 60 inches
Depth to 2B horizon: 20 to 40 inches
Other features: Gravelly substratum and sandy substratum phases are recognized.

A horizon:
Hue—10YR
Value—3 to 5 dry, 2 to 4 moist
Chroma—1 to 3
Texture—loamy fine sand, loamy sand, or fine sand
Reaction—moderately acid to neutral

Bw horizon:
Hue—10YR
Value—5 or 6 dry, 4 or 5 moist
Chroma—2 or 3
Texture—loamy fine sand, loamy sand, sand, or fine sand
Reaction—slightly acid to slightly alkaline

2B horizon:
Hue—10YR or 2.5Y
Value—5 to 7 dry, 4 to 6 moist
Chroma—2 to 4
Texture—silty clay loam, silt loam, loam, sandy clay loam, or very fine sandy loam
Reaction—moderately acid to moderately alkaline

2C horizon:
Hue—10YR, 2.5Y, or 5Y
Value—5 to 7 dry, 4 to 6 moist
Chroma—2 to 4
Texture—silt loam, silty clay loam, sandy clay loam, or very fine sandy loam
Reaction—neutral to moderately alkaline

Bolent Series

The Bolent series consists of very deep, somewhat poorly drained, rapidly permeable soils that formed in recent sandy alluvium. These soils are on flood plains. Slopes range from 0 to 2 percent. The mean annual temperature is 49 degrees F, and the mean annual precipitation is about 20 inches.

Typical Pedon

Bolent loamy fine sand, on a slope of 1 percent, in an area of native grass about 0.75 mile southeast of Crookston, in Cherry County, Nebraska; 2,000 feet west and 1,800 feet north of the southeast corner of sec. 16, T. 34 N., R. 29 W.; Crookston E. USGS topographic quadrangle; lat. 42 degrees 55 minutes 06 seconds N. and long. 100 degrees 44 minutes 11 seconds W.

A—0 to 5 inches; dark grayish brown (2.5Y 4/2) loamy fine sand, very dark grayish brown (2.5Y 3/2) moist; weak fine granular structure; soft, very friable; many fine and very fine and few medium roots; slightly alkaline; strong effervescence; abrupt smooth boundary.

C1—5 to 16 inches; light brownish gray (2.5Y 6/2) fine sand, dark grayish brown (2.5Y 4/2) moist; stratified with grayish brown (2.5Y 5/2) fine sandy loam, very dark grayish brown (2.5Y 3/2) moist; weak fine granular structure; loose; many fine and very fine and few medium roots; neutral; abrupt smooth boundary.

C2—16 to 30 inches; grayish brown (2.5Y 5/2) fine sandy loam, dark grayish brown (2.5Y 4/2) moist; stratified with light brownish gray (2.5Y 6/2) fine sand, dark grayish brown (2.5Y 4/2) moist; many fine and medium prominent strong brown (7.5YR 5/6) (moist) iron masses in the matrix; weak fine granular structure; slightly hard, very friable;

common fine and very fine roots; neutral; abrupt smooth boundary.

Cg1—30 to 39 inches; pale yellow (2.5Y 8/2) fine sand, light brownish gray (2.5Y 6/2) moist; single grain; loose; common fine and very fine roots; about 3 percent sandstone fragments, by volume, ranging from $^1/_{10}$ to $^3/_4$ inch in diameter; slightly alkaline; clear smooth boundary.

Cg2—39 to 80 inches; light gray (2.5Y 7/2) sand, light brownish gray (2.5Y 6/2) moist; single grain; loose; few very fine roots; about 3 percent, by volume, sandstone fragments ranging from $^1/_{10}$ to $^3/_4$ inch in diameter; slightly alkaline.

Range in Characteristics

Soil moisture: The soil moisture control section is moist in some part from September through June and intermittently moist from July through September.

Depth to carbonates: Typically at the surface; the remainder of the series control section typically is noncalcareous, but in some pedons it is calcareous throughout.

Redoximorphic features: Few to many coarse to fine reddish brown, brown, yellowish brown, and yellow iron masses in the soil matrix between depths of 16 and 30 inches

Depth to endosaturation: 18 to 36 inches

Thickness of the mollic/ochric epipedon: 4 to 9.5 inches

Content of clay in the particle-size control section (weighted average): 2 to 10 percent

Content of silt in the particle-size control section (weighted average): 10 to 22 percent

Content of sand in the particle-size control section (weighted average): 70 to 90 percent

Other features: Some pedons have an AC horizon, which is 3 to 9 inches thick.

A horizon:

Hue—10YR or 2.5Y
Value—4 to 6 dry, 2 to 4 moist
Chroma—1 to 3
Texture—sand, fine sand, loamy fine sand, loamy sand, fine sandy loam, or loam; stratified with silt loam to sand
Reaction—slightly alkaline or moderately alkaline
Salinity—0 to 2 mmhos within the capillary fringe

C and Cg horizons:

Hue—10YR or 2.5Y
Value—4 to 8 dry, 3 to 7 moist
Chroma—1 to 3
Texture—loamy fine sand, loamy sand, fine sand, sand, or coarse sand; stratified silt loam to gravelly coarse sand in some pedons
Content of rock fragments—0 to 5 percent sandstone fragments, by volume (2 to 75 mm in diameter); 5 to 15 percent rounded gravel, by volume (2 to 75 mm in diameter)
Reaction—neutral to moderately alkaline

Brocksburg Series

The Brocksburg series consists of very deep, well drained, moderately permeable soils that formed in loamy sediments over sand or gravelly sands. These soils are on uplands and stream terraces. Slopes range from 0 to 3 percent. The mean annual temperature is about 50 degrees F, and the mean annual precipitation is about 20 inches.

Typical Pedon

Brocksburg loam, on a convex, southeast-facing slope of 0.6 percent, in an area of rangeland about 2 miles south and 3.25 miles east of Springview, in Keya Paha County, Nebraska; 1,300 feet east and 65 feet south of the northwest corner of sec. 33, T. 33 N., R. 20 W. When described, the soil was moist throughout.

A—0 to 15 inches; very dark grayish brown (10YR 3/2) loam, very dark brown (10YR 2/2) moist; weak fine granular structure; slightly hard, friable; neutral; gradual smooth boundary.

Bt1—15 to 21 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; moderate coarse prismatic structure parting to moderate medium subangular blocky; very hard, firm; neutral; gradual smooth boundary.

Bt2—21 to 27 inches; dark grayish brown (10YR 4/2) loam, very dark grayish brown (10YR 3/2) moist; moderate coarse prismatic structure parting to moderate medium subangular blocky; very hard, firm; neutral; clear smooth boundary.

BC—27 to 30 inches; brown (10YR 5/3) clay loam, dark grayish brown (10YR 4/2) moist; weak coarse prismatic structure parting to weak medium and coarse subangular blocky; hard, friable; neutral; abrupt wavy boundary.

2C—30 to 60 inches; pale brown (10YR 6/3) gravelly coarse sand, brown (10YR 5/3) moist; single grain; loose; neutral.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to sand or gravelly sand: 20 to 40 inches
Thickness of the mollic epipedon: 20 to 34 inches

Depth to secondary calcium carbonates: Commonly more than 60 inches

A horizon:
Hue—10YR
Value—3 to 5 dry, 2 or 3 moist
Chroma—1 or 2
Texture—dominantly loam; ranges from sandy loam to silt loam
Reaction—slightly acid or neutral

Bt1 horizon:
Hue—10YR
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3
Texture—loam to clay loam; 18 to 33 percent clay
Reaction—neutral or slightly alkaline

Bt2 horizon:
Hue—10YR
Value—4 or 5 dry, 3 or 4 moist
Chroma—2 or 3
Texture—loam to clay loam; 18 to 33 percent clay
Reaction—neutral or slightly alkaline

BC horizon:
Hue—10YR
Value—5 to 7 dry, 4 to 6 moist
Chroma—2 to 4
Texture—silt loam or gravelly loam
Reaction—neutral or slightly alkaline

2C horizon:
Hue—10YR
Value—5 to 7 dry, 4 to 6 moist
Chroma—2 to 4
Content of rock fragments—8 to 45 percent gravel, by volume
Texture—sand, coarse sand, or gravelly coarse sand
Reaction—neutral or slightly alkaline

Butler Series

The Butler series consists of very deep, somewhat poorly drained, very slowly permeable soils that formed in loess or in mixed loess and alluvium. These soils are on flats or in slightly concave swales on uplands and high stream terraces. Slopes range from 0 to 2 percent. The mean annual precipitation is about 27 inches, and the mean annual temperature is about 55 degrees F at the type location.

Typical Pedon

Butler silt loam, on a slope of less than 1 percent, in a cultivated field about 0.5 mile south and 3 miles west of Carlton, in Thayer County, Nebraska; 1,850 feet east and 50 feet south of the northwest corner of sec. 26, T. 4 N., R. 4 W.

Ap—0 to 10 inches; dark gray (10YR 4/1) silt loam, very dark brown (10YR 2/2) moist; moderate medium subangular blocky structure parting to moderate medium granular; slightly hard, friable; moderately acid; abrupt smooth boundary.

E—10 to 12 inches; gray (10YR 5/1) silt loam, very dark gray (10YR 3/1) moist; weak thin platy structure; soft, friable; moderately acid; abrupt smooth boundary.

Bt1—12 to 23 inches; very dark grayish brown (10YR 3/2) silty clay, black (10YR 2/1) moist; strong coarse prismatic structure parting to strong medium subangular blocky; very hard, very firm; thin dark coatings on faces of peds; few fine dark brown rounded soft masses (iron-manganese); neutral; gradual smooth boundary.

Bt2—23 to 32 inches; dark gray (10YR 4/1) silty clay, black (10YR 2/1) moist; strong coarse prismatic structure parting to strong medium subangular blocky; very hard, very firm; thin dark coatings on faces of peds; many fine dark brown rounded soft masses (iron-manganese); slightly alkaline; clear smooth boundary.

BC—32 to 38 inches; dark gray (5Y 4/1) silty clay loam, dark olive gray (5Y 3/2) moist; moderate coarse prismatic structure parting to moderate medium subangular blocky; hard, firm; few fine masses of calcium carbonate; strong effervescence; few fine distinct yellowish brown (10YR 5/6) soft masses (iron-manganese); moderately alkaline; gradual smooth boundary.

C1—38 to 50 inches; gray (5Y 6/1) silt loam, dark olive gray (5Y 3/2) moist; massive; slightly hard, friable; strong effervescence; moderately alkaline; gradual smooth boundary.

C2—50 to 60 inches; gray (5Y 6/1) silt loam, olive gray (5Y 5/2) moist; massive; slightly hard, friable; strong effervescence; moderately alkaline.

Range in Characteristics

Soil moisture regime: Aquic; the soil moisture control section is wet from March through July.
Mean annual soil temperature: 48 to 55 degrees F
Depth to secondary calcium carbonate: 24 to 80 inches within the soil matrix; common firm, white (5Y 8/2) carbonates 2 to 10 mm in diameter occur as masses or concretions from a depth of 30 inches to more than 40 inches.
Redoximorphic features: If not masked by the dark soil, concentrations begin at the base of the E horizon and extend to a depth of more than 80 inches. The abundance of these concentrations

ranges from few to many. The concentrations are faint to prominent and are brown (7.5YR 4/4) to yellowish brown (10YR 5/6). They are fine to coarse and occur as weakly cemented masses. Also included are few fine faint black (hue of 10YR or 2.5Y, value of 2, and chroma of 0 or 1) soft masses of iron-manganese.

Depth to episaturation: 0 to 24 inches from March through July

Depth to contact of albic horizon: 6 to 14 inches; because of tillage, the albic horizon may be indistinct or may not occur in all pedons.

Thickness of the mollic epipedon: 7 to 40 inches

Thickness of the solum: 24 to 80 inches

Depth to abrupt textural change: 6 to 17 inches

Vertic features: Linear extensibility of 6.0 cm or more at a depth of 12 to 38 inches

Content of clay in the particle-size control section (weighted average): 45 to 55 percent

Content of sand in the particle-size control section (weighted average): 1 to 12 percent

Ap or A horizon:
Hue—10YR
Value—4 or 5 dry, 2 or 3 moist
Chroma—1 or 2
Texture—silt loam or silty clay loam
Content of clay—18 to 35 percent
Reaction—strongly acid to slightly acid

E horizon:
Hue—10YR
Value—4 or 5 dry, 3 moist
Chroma—1
Texture—silt loam
Content of clay—18 to 27 percent
Reaction—strongly acid to slightly acid

Bt horizon:
Hue—10YR, 2.5Y, or 5Y
Value—3 to 5 dry, 2 or 3 moist
Chroma—1 or 2
Texture—silty clay or clay
Content of clay—45 to 55 percent
Reaction—moderately acid to slightly alkaline

BC horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6 dry, 3 or 4 moist
Chroma—1 or 2
Texture—silty clay loam or silty clay
Content of clay—32 to 45 percent
Reaction—neutral to moderately alkaline

C horizon:
Hue—10YR, 2.5Y, or 5Y
Value—5 to 7 dry, 3 to 5 moist
Chroma—1 to 3
Texture—silt loam or silty clay loam
Content of clay—20 to 35 percent
Reaction—neutral to moderately alkaline

Calamus Series

The Calamus series consists of very deep, moderately well drained, rapidly permeable soils that formed in sandy alluvium. These soils are in river valleys on flood plains. Slopes range from 0 to 3 percent. Mean annual air temperature is about 49 degrees F, and mean annual precipitation is about 20 inches.

Typical Pedon

Calamus loamy fine sand, on a slope of less than 2 percent, in an area of rangeland about 12 miles north and 11 miles west of Taylor, in Loup County, Nebraska; 2,300 feet west and 200 feet north of the southeast corner of sec. 32, T. 23 N., R. 20 W.

A—0 to 5 inches; grayish brown (10YR 5/2) loamy fine sand, very dark gray (10YR 3/1) moist; weak medium and fine granular structure; soft, very friable; slightly acid; clear smooth boundary.

AC—5 to 14 inches; light brownish gray (10YR 6/2) fine sand, dark grayish brown (10YR 4/2) moist; weak medium granular structure; soft, very friable; slightly acid; clear smooth boundary.

C1—14 to 21 inches; light gray (10YR 7/2) sand, light brownish gray (10YR 6/2) moist; single grain; loose; few thin strata of fine sandy loam and coarse sand; slightly acid; clear smooth boundary.

C2—21 to 30 inches; light gray (10YR 7/2) sand, light brownish gray (10YR 6/2) moist; single grain; loose; few thin strata of fine sandy loam and coarse sand; about 3 percent gravel, by volume; slightly acid; clear smooth boundary.

C3—30 to 55 inches; light gray (10YR 7/2), stratified fine sand, sand, and coarse sand, light brownish gray (10YR 6/2) moist; few medium distinct yellowish brown (10YR 5/6) iron masses in the soil matrix; single grain; loose; about 10 percent gravel, by volume; slightly acid; clear smooth boundary.

C4—55 to 60 inches; light gray (10YR 7/2) gravelly coarse sand, light brownish gray (10YR 6/2) moist; few medium distinct yellowish brown (10YR 5/6) iron masses in the soil matrix; single grain; loose; about 18 percent gravel, by volume; slightly acid.

Range in Characteristics

Mean annual soil temperature: 49 to 55 degrees F

Secondary calcium carbonate: Typically no free carbonates throughout
Redoximorphic features: Few to many faint to prominent concentrations occurring as masses (hue of 5YR, 7.5YR, or 10YR; value of 4 to 6; and chroma of 4 to 6); common coarse prominent depletions (hue of 2.5Y, value of 2 or 3, and chroma of 1). The soil matrix generally has chroma of less than 2 below a depth of 24 inches.
Depth to redoximorphic concentrations: 20 to 80 inches
Depth to redoximorphic depletions: 20 to 80 inches
Depth to endosaturation: 36 to 72 inches
Thickness of the solum: 6 to 20 inches
Content of clay in the particle-size control section (weighted average): 1 to 10 percent

A horizon:
Hue—10YR
Value—4 to 7 dry, 2 to 5 moist
Chroma—1 to 4
Texture—sandy loam, loamy fine sand, loamy sand, fine sand, sand, or coarse sand
Content of clay—1 to 10 percent
Reaction—moderately acid to slightly alkaline

AC horizon:
Hue—10YR
Value—5 or 6 dry, 4 or 5 moist
Chroma—1 to 3
Texture—fine sand, loamy fine sand, or sand
Content of clay—3 to 10 percent
Reaction—slightly acid to slightly alkaline

C horizon:
Hue—10YR
Value—6 to 8 dry, 5 to 7 moist
Chroma—2 to 4
Texture—fine sand, sand, or coarse sand; 1- to 3-inch strata of very fine sandy loam to gravelly coarse sand
Content of rock fragments—5 to 25 percent rounded gravel, by volume (2 to 75 mm diameter)
Content of clay—1 to 8 percent
Reaction—slightly acid to slightly alkaline

Caruso Series

The Caruso series consists of deep, somewhat poorly drained soils that formed in loamy alluvium. These soils are on flood plains. Permeability is moderate or moderately slow. Slopes range from 0 to 3 percent. The mean annual temperature is about 51 degrees F, and the mean annual precipitation is about 17 inches.

Typical Pedon

Caruso loam, in an area of rangeland about 10 miles south of Goodland, in Sherman County, Kansas; 140 feet east and 1,500 feet north of the southwest corner of sec. 8, T. 10 S., R. 39 W.

A1—0 to 4 inches; gray (10YR 5/1) loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium granular structure; slightly hard, friable; many fine roots; strong effervescence; moderately alkaline; clear smooth boundary.
A2—4 to 18 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium granular structure; slightly hard, friable; numerous wormcasts; many fine roots; strong effervescence; moderately alkaline; gradual smooth boundary.
C1—18 to 33 inches; light brownish gray (10YR 6/2) loam, dark grayish brown (10YR 4/2) moist; few fine faint brown redoximorphic features in the lower 6 inches; weak fine granular structure; slightly hard, friable; few thin grayish brown (10YR 5/2) strata; few fine roots; strong effervescence; moderately alkaline; gradual smooth boundary.
C2—33 to 44 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; few fine faint gray and brown redoximorphic features; massive but porous; hard, friable; few thin light brownish gray (10YR 6/2) strata; few fine roots; strong effervescence; moderately alkaline; gradual smooth boundary.
C3—44 to 60 inches; light brownish gray (10YR 6/2) loam, grayish brown (10YR 5/2) moist; common fine faint yellowish brown redoximorphic features; massive; few thin strata of sandy loam; hard, friable; few fine roots; strong effervescence; moderately alkaline.

Range in Characteristics

Soil moisture regime: Ustic; the soil moisture control section is moist in some part from October through April, intermittently moist from May through July, and driest from July through September.
Depth to free carbonates: Free carbonates begin at a depth of 0 to 20 inches but are not consistent throughout the profile.
Redoximorphic features: Redoximorphic concentrations begin at a depth of 10 inches and extend to a depth of more than 80 inches. They occur as common medium distinct or prominent

masses (hue of 10YR, 2.5Y, or 7.5YR and value and chroma of 4 to 6).

Depth to endosaturation: 24 to 72 inches

Thickness of the mollic epipedon: 7 to 20 inches

Thickness of the solum: 7 to 20 inches; corresponds to the thickness of the A horizon

A horizon:
- Hue—10YR
- Value—4 or 5 dry, 2 or 3 moist
- Chroma—1 or 2
- Texture—loam, silt loam, clay loam, sandy loam, or silty clay loam
- Reaction—neutral to moderately alkaline

C horizon:
- Hue—7.5YR, 10YR, or 2.5Y; 5Y below a depth of 40 inches in some pedons
- Value—5 to 7 dry, 3 to 5 moist
- Chroma—1 to 3
- Texture—loam, silt loam, sandy loam, or clay loam; contains thin strata with colors of higher and lower values and varying textures; strata of sandy or clayey material below a depth of 40 inches in some pedons
- Reaction—neutral to moderately alkaline

Coly Series

The Coly series consists of very deep, well drained, moderately permeable soils that formed in calcareous silty loess. These soils are on uplands. Slopes range from 1 to 60 percent. The mean annual temperature is about 52 degrees F, and the mean annual precipitation is about 20 inches at the type location.

Typical Pedon

Coly silt loam, on a convex, northeast-facing slope of 15 percent, in an area of native rangeland about 0.5 mile north and 7 miles east of Stockville, in Frontier County, Nebraska; 250 feet south and 250 feet west of the northeast corner of sec. 34, T. 7 N., R. 26 W. When this pedon was described, the soil was moist in the upper 24 inches.

A—0 to 4 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable; strong effervescence; moderately alkaline; clear smooth boundary.

AC—4 to 10 inches; light brownish gray (10YR 6/2) silt loam, dark grayish brown (10YR 4/2) moist; weak fine granular structure; soft, very friable; violent effervescence; moderately alkaline; clear smooth boundary.

C—10 to 80 inches; light gray (10YR 7/2) silt loam, grayish brown (10YR 5/2) moist; massive; soft, very friable; violent effervescence; moderately alkaline.

Range in Characteristics

Thickness of the solum: 3 to 14 inches

Depth to free carbonates: At the surface; some pedons do not have carbonates in the upper 10 inches.

Texture: Slightly alkaline or moderately alkaline throughout

Texture in the 10- to 40-inch control section: Silt loam or loam

A horizon:
- Hue—10YR
- Value—5 to 7 dry, 3 to 5 moist; horizons having value of less than 5.5 dry and 3.5 moist are less than 7 inches thick
- Chroma—2 or 3
- Texture—silt loam, loam, or very fine sandy loam

AC horizon (if it occurs) and C horizon:
- Hue—10YR, 7.5YR, or 2.5Y
- Value—5 to 7 dry, 4 to 6 moist
- Chroma—2 or 3
- Texture—silt loam, loam, or very fine sandy loam
- Special features—visible accumulations of carbonates in the C horizon of some pedons (amount not high enough to qualify as a calcic horizon)

Cozad Series

The Cozad series consists of very deep, well drained, moderately permeable soils that formed in silty alluvium. These soils are on stream terraces along the Platte River system in Nebraska. Slopes typically range from 0 to 5 percent, but they range from 0 to 11 percent on the terrace riser. The mean annual temperature is 51 degrees F, and the mean annual precipitation is 23 inches at the type location.

Typical Pedon

Cozad silt loam, on a slope of 1 percent, in a cultivated field about 1 mile north and 1 mile west of Odessa, in Buffalo County, Nebraska; 100 feet west and 210 feet north of the southeast corner of sec. 29, T. 9 N., R. 17 W. When described, the soil was moist throughout.

Ap—0 to 8 inches; gray (10YR 5/1) silt loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; slightly hard, very friable; neutral; abrupt smooth boundary.

A—8 to 12 inches; gray (10YR 5/1) silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium granular structure; slightly hard, very friable; neutral; abrupt smooth boundary.

Bw—12 to 18 inches; grayish brown (10YR 5/2) silt loam, dark grayish brown (10YR 4/2) moist; moderate fine and medium subangular blocky structure; slightly hard, very friable; neutral; clear smooth boundary.

C1—18 to 48 inches; light brownish gray (10YR 6/2) very fine sandy loam, grayish brown (10YR 5/2) moist; massive; slightly hard, very friable; thin stratification; neutral; gradual smooth boundary.

C2—48 to 80 inches; light brownish gray (10YR 6/2) very fine sandy loam, grayish brown (10YR 5/2) moist; massive; slightly hard, very friable; thin stratification; slight effervescence; slightly alkaline.

Range in Characteristics

Soil moisture regime: Ustic; the soil moisture control section is moist in some part from April through September.

Depth to secondary carbonates: 10 to 48 inches

Thickness of the mollic epipedon: 7 to 20 inches

Thickness of the solum: 14 to 32 inches

Content of clay in the particle-size control section (weighted average): 10 to 18 percent

Other features: Buried soils are common.

A horizon:

Hue—10YR

Value—3 to 5 dry, 2 or 3 moist

Chroma—1 or 2

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

Reaction—slightly acid or neutral

Bw horizon and BC horizon (if it occurs):

Hue—10YR

Value—4 to 6 dry, 3 to 5 moist

Chroma—2 or 3

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

Reaction—slightly acid to slightly alkaline

C horizon:

Hue—10YR

Value—5 to 7 dry, 4 or 5 moist

Chroma—2 or 3

Texture—silt loam or very fine sandy loam stratified with coarser and finer textured material; stratified clayey to sandy material below a depth of 40 inches in some pedons

Reaction—neutral to moderately alkaline

Cullison Series

The Cullison series consists of very deep, poorly drained and very poorly drained soils that formed in calcareous, loamy alluvium. These soils are in sandhill valleys. Permeability is moderate. Slopes range from 0 to 2 percent. The mean annual precipitation is about 18 inches, and the mean annual air temperature is about 48 degrees F at the type location.

Typical Pedon

Cullison loam, on a slope of less than 1 percent, in an area of native grass about 14 miles east and 6 miles north of Gordon, in Cherry County, Nebraska; 850 feet west and 100 feet south of the northeast corner of sec. 31, T. 34 N., R. 39 W.; Irwin USGS topographic quadrangle; lat. 42 degrees 53 minutes 13 seconds N. and long. 101 degrees 47 minutes 03 seconds W. When this pedon was described, the soil was moist to a depth of 37 inches and wet below that depth.

Oi—0 to 1 inch; partly decomposed grass litter; violent effervescence throughout.

Ak1—1 to 8 inches; dark gray (10YR 4/1) loam, black (10YR 2/1) moist; moderate very fine and fine granular structure; soft, very friable; many very fine and fine and few medium roots; finely disseminated lime; violent effervescence; 23 percent calcium carbonate equivalent; moderately alkaline; clear smooth boundary.

Ak2—8 to 14 inches; gray (10YR 5/1) clay loam, very dark gray (10YR 3/1) moist; weak medium subangular blocky structure parting to moderate very fine and fine granular; slightly hard, very friable; many very fine and fine and few medium roots; finely disseminated lime; violent effervescence; 35 percent calcium carbonate equivalent; moderately alkaline; clear smooth boundary.

Bkg1—14 to 18 inches; dark gray (10YR 4/1) clay loam, very dark gray (10YR 3/1) moist; weak medium subangular blocky structure parting to moderate fine granular; slightly hard, friable; common very fine and fine and few medium roots; finely disseminated lime; violent effervescence; 42 percent calcium carbonate equivalent; moderately alkaline; gradual irregular boundary.

Bkg2—18 to 24 inches; gray (10YR 5/1) clay loam, dark gray (10YR 4/1) moist; weak medium subangular blocky structure parting to weak fine granular; slightly hard, friable; few very fine and medium roots; finely disseminated lime; violent effervescence; 56 percent calcium carbonate equivalent; moderately alkaline; clear wavy boundary.

Bkg3—24 to 30 inches; gray (10YR 6/1) clay loam, gray (10YR 5/1) moist; weak coarse subangular blocky structure parting to weak fine granular; slightly hard, friable; few very fine and fine roots; finely disseminated lime; violent effervescence; 51 percent calcium carbonate equivalent; moderately alkaline; clear wavy boundary.

Bkg4—30 to 46 inches; light gray (10YR 7/1) and gray (10YR 6/1) clay loam, gray (10YR 5/1) and dark gray (10YR 4/1) moist; weak medium and coarse subangular blocky structure parting to weak fine granular; hard, friable; few very fine roots; finely disseminated lime; violent effervescence; 39 percent calcium carbonate equivalent; moderately alkaline; gradual wavy boundary.

Bkg5—46 to 60 inches; light gray (2.5Y 7/2) and pale yellow (2.5Y 8/2) loam, grayish brown (2.5Y 5/2) and light brownish gray (2.5Y 6/2) moist; few fine distinct very dark gray (10YR 3/1) (moist) iron depletions in the matrix; weak medium and coarse subangular blocky structure; slightly hard, very friable; few very fine roots; violent effervescence; 34 percent calcium carbonate equivalent; moderately alkaline.

Range in Characteristics

Soil moisture: The soil is generally saturated to or near the surface during most of the growing season. Aquic conditions occur within a depth of 20 inches in normal years from November through May.

Depth to top of water table: Above the surface of the soil to a depth of 18 inches (endosaturation)

Redoximorphic features: Few fine distinct yellowish brown iron masses in the lower part of the mollic epipedon; few medium distinct greenish gray (5GY 5/1) depletions with common medium and coarse distinct olive (5Y 5/4) iron-manganese masses in the upper part of the C horizon; some black (2.5Y 2/0) soft manganese concretions 1 to 2 mm in diameter in the lower part of the C horizon.

Depth to secondary calcic horizon: At the surface

Thickness of the mollic epipedon: 10 to 40 inches

Content of noncarbonate clay: 9 to 18 percent

Ak horizon:

Hue—10YR to 2.5YR
Value—4 to 7 dry, 2 to 5 moist
Chroma—1 or 2
Texture—loam, fine sandy loam, silty clay loam, clay loam, or sandy clay loam
Calcium carbonate equivalent—5 to 25 percent
Electrical conductivity (mmhos/cm)—0 to 2
Reaction—slightly alkaline or moderately alkaline

Bkg horizon (above a depth of 40 inches):

Calcium carbonate equivalent—40 to 60 percent
Electrical conductivity (mmhos/cm)—0 to 2
Reaction—slightly alkaline or moderately alkaline
Special features—color and texture similar to A horizon

Bkg horizon (below a depth of 40 inches):

Hue—10YR, 2.5Y, or 5Y
Value—5 to 8 dry, 4 to 7 moist
Chroma—1 or 2
Texture—clay loam, sandy clay loam, silty clay loam, or loam; strata of fine sandy loam in some pedons; buried surface layers or sandy material below a depth of 40 inches in some pedons
Calcium carbonate equivalent—5 to 60 percent
Electrical conductivity (mmhos/cm)—0 to 2
Reaction—slightly alkaline or moderately alkaline

Darr Series

The Darr series consists of very deep, somewhat excessively drained soils that formed in loamy alluvium over sand and gravel. These soils are on flood plains. Permeability is moderately rapid above the 2C horizon and rapid or very rapid in the 2C horizon. Slopes range from 0 to 2 percent. The mean annual precipitation is about 24 inches, and the mean annual temperature is about 51 degrees F.

Typical Pedon

Darr fine sandy loam, in a cultivated field 750 feet north and 100 feet west of the southeast corner of sec. 24, T. 16 N., R. 2 W., in Polk County, Nebraska.

Ap—0 to 7 inches; gray (10YR 5/1) fine sandy loam, very dark gray (10YR 3/1) moist; weak coarse subangular blocky structure parting to weak fine granular; soft, very friable; neutral; abrupt smooth boundary.

A—7 to 14 inches; dark gray (10YR 4/1) fine sandy loam, very dark gray (10YR 3/1) moist; weak coarse subangular blocky structure parting to weak fine granular; soft, very friable; neutral; clear smooth boundary.

Bw—14 to 25 inches; light brownish gray (10YR 6/2) fine sandy loam, grayish brown (10YR 5/2) moist; weak coarse subangular blocky structure parting to weak fine granular; soft, very friable; neutral; clear smooth boundary.

2C1—25 to 33 inches; light gray (10YR 7/2) fine sand, light brownish gray (10YR 6/2) moist; single grain;

few fine and medium distinct yellowish brown (10YR 5/4) (moist) and dark reddish brown (5YR 3/3) (moist) mottles; single grain; loose; neutral; gradual wavy boundary.

2C2—33 to 80 inches; light gray (10YR 7/2) sand and gravel, light brownish gray (10YR 6/2) moist; single grain; loose; neutral.

Range in Characteristics

Thickness of the solum: 10 to 20 inches
Thickness of the mollic epipedon: 10 to 20 inches
Depth to sand or mixed sand and gravel: 20 to 40 inches
Other features: Some pedons have a thin AC horizon.

A horizon:
Hue—10YR
Value—4 or 5 dry, 2 or 3 moist
Chroma—1 or 2
Texture—fine sandy loam, silt loam, or sandy loam

Bw horizon:
Hue—10YR or 2.5Y
Value—6 or 7 dry, 4 to 6 moist
Chroma—2
Texture—fine sandy loam or sandy loam
Reaction—neutral to moderately alkaline

2C horizon:
Hue—10YR or 2.5Y
Value—6 or 7 dry, 5 or 6 moist
Chroma—2
Texture—coarse sand or gravelly coarse sand
Reaction—neutral to moderately alkaline

Detroit Series

The Detroit series consists of very deep, moderately well drained soils that formed in alluvium. These soils are on stream terraces. Permeability is slow. Slopes range from 0 to 2 percent. The mean annual precipitation is 28 inches, and the mean annual temperature is 55 degrees F.

Typical Pedon

Detroit silty clay loam, in a cultivated field about 2 miles north and 2 miles east of the Salina Post Office (downtown), in Saline County, Kansas; 100 feet east and 160 feet south of the northwest corner of sec. 5, T. 14 S., R. 2 W.

Ap—0 to 7 inches; very dark grayish brown (10YR 3/2) silty clay loam, very dark brown (10YR 2/2) moist; weak fine granular structure; slightly hard, friable; sticky and plastic; few very fine roots; neutral; clear smooth boundary.

AB—7 to 14 inches; very dark grayish brown (10YR 3/2) silty clay loam, very dark brown (10YR 2/2) moist; weak medium subangular blocky structure; hard, friable; sticky and plastic; few very fine roots; neutral; clear wavy boundary.

Bt1—14 to 23 inches; very dark grayish brown (10YR 3/2) silty clay, very dark brown (10YR 2/2) moist; moderate medium subangular blocky structure; hard, firm; very sticky and very plastic; few very fine roots; common faint clay films on faces of peds; neutral; clear wavy boundary.

Bt2—23 to 32 inches; dark grayish brown (10YR 4/2) silty clay, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; hard, firm; very sticky and very plastic; few very fine roots; common faint clay films on faces of peds; neutral; clear wavy boundary.

Bt3—32 to 38 inches; brown (10YR 4/3) silty clay, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; hard, firm; very sticky and very plastic; few very fine roots; few fine faint clay films; neutral; clear wavy boundary.

BC—38 to 46 inches; brown (10YR 5/3) silty clay loam, brown (10YR 4/3) moist; common fine prominent strong brown (7.5YR 5/6) irregularly shaped masses of iron accumulation; weak coarse subangular blocky structure; hard, friable; sticky and plastic; common fine accumulations of very dark brown oxides; few fine accumulations of carbonates below a depth of 40 inches; slight effervescence; slightly alkaline; gradual smooth boundary.

C1—46 to 53 inches; light yellowish brown (10YR 6/4) silt loam, brown (10YR 5/3) moist; common medium distinct yellowish brown (10YR 5/6) irregularly shaped masses of iron accumulation; massive; slightly hard, very friable; slightly sticky and slightly plastic; few fine accumulations of very dark brown oxides; few fine accumulations of carbonates; strong effervescence; moderately alkaline; clear smooth boundary.

C2—53 to 80 inches; light brownish gray (10YR 6/2) silty clay loam, grayish brown (10YR 5/2) moist; common medium prominent yellowish brown (10YR 5/6) irregularly shaped masses of iron accumulation; massive; slightly hard, friable; sticky and plastic; a few strata of grayish brown (10YR 5/2) material; common fine carbonate concretions; violent effervescence; moderately alkaline.

Range in Characteristics

Soil moisture regime: Ustic; the soil moisture control section is moist in some part from April through October.
Depth to secondary carbonates: 22 to 80 inches; few or common fine carbonate concretions and nodules at a depth of 50 to 80 inches
Thickness of the mollic epipedon: 20 to 50 inches; may include entire Bt horizon
Thickness of the solum: 24 to more than 60 inches

A and AB horizons and BA horizon (if it occurs):
Hue—10YR
Value—3 to 5 dry, 2 or 3 moist
Chroma—2 or less
Texture—silty clay loam or silt loam
Reaction—neutral or slightly acid

Bt horizon:
Hue—10YR
Value—3 to 5 dry, 2 or 3 moist
Chroma—2 or 3
Texture—silty clay or silty clay loam
Content of clay—35 to 45 percent clay
Reaction—neutral or slightly alkaline; free carbonates in the lower part of the horizon in some pedons

BC and C horizons:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6 dry, 3 to 5 moist
Chroma—2 to 4
Texture—silt loam or silty clay loam
Reaction—slightly alkaline or moderately alkaline

Els Series

The Els series consists of very deep, somewhat poorly drained soils that formed in eolian and alluvial sands. These soils are in swales in interdunal areas of the sandhills. Permeability is rapid. Slopes range from 0 to 3 percent. The mean annual precipitation is about 20 inches, and the mean annual temperature is about 48 degrees F at the type location.

Typical Pedon

Els fine sand, on a slope of less than 3 percent, in a native meadow about 9 miles north and 9 miles west of Brownlee, in Cherry County, Nebraska; 600 feet north and 1,200 feet east of the southwest corner of sec. 10, T. 28 N., R. 30 W.; Brownlee Flats USGS topographic quadrangle; lat. 42 degrees 19 minutes 24 seconds N. and long. 100 degrees 41 minutes 14 seconds W.

A—0 to 6 inches; dark grayish brown (10YR 4/2) fine sand, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable; many very fine and fine roots; neutral; clear wavy boundary.
AC—6 to 18 inches; brown (10YR 5/3) fine sand, brown (10YR 4/3) moist; single grain; loose; common very fine and fine roots; neutral; clear wavy boundary.
C—18 to 30 inches; pale brown (10YR 6/3) fine sand, brown (10YR 5/3) moist; many fine and medium distinct yellowish brown (10YR 5/6) iron masses in the matrix; single grain; loose; few fine and very fine roots throughout; slightly alkaline; clear wavy boundary.
Cg—30 to 80 inches; light gray (10YR 7/2) fine sand, light brownish gray (10YR 6/2) moist; single grain; loose; few very fine roots throughout; slightly alkaline.

Range in Characteristics

Soil moisture: The soil is moist in the solum from December through April and intermittently moist from May through December. July through September, the driest period, is within the intermittently moist period from May through December.
Depth to secondary carbonates: Carbonates are typically not present, but some pedons have strata of carbonates between depths of 20 and 60 inches.
Redoximorphic features: Common fine to medium distinct to prominent yellowish brown masses of iron-manganese in the C horizon and in the AC horizon of some pedons
Depth to endosaturation: 18 to 36 inches
Thickness of the mollic epipedon: 6 to 9 inches
Thickness of the solum: 6 to 19 inches

A horizon:
Hue—10YR
Value—4 or 5 dry, 3 or 4 moist
Chroma—1 or 2
Texture—sand, fine sand, loamy sand, or loamy fine sand
Reaction—moderately acid to neutral

AC horizon:
Hue—10YR or 2.5Y
Value—5 or 6 dry, 4 or 5 moist
Chroma—1 to 3
Texture—sand, fine sand, loamy sand, or loamy fine sand
Reaction—slightly acid or neutral

C horizon:
Hue—10YR or 2.5Y
Value—5 to 8 dry, 4 to 7 moist
Chroma—2 or 3
Texture—sand, fine sand, loamy sand, or loamy fine sand
Rock fragments—loamy or gravelly material below a depth of 40 inches in some pedons
Reaction—slightly acid to slightly alkaline
Special features—thin dark layers of sandy or loamy material in some pedons

Fillmore Series

The Fillmore series consists of very deep, somewhat poorly drained soils that formed in loess. These soils are in depressions on uplands and stream terraces. Permeability is very slow. Slopes range from 0 to 2 percent. The mean annual precipitation is about 23 inches, and the mean annual temperature is about 52 degrees F at the type location.

Typical Pedon

Fillmore silt loam, on a concave slope of less than 1 percent, in native rangeland about 2 miles south of Clay Center, in Clay County, Nebraska; 2,390 feet west and 275 feet north of the southeast corner of sec. 12, T. 6 N., R. 7 W.

A—0 to 9 inches; gray (10YR 5/1) silt loam, very dark gray (10YR 3/1) moist; weak medium subangular blocky structure parting to weak medium granular; slightly hard, friable; slightly acid; abrupt smooth boundary.

E—9 to 13 inches; light gray (10YR 6/1) silt loam, gray (10YR 5/1) moist; weak medium platy structure parting to weak fine granular; soft, friable; slightly acid; few hard ferro-manganese pellets 1 to 2 mm in diameter; abrupt smooth boundary.

Bt1—13 to 24 inches; gray (10YR 5/1) silty clay, very dark gray (10YR 3/1) moist; strong coarse and medium angular blocky structure; very hard, very firm; shiny faces on most peds; many hard ferro-manganese pellets 1 to 2 mm in diameter; neutral; clear smooth boundary.

Bt2—24 to 32 inches; grayish brown (10YR 5/2) silty clay, very dark grayish brown (10YR 3/2) moist; strong coarse and medium angular blocky structure; very hard, very firm; shiny faces on most peds; slightly alkaline; clear smooth boundary.

BC—32 to 44 inches; grayish brown (10YR 5/2) silty clay loam, very dark grayish brown (10YR 3/2) moist; moderate coarse and medium subangular blocky structure; hard, firm; slightly alkaline; gradual smooth boundary.

C—44 to 60 inches; grayish brown (2.5Y 5/2) silty clay loam, dark grayish brown (2.5Y 4/2) moist; weak coarse prismatic structure parting to weak medium subangular blocky; slightly hard, friable; slight effervescence; moderately alkaline.

Range in Characteristics

Soil moisture: The soil moisture control section is saturated to the surface from November through March. It is intermittently dry in the surface layer but generally contains water at near saturation in the perched zone within the lower soil horizons from April through July. It is driest from August through October.

Depth to secondary carbonates: 30 to more than 60 inches; the C horizon in some pedons has calcium carbonates that form concretions or mycelia-like filaments and castings on cleavage planes.

Redoximorphic features: Indicators are generally present in the soil but are masked by the very dark color of the organic matter. Common fine distinct (10YR 4/4) oxidized zones are present around root channels in the upper part of the Bt horizon. Few or common fine to coarse black (10YR 2/1) round (shot-like), hard, iron-manganese concretions or nodules are also present in the Bt horizon. Grayish depletions occur within the matrix of peds and may be visible in the lower part of the B horizon directly below the dark organic colors.

Depth to episaturation: 6 inches above the surface to about 24 inches below the surface

Thickness of the mollic epipedon: Averages about 32 inches; may extend to the base of the B horizon

Thickness of the solum: 30 to more than 60 inches

A horizon:
Hue—10YR
Value—4 or 5 dry, 2 or 3 moist
Chroma—1 or 2
Textures—silt loam or silty clay loam
Reaction—strongly acid to slightly acid

E horizon:
Hue—10YR
Value—5 to 7 dry, 4 or 5 moist
Chroma—1
Texture—silt loam
Reaction—strongly acid to slightly acid
Special features—this horizon has generally been destroyed by tillage in farmed areas; material from the A and Bt and horizons may be mixed with this horizon

Bt horizon:
Hue—10YR, 5Y, 2.5Y, or N
Value—3 to 6 dry, 2 to 5 moist
Chroma—0 to 2
Texture—silty clay or clay
Content of clay—dominantly 45 to 55 percent; ranges from 40 to 55 percent
Reaction—moderately acid to slightly alkaline

BC horizon:
Hue—10YR or 2.5Y
Value—4 to 6 dry, 2 to 5 moist
Chroma—1 to 3
Texture—silty clay loam
Reaction—neutral to moderately alkaline

C horizon:
Hue—10YR or 2.5Y
Value—5 to 7 dry, 4 to 6 moist
Chroma—2 to 4
Texture—silt loam or silty clay loam
Reaction—neutral to moderately alkaline

Gates Series

The Gates series consists of very deep, well drained soils that formed in loess, reworked alluvium, or reworked residual material. These soils are on uplands, valley side slopes, and older stream terraces. Permeability is moderate. Slopes range from 0 to 60 percent. The mean annual temperature is about 50 degrees F, and the mean annual precipitation is about 23 inches.

Typical Pedon

Gates very fine sandy loam, on a convex slope of 5 to 11 percent, in a cultivated field about 5 miles south and 1.5 miles west of Anselmo, in Custer County, Nebraska; 200 feet north and 2,440 feet west of the southeast corner of sec. 6, T. 18 N., R. 22 W.

Ap—0 to 5 inches; light gray (10YR 7/2) very fine sandy loam, grayish brown (10YR 5/2) moist; weak coarse prismatic structure parting to weak fine granular; slightly hard, very friable; moderately alkaline; abrupt smooth boundary.

AC—5 to 18 inches; very pale brown (10YR 7/3) very fine sandy loam, light brownish gray (10YR 6/2) moist; weak coarse prismatic structure parting to weak fine subangular blocky; slightly hard, friable; moderately alkaline; clear smooth boundary.

C—18 to 60 inches; pale red (2.5YR 7/2) very fine sandy loam, weak red (2.5YR 5/2) moist; weak coarse prismatic structure; slightly hard, friable; few films and threads of calcium carbonate; moderately alkaline; slight effervescence.

Range in Characteristics

Soil moisture regime: Ustic; the soil moisture control section is moist in some part from October through April, intermittently moist from May through July, and driest from July through September.
Depth to secondary carbonates: 12 to 36 inches; accumulations of free carbonates are visible in the C horizon but do not occur in sufficient quantity to constitute a calcic horizon.
Thickness of the mollic epipedon: 3 to 6 inches
Thickness of the solum: 7 to 22 inches

A horizon:
Hue—10YR to 2.5YR
Value—4 to 7 dry, 3 to 6 moist
Chroma—1 to 3
Texture—very fine sandy loam, silt loam, fine sandy loam, or loamy fine sand
Reaction—neutral to moderately alkaline

AC and C horizons:
Hue—10YR to 2.5YR
Value—5 to 8 dry, 4 to 6 moist
Chroma—2 to 4
Texture—very fine sandy loam, silt loam, and subhorizons of loamy very fine sand in 10- to 40-inch control section
Reaction—slightly alkaline or moderately alkaline

Gayville Series

The Gayville series consists of very deep, somewhat poorly drained soils that formed in clayey over loamy alluvium. These soils are on bottom land. Permeability is very slow in the solum and moderate in the underlying material. Slopes range from 0 to 2 percent. The mean annual precipitation is about 25 inches, and the mean annual temperature is about 49 degrees F.

Typical Pedon

Gayville silt loam, on a flat slope, in an area of native grassland about 7 miles west and 1 mile south of Westerville, in Clay County, South Dakota; 450 feet north and 775 feet east of the southwest corner of sec. 31, T. 94 N., R. 53 W.; lat. 42 degrees 54 minutes 38 seconds N. and long. 97 degrees 09 minutes 28 seconds W. When this pedon was described, the soil was moist to a depth of 36 inches and wet below that depth.

E—0 to 1 inch; gray (10YR 6/1) silt loam, dark gray (10YR 4/1) moist; weak thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common fine and many very fine roots throughout; common fine and many very fine tubular pores; moderately alkaline; abrupt smooth boundary.

Btny1—1 to 7 inches; very dark gray (10YR 3/1) silty clay, black (10YR 2/1) moist; weak coarse columnar structure parting to weak medium subangular blocky; very hard, firm, sticky and plastic; common fine and many very fine roots throughout; common fine and many very fine tubular pores; some tonguing of material from the E horizon on column tops; few fine masses of gypsum; common fine patchy clay films; strong effervescence; strongly alkaline; clear smooth boundary.

Btny2—7 to 12 inches; dark gray (10YR 4/1) silty clay, very dark gray (10YR 3/1) moist; common black (10YR 2/1) stains along root channels and cracks; weak coarse prismatic structure parting to moderate medium subangular blocky; very hard, firm, sticky and plastic; few fine and common very fine roots throughout; common fine and many very fine tubular pores; few fine masses of gypsum; common fine patchy clay films; strong effervescence; strongly alkaline; clear smooth boundary.

Btny3—12 to 18 inches; grayish brown (2.5Y 5/2) silty clay loam, very dark grayish brown (2.5Y 3/2) moist; common fine distinct olive brown (2.5Y 4/4) (moist) redoximorphic concentrations; common black (10YR 2/1) stains along root channels and cracks; weak coarse prismatic structure parting to moderate medium subangular blocky; very hard, firm, sticky and plastic; few fine and common very fine roots throughout; few fine and common very fine tubular pores; common fine masses of gypsum; few fine soft iron-manganese concretions; common fine patchy clay films; strong effervescence; strongly alkaline; clear wavy boundary.

Bky—18 to 31 inches; pale yellow (2.5Y 7/3) loam, light olive brown (2.5Y 5/3) moist; few fine distinct light olive brown (2.5Y 5/6) and common fine and medium distinct grayish brown (2.5Y 5/2) (moist) redoximorphic concentrations; few very dark gray (10YR 3/1) stains along root channels and cracks; weak medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine roots throughout; few fine and common very fine tubular pores; common fine soft masses of calcium carbonate; few fine masses of gypsum; few fine soft iron-manganese concretions; violent effervescence; strongly alkaline; clear smooth boundary.

C—31 to 80 inches; pale yellow (2.5Y 7/3) stratified very fine sandy loam, light olive brown (2.5Y 5/3) moist; few fine prominent strong brown (7.5YR 5/6) (moist) redoximorphic concentrations and few fine distinct gray (2.5Y 5/1) redoximorphic depletions; massive; hard, friable, slightly sticky and slightly plastic; few very fine roots throughout upper part; few fine and common very fine vesicular and tubular pores; few fine soft iron-manganese concretions; strong effervescence; strongly alkaline.

Range in Characteristics

Soil moisture: The soil is moist in the solum from December through April and intermittently moist from May through December. July through September, the driest period, is within the intermittently moist period from May through December.

Depth to secondary carbonates: 0 to 16 inches

Redoximorphic features: Common fine and medium distinct and prominent (hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 5 to 8) below a depth of 24 inches

Depth to endosaturation: 24 to 48 inches

Thickness of the mollic epipedon: 8 to 19 inches; the surface is mollic if mixed to a depth of 7 inches.

Thickness of the solum: 20 to 36 inches

Salinity: 4 to 16 mmhos/cm in the control section

Sodium adsorption ratio (SAR): 0 to 15; typically 6 to 15 in the Btn horizon

Control section: Averages less than 50 percent silt

Other features: Some pedons have an A horizon, which is 1 to 2 inches thick. The Ap horizon is silty clay loam or clay loam in plowed areas. The upper part of the Btn horizon is mixed with the Ap horizon. Some pedons have a Bz or Bkz horizon. Some pedons do not have stratification.

E horizon:
Hue—10YR
Value—5 to 7 dry, 3 to 5 moist
Chroma—1
Texture—silt loam or loam in undisturbed areas
Reaction—slightly acid to strongly alkaline

Btny horizon:
Hue—10YR or 2.5Y
Value—3 to 5 dry, 2 or 3 moist
Chroma—1 or 2

Texture—silty clay loam, clay loam, or silty clay; 35 to 45 percent clay in cultivated areas
Reaction—slightly alkaline to very strongly alkaline

Bky horizon:
Hue—10YR, 2.5Y, or 5Y
Value—5 to 7 dry, 3 to 5 moist
Chroma—2 to 4
Texture—very fine sandy loam, loam, silt loam, or silty clay loam
Reaction—moderately alkaline to very strongly alkaline

C horizon:
Hue—10YR, 2.5Y, or 5Y
Value—6 to 8 dry, 4 to 7 moist
Chroma—2 to 4
Texture—stratified silt loam, loam, or very fine sandy loam; strata range from fine sand to silty clay loam
Reaction—moderately alkaline to very strongly alkaline

Gibbon Series

The Gibbon series consists of very deep, somewhat poorly drained soils that formed in stratified, calcareous alluvium. These soils are on flood plains. Permeability is moderate or moderately slow. Slopes range from 0 to 2 percent. The mean annual temperature is 53 degrees F, and the mean annual precipitation is 23 inches at the type location.

Typical Pedon

Gibbon silty clay loam, on a slope of less than 1 percent, in a cultivated field about 1 mile south and 1.5 miles west of Inavale, in Webster County, Nebraska; 3,060 feet east and 70 feet south of the northwest corner of sec. 9, T. 1 N., R. 12 W.

Ap—0 to 5 inches; dark gray (10YR 4/1) silty clay loam, very dark gray (10YR 3/1) moist; moderate very fine granular structure; slightly hard, friable; strong effervescence; moderately alkaline; abrupt smooth boundary.
A—5 to 11 inches; very dark gray (10YR 3/1) silty clay loam, black (10YR 2/1) moist; moderate very fine granular structure; slightly hard, friable; strong effervescence; moderately alkaline; clear smooth boundary.
AC—11 to 18 inches; light gray (10YR 6/1) silty clay loam, dark gray (10YR 4/1) moist; moderate very fine granular structure; slightly hard, friable; few fine faint brownish and yellowish iron masses in the matrix; violent effervescence; moderately alkaline; clear smooth boundary.
Cg1—18 to 26 inches; light brownish gray (10YR 6/2) silt loam, dark gray (10YR 4/1) moist; massive; soft, very friable; common medium distinct grayish, brownish, and yellowish iron masses in the matrix; violent effervescence; moderately alkaline; clear smooth boundary.
Cg2—26 to 36 inches; light gray (10YR 7/2) very fine sandy loam, light brownish gray (10YR 6/2) moist; massive; soft, very friable; common coarse prominent brownish iron masses in the matrix; strong effervescence; strongly alkaline; clear smooth boundary.
Cg3—36 to 80 inches; light gray (10YR 7/2) fine sandy loam; grayish brown (10YR 5/2) moist; massive; soft, very friable; common coarse prominent brownish iron masses in the matrix; strong effervescence; strongly alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 20 inches
Depth to carbonates: Less than 10 inches
Calcium carbonate equivalent: 5 to 15 percent
Other features: Carbonate concretions are in the AC and C horizons in some pedons.

A horizon:
Hue—10YR or 2.5Y
Value—3 to 5 dry, 2 or 3 moist
Chroma—1 or 2
Texture—silt loam, silty clay loam, very fine sandy loam, loam, or clay loam
Reaction—slightly alkaline or moderately alkaline

AC and Cg horizons:
Hue—10YR, 2.5Y, or 5Y
Value—5 to 8 dry, 4 to 6 moist
Chroma—1 or 2
Texture—silt loam, clay loam, or silty clay loam averaging between 18 and 32 percent clay; thin strata of very fine sandy loam, fine sandy loam, or loamy fine sand in some pedons; stratified loamy fine sand, loamy sand, or fine sand in the Cg horizon below a depth of 40 inches in some pedons
Reaction—slightly alkaline to strongly alkaline

Gothenburg Series

The Gothenburg series consists of soils that are very shallow over gravelly coarse sand. These soils formed in alluvium on river valley flood plains. They are poorly drained and have rapid or very rapid permeability in the underlying material. Slopes range from 0 to 2 percent. The mean annual temperature is about 51 degrees F, and the mean annual precipitation is about 23 inches at the type location.

Typical Pedon

Gothenburg loamy sand, on a slope of 0 to 2 percent, about 10 miles north and 9 miles west of Minden, in Kearney County, Nebraska; 1,000 feet north and 2,300 feet east of the southwest corner of sec. 16, T. 8 N., R. 16 W.; Alfalfa Center USGS topographic quadrangle; lat. 40 degrees 39 minutes 30 seconds N. and long. 99 degrees 07 minutes 51 seconds W. When described, the soil was moist throughout.

A—0 to 3 inches; grayish brown (10YR 5/2) stratified loamy sand, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable; many fine and medium roots; neutral; clear wavy boundary.

C—3 to 8 inches; light brownish gray (10YR 6/2) coarse sand, grayish brown (10YR 5/2) moist; single grain; loose; 3 percent gravel, by volume; neutral; abrupt wavy boundary.

2Cg—8 to 80 inches; light gray (10YR 7/2) gravelly coarse sand, pale brown (10YR 6/3) moist; common medium prominent strong brown (7.5YR 5/6) (moist) iron masses in the soil matrix; single grain; loose; 30 percent gravel, by volume; neutral.

Range in Characteristics

Soil moisture regime: Aquic; the soil is generally saturated to or near the surface during most of the growing season.

Depth to secondary calcium carbonate: Calcium carbonates generally occur in the upper part of the profile in most pedons

Redoximorphic features: Concentrations of distinct or prominent brown or yellowish brown iron masses are in the matrix of the C horizons in most pedons

Depth to endosaturation: 0 to 1.5 feet; highest in early spring and winter when stream flow is highest; may recede to a depth of several feet during midsummer.

Thickness of the mollic epipedon: 1 to 6 inches

Depth to rock fragments: Less than 10 inches; ranges from 1 to 20 inches

A horizon:

Hue—10YR

Value—3 to 5 dry, 2 or 3 moist

Chroma—1 or 2

Texture—stratified loam, fine sandy loam, sandy loam, loamy fine sand, loamy sand, fine sand, or sand; thin layers of clay loam in some pedons

Content of clay—2 to 8 percent

Content of rock fragments—0 to 5 percent rounded gravel, by volume (2 to 75 mm in diameter)

Reaction—neutral to moderately alkaline

C horizon:

Hue—10YR or 2.5Y

Value—6 to 8 dry, 4 to 7 moist

Chroma—1 to 3

Texture—fine sand, sand, or coarse sand; the upper part of the C horizon is loam, fine sandy loam, loamy fine sand, or loamy sand in some pedons

Content of rock fragments—0 to 15 percent rounded gravel, by volume (2 to 75 mm in diameter)

Reaction—neutral to moderately alkaline

C2g horizon:

Hue—10YR

Value—6 to 8 dry, 4 to 7 moist

Chroma—1 to 3

Texture—sand, gravelly coarse sand, or coarse sand

Content of rock fragments—0 to 25 percent rounded gravel, by volume (2 to 75 mm in diameter); thin strata of material that ranges up to 50 percent gravel, by volume, in some pedons

Reaction—neutral or slightly alkaline

Hall Series

The Hall series consists of very deep, well drained soils that formed in loess or silty alluvium. These soils are on uplands and stream terraces. Permeability is moderate. Slopes range from 0 to 6 percent. The mean annual temperature is about 51 degrees F, and the mean annual precipitation is about 24 inches at the type location.

Typical Pedon

Hall silt loam, on a slope of less than 1 percent, in an irrigated field of cultivated crops about 3 miles southwest of Alda, in Hall County, Nebraska; 2,000 feet south and 150 feet east of the northwest corner of sec. 11, T. 10 N., R. 11 W.

Ap—0 to 5 inches; dark grayish brown (10YR 4/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; slightly hard, friable; slightly acid; abrupt smooth boundary.

A—5 to 13 inches; dark grayish brown (10YR 4/2) silty clay loam, very dark brown (10YR 2/2) moist; weak fine granular structure; slightly hard, friable; slightly acid; clear smooth boundary.

Bt1—13 to 16 inches; grayish brown (10YR 5/2) silty clay loam, very dark brown (10YR 2/2) moist; weak fine subangular blocky structure; slightly hard, friable; slightly acid; clear smooth boundary.

Bt2—16 to 24 inches; grayish brown (10YR 5/2) silty clay loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium subangular blocky structure; hard, firm; few shiny faces on peds; slightly acid; clear smooth boundary.

Bt3—24 to 30 inches; grayish brown (10YR 5/2) silty clay loam, dark grayish brown (10YR 4/2) moist; moderate medium subangular blocky structure; hard, firm; few shiny faces on peds; slightly acid; clear smooth boundary.

BC—30 to 36 inches; light brownish gray (10YR 6/2) silt loam, grayish brown (10YR 5/2) moist; weak coarse subangular blocky structure; slightly hard, friable; neutral; clear smooth boundary.

C1—36 to 47 inches; light gray (10YR 7/2) silt loam, light brownish gray (10YR 6/2) moist; weak coarse prismatic structure; soft, very friable; neutral; abrupt smooth boundary.

2C2—47 to 80 inches; light brownish gray (10YR 6/2) stratified fine sandy loam, silt loam, and silty clay loam, grayish brown (10YR 5/2) moist; massive; soft, friable; moderately alkaline; strong effervescence.

Range in Characteristics

Soil moisture regime: Ustic; the soil moisture control section is moist in some part from October through April, intermittently moist from May through July, and driest from July through September.

Depth to secondary carbonates: 36 to 60 inches; carbonates are generally associated with the C horizon.

Redoximorphic features: Faint or distinct mottles are below a depth of 40 inches in some pedons.

Thickness of the mollic epipedon: 20 to 38 inches; the mollic epipedon extends into the upper part of the B horizon.

Thickness of the solum: 27 to 60 inches

A horizon:
Hue—10YR
Value—3 to 5 dry, 2 or 3 moist
Chroma—1 or 2
Texture—silt loam, loam, or silty clay loam
Reaction—slightly acid or neutral

Bt horizon:
Hue—10YR
Value—3 to 6 dry, 2 to 5 moist
Chroma—1 to 3
Texture—silty clay loam or silt loam
Content of clay—20 to 35 percent
Reaction—slightly acid to slightly alkaline

BC horizon:
Hue—10YR
Value—5 to 7 dry, 4 to 6 moist
Chroma—2 or 3
Texture—silt loam, very fine sandy loam, loam, or silty clay loam
Reaction—neutral or slightly alkaline

C horizon:
Hue—10YR
Value—6 to 8 dry, 5 to 7 moist
Chroma—2 or 3
Texture—silt loam, silty clay loam, very fine sandy loam, or fine sandy loam
Reaction—neutral to moderately alkaline

2C horizon (if it occurs):
Hue—10YR
Value—6 or 7 dry, 5 or 6 moist
Chroma—2 or 3
Texture—silt loam, loam, silty clay loam, or sandy loam; fine sand in some pedons
Reaction—neutral to moderately alkaline

Hastings Series

The Hastings series consists of very deep, well drained soils that formed in silty loess. These soils are on uplands. Permeability is moderately slow. Slopes range from 0 to 17 percent. The mean annual temperature is 54 degrees F, and the mean annual precipitation is 26 inches at the type location.

Typical Pedon

Hastings silt loam, on a slope of less than 1 percent, in a cultivated field about 2 miles east of York, in York County, Nebraska; 150 feet south and 80 feet west of the northeast corner of sec. 4, T. 10 N., R. 2 W.

Ap—0 to 6 inches; dark grayish brown (10YR 4/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; slightly hard, friable; moderately acid; abrupt smooth boundary.

A—6 to 14 inches; dark grayish brown (10YR 4/2) silty clay loam, very dark grayish brown (10YR 3/2) moist; weak coarse subangular blocky structure parting to moderate fine granular; slightly hard, friable; moderately acid; gradual smooth boundary.

BA—14 to 20 inches; grayish brown (10YR 5/2) silty clay loam, very dark grayish brown (10YR 3/2) moist; weak coarse prismatic structure parting to strong fine and very fine subangular blocky; hard, firm; dark coatings on faces of peds; slightly acid; gradual smooth boundary.

Bt1—20 to 29 inches; grayish brown (10YR 5/2) silty clay loam, dark grayish brown (10YR 4/2) moist; weak coarse prismatic structure parting to strong medium and coarse subangular blocky; hard, firm; thin clay films on faces of peds; slightly acid; gradual smooth boundary.

Bt2—29 to 37 inches; brown (10YR 5/3) silty clay loam, light olive brown (2.5Y 5/3) moist; strong medium and coarse subangular blocky structure; hard, firm; dark coatings on faces of peds; slightly acid; gradual smooth boundary.

BC—37 to 48 inches; pale brown (10YR 6/3) silty clay loam, light olive brown (2.5Y 5/4) moist; moderate medium subangular blocky structure; slightly hard, friable; dark coatings on faces of peds; slightly acid; gradual smooth boundary.

C—48 to 80 inches; pale brown (10YR 6/3) silt loam, light olive brown (2.5Y 5/4) moist; massive; soft, friable; neutral.

Range in Characteristics

Soil moisture regime: Udic; the soil moisture control section is moist in some part from October through April, intermittently moist from May through July, and driest from July through September.

Depth to secondary carbonates: 36 to 60 inches

Thickness of the mollic epipedon: 8 to 20 inches

Thickness of the solum: 26 to 52 inches

Other features: Few fine and medium distinct mottles (hue of 10YR or 7.5YR, value of 4 to 6 moist, and chroma of 4 to 8) occur in the BC and C horizons.

A and Ap horizons:

Hue—10YR
Value—3 to 5 dry, 2 or 3 moist
Chroma—1 or 2
Texture—silt loam or silty clay loam
Reaction—moderately acid or slightly acid

BA horizon:

Hue—10YR
Value—4 or 5 dry, 2 or 3 moist
Chroma—1, 2, or 3
Texture—silty clay loam
Reaction—moderately acid to neutral

Bt horizon:

Hue—10YR or 2.5Y
Value—5 or 6 dry, 4 or 5 moist
Chroma—2 or 3
Texture—silty clay loam or silty clay
Content of clay—35 to 42 percent; thin clay films on faces of peds, especially in the upper part
Reaction—slightly acid or neutral

BC horizon:

Hue—10YR or 2.5Y
Value—5 to 7 dry, 4 to 6 moist
Chroma—2 to 4
Texture—silty clay loam
Reaction—slightly acid to slightly alkaline

C horizon:

Hue—10YR or 2.5Y
Value—5 to 7 dry, 4 to 6 moist
Chroma—2 to 4
Texture—silt loam or silty clay loam
Reaction—neutral to moderately alkaline
Special features—few fine and medium prominent white (10YR 8/1) rounded calcium carbonate concretions in the C horizon in some pedons

Hersh Series

The Hersh series consists of very deep, well drained soils that formed in mixed eolian sandy and loamy material. These soils are on uplands and stream terraces. Permeability is moderately rapid. Slopes range from 0 to 60 percent. The mean annual precipitation is 22 inches, and the mean annual temperature is 52 degrees F.

Typical Pedon

Hersh fine sandy loam, on a convex 4 percent slope, in a cultivated field about 7 miles south and 0.5 mile east of North Platte, in Lincoln County, Nebraska; 330 feet south and 2,400 feet west of the northeast corner of sec. 16, T. 12 N., R. 30 W. When described, the soil was moist throughout.

Ap—0 to 4 inches; grayish brown (10YR 5/2) fine sandy loam, dark grayish brown (10YR 4/2) moist; weak fine granular structure; soft, very friable; neutral; abrupt smooth boundary.

A—4 to 7 inches; grayish brown (10YR 5/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable; neutral; clear smooth boundary.

AC—7 to 11 inches; grayish brown (10YR 5/2) fine sandy loam, dark grayish brown (10YR 4/2) moist; weak medium subangular blocky structure; soft, very friable; neutral; clear smooth boundary.

C—11 to 80 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 5/3) moist; massive; soft, very friable; neutral.

Range in Characteristics

Soil moisture regime: Ustic; the soil moisture control section is moist in some part from October through April, intermittently moist from May through June, and driest from July through September.

Depth to secondary carbonates: More than 40 inches

Thickness of the mollic epipedon: Less than 6 inches (if it occurs)

A or Ap horizon:

Hue—10YR
Value—4 to 6 dry, 3 to 5 moist
Chroma—2 or 3
Texture—fine sandy loam or loamy fine sand
Reaction—slightly acid or neutral

AC horizon (if it occurs):

Hue—10YR
Value—5 or 6 dry, 4 or 5 moist
Chroma—2 or 3
Texture—fine sandy loam, very fine sandy loam, or loamy very fine sand
Reaction—slightly acid or neutral

C horizon:

Hue—10YR
Value—5 to 7 dry, 4 to 6 moist
Chroma—2 or 3
Texture—fine sandy loam, very fine sandy loam, or loamy very fine sand; loamy fine sand and coarser material below a depth of 30 inches in many pedons; stratified with silty material below a depth of 40 inches in some pedons
Reaction—neutral or slightly alkaline

Hobbs Series

The Hobbs series consists of very deep, well drained soils that formed in stratified, silty alluvium. These soils are on flood plains, footslopes, and alluvial fans. Permeability is moderate. Slopes range from 0 to 6 percent. The mean annual temperature is 52 degrees F, and the mean annual precipitation is 25 inches at the type location.

Typical Pedon

Hobbs silt loam, on a slope of less than 1 percent, in an area of bluegrass pasture about 5 miles north and 4 miles west of Superior, in Nuckolls County, Nebraska; 400 feet south and 100 feet east of the northwest corner of sec. 32, T. 2 N., R. 7 W.

A—0 to 7 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; hard, friable; neutral; abrupt smooth boundary.

C1—7 to 34 inches; stratified grayish brown (10YR 5/2) and light brownish gray (10YR 6/2) silt loam, very dark grayish brown (10YR 3/2) and dark grayish brown (10YR 4/2) moist; moderate fine and medium granular structure; slightly hard, very friable; neutral; clear smooth boundary.

C2—34 to 44 inches; gray (10YR 5/1) silt loam, dark gray (10YR 4/1) moist; moderate fine and medium granular structure; slightly hard, very friable; neutral; clear smooth boundary.

C3—44 to 60 inches; light brownish gray (10YR 6/2) silt loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, friable; neutral.

Range in Characteristics

Soil moisture regime: Ustic

Depth to free calcium carbonates: More than 40 inches; some pedons have a thin surface layer of recent deposition that contains small amounts of free carbonates.

Thickness of the mollic epipedon: 6 to 20 inches

Texture of the particle-size control section (weighted average): Silt loam

Content of clay in the particle-size control section (weighted average): 15 to 27 percent

Content of sand in the particle-size control section (weighted average): 0 to 15 percent

A horizon:

Hue—10YR
Value—4 or 5 dry, 2 or 3 moist
Chroma—1 or 2
Texture—silt loam, silty clay loam, very fine sandy loam, or fine sandy loam
Content of clay—10 to 35 percent
Reaction—slightly acid to slightly alkaline
Thickness—6 to 20 inches
Special features—thin stratification with material having colors with higher value (in undisturbed areas)

C horizon:
Hue—10YR or 2.5Y
Value—4 to 7 dry, 3 to 6 moist
Chroma—1 to 3
Texture—silt loam; includes layers of silty clay loam and thin strata of slightly coarser or finer textured material
Content of clay—15 to 30 percent
Reaction—slightly acid to moderately alkaline
Special features—contains thin strata with colors that are within the range or that have slightly higher or lower value; buried soils common

Holder Series

The Holder series consists of very deep, well drained soils that formed in loess. These soils are on uplands. Permeability is moderate. Slopes are typically less than 4 percent but range from 0 to 11 percent. The mean annual air temperature is about 51 degrees F, and the mean annual precipitation is about 25 inches at the type location.

Typical Pedon

Holder silt loam, on a slope of less than 1 percent, in a cultivated field in Hamilton County, Nebraska; 400 feet south and 100 feet west of the northeast corner of sec. 3, T. 10 N., R. 8 W.

Ap—0 to 5 inches; dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; weak fine and medium granular structure; soft, very friable; strongly acid; abrupt smooth boundary.
A—5 to 10 inches; dark grayish brown (10YR 4/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium and coarse granular structure; slightly hard, very friable; moderately acid; clear smooth boundary.
Bt1—10 to 18 inches; grayish brown (10YR 5/2) silty clay loam, dark grayish brown (10YR 4/2) moist; moderate fine and medium subangular blocky structure; slightly hard, friable; neutral; clear smooth boundary.
Bt2—18 to 23 inches; brown (10YR 5/3) silty clay loam, brown (10YR 4/3) moist; moderate medium and coarse subangular blocky structure; slightly hard, friable; neutral; clear smooth boundary.
BC—23 to 29 inches; pale brown (10YR 6/3) silt loam, brown (10YR 5/3) moist; weak coarse prismatic structure parting to weak medium subangular blocky; slightly hard, friable; neutral; clear smooth boundary.
C1—29 to 50 inches; very pale brown (10YR 7/3) silt loam, pale brown (10YR 6/3) moist; weak coarse prismatic structure; soft, very friable; slightly alkaline; gradual smooth boundary.
C2—50 to 80 inches; very pale brown (10YR 7/3) silt loam, pale brown (10YR 6/3) moist; few fine faint strong brown (7.5YR 5/6) (moist) mottles; weak coarse prismatic structure; soft, very friable; soft masses of calcium carbonate accumulations; violent effervescence; moderately alkaline.

Range in Characteristics

Soil moisture: The soil moisture control section is moist in some part from October through April, intermittently moist from May through July, and driest from July through September.
Depth to secondary calcium carbonates: 30 to 60 inches
Thickness of the mollic epipedon: 8 to 20 inches; extends into the upper part of the B horizon in some pedons
Thickness of the solum: 25 to 50 inches

A horizon:
Hue—10YR
Value—3 to 5 dry, 2 or 3 moist
Chroma—1 or 2
Texture—silt loam, loam, or silty clay loam
Reaction—strongly acid to neutral

BA horizon (if it occurs):
Hue—10YR
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3
Texture—silt loam, loam, or silty clay loam
Reaction—strongly acid to neutral

Bt horizon:
Hue—10YR
Value—4 to 6 dry, 3 to 5 moist
Chroma—2 or 3
Texture—silty clay loam
Content of clay—28 to 35 percent
Reaction—slightly acid to slightly alkaline

BC horizon (if it occurs):
Hue—10YR
Value—5 to 7 dry, 4 to 6 moist
Chroma—2 or 3
Texture—silt loam or silty clay loam
Reaction—neutral or slightly alkaline

C horizon:
Hue—10YR
Value—6 or 7 dry, 5 or 6 moist
Chroma—2 or 3
Texture—silt loam or silty clay loam
Reaction—neutral to moderately alkaline

Holdrege Series

The Holdrege series consists of very deep, well drained soils that formed in calcareous loess. These soils are on uplands. Permeability is moderate. Slopes range from 0 to 15 percent. The mean annual temperature is about 54 degrees F, and the mean annual precipitation is about 23 inches at the type location.

Typical Pedon

Holdrege silt loam, on a convex, west-facing slope of 2 percent, in a cultivated field about 2 miles northwest of Holdrege, in Phelps County, Nebraska; 325 feet north and 250 feet east of the southwest corner of sec. 25, T. 6 N., R. 19 W. When described, the soil was moist throughout.

Ap—0 to 6 inches; dark grayish brown (10YR 4/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate fine and very fine granular structure; soft, very friable; moderately acid; abrupt smooth boundary.

A—6 to 12 inches; dark grayish brown (10YR 4/2) light silty clay loam, very dark grayish brown (10YR 3/2) moist; weak medium and fine granular structure; slightly hard, friable; slightly acid; clear smooth boundary.

Bt1—12 to 15 inches; dark grayish brown (10YR 4/2) silty clay loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure parting to moderate medium granular; slightly hard, friable; shiny surfaces on most peds; neutral; clear smooth boundary.

Bt2—15 to 24 inches; grayish brown (10YR 5/2) silty clay loam, dark grayish brown (10YR 4/2) moist; weak coarse prismatic structure parting to moderate medium subangular blocky; hard, firm; few thin discontinuous clay films in pores; shiny surfaces on most peds; neutral; clear smooth boundary.

BC—24 to 30 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; weak coarse prismatic structure parting to moderate medium and fine subangular blocky; slightly hard, friable; slightly alkaline; gradual smooth boundary.

C—30 to 80 inches; very pale brown (10YR 7/4) silt loam, pale brown (10YR 6/3) moist; weak coarse prismatic structure parting to weak medium subangular blocky; soft, very friable; violent effervescence; few soft white accumulations of carbonate and some cleavage planes coated with free carbonates; moderately alkaline.

Range in Characteristics

Soil moisture: The soil moisture control section is moist in some part from October through April, intermittently moist from May through July, and driest from July through September.

Depth to secondary carbonates: 20 to 40 inches

Thickness of the mollic epipedon: 8 to 20 inches; includes the upper part of the argillic horizon in some pedons

Thickness of the solum: 20 to 40 inches; the lower part of the solum contains free carbonates in some pedons.

Other features: Some eroded Holdrege soils have an Ap horizon of silty clay loam.

A horizon:
Hue—10YR
Value—4 or 5 dry, 2 or 3 moist
Chroma—2
Texture—silt loam; includes very fine sandy loam, fine sandy loam, or loam in the upper part; silt loam or light silty clay loam in the lower part
Reaction—neutral to moderately acid

Bt horizon:
Hue—10YR
Value—4 to 7 dry, 3 to 5 moist
Chroma—2 to 4
Texture—silty clay loam
Content of clay—28 to 35 percent; thin subhorizons containing as much as 38 percent in some pedons
Reaction—neutral or slightly alkaline

BC horizon:
Hue—10YR
Value—5 to 7 dry, 4 to 6 moist
Chroma—2 to 4
Texture—silt loam, loam, or silty clay loam
Reaction—neutral or slightly alkaline

C horizon:
Hue—10YR or 2.5Y
Value—6 or 7 dry, 5 or 6 moist
Chroma—2 to 4
Texture—silt loam or very fine sandy loam
Reaction—slightly alkaline or moderately alkaline

Hord Series

The Hord series consists of very deep, well drained soils that formed in mixed loess and alluvium. These soils are on footslopes and stream terraces. Permeability is moderate. Slopes range from 0 to 7 percent but are dominantly less than 1 percent. The mean annual temperature is about 51 degrees F, and the mean annual precipitation is about 23 inches at the type location.

Typical Pedon

Hord silt loam, on a slope of less than 1 percent, in an irrigated field of cultivated crops about 1 mile south and 1 mile east of Riverdale, in Buffalo County, Nebraska; 1,320 feet west and 100 feet north of the southeast corner of sec. 5, T. 9 N., R. 16 W.

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; weak medium granular structure; slightly hard, friable; neutral; abrupt smooth boundary.

A—8 to 14 inches; dark gray (10YR 4/1) silt loam, very dark brown (10YR 2/2) moist; weak medium granular structure; slightly hard, friable; slightly acid; clear smooth boundary.

Bw—14 to 28 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; slightly hard, friable; neutral; clear smooth boundary.

BC—28 to 48 inches; light brownish gray (10YR 6/2) silt loam, dark grayish brown (10YR 4/2) moist; weak coarse prismatic structure parting to weak medium subangular blocky; soft, very friable; neutral; clear smooth boundary.

C—48 to 80 inches; light brownish gray (10YR 6/2) silt loam, dark grayish brown (10YR 4/2) moist; massive; soft, friable; strong effervescence; moderately alkaline.

Range in Characteristics

Soil moisture: The soil moisture control section is moist in some part from October through April, intermittently moist from May through July, and driest from July through September.

Depth to secondary carbonates: 20 to 60 inches; carbonates do not occur in all pedons.

Thickness of the mollic epipedon: 20 to 55 inches; the mollic epipedon extends into the B horizon.

Thickness of the solum: 24 to 60 inches

A horizon:

Hue—10YR
Value—3 to 5 dry, 2 or 3 moist
Chroma—1 or 2
Texture—silt loam, loam, very fine sandy loam, fine sandy loam, or silty clay loam
Reaction—moderately acid to neutral

Bw horizon:

Hue—10YR
Value—3 to 5 dry, 2 or 3 moist
Chroma—1 or 2
Texture—silt loam or silty clay loam
Reaction—slightly acid or neutral

BC horizon:

Hue—10YR
Value—4 to 7 dry, 3 to 5 moist
Chroma—2 or 3
Texture—silt loam, silty clay loam, or loam
Content of clay—dominantly 25 percent; ranges from 20 to 35 percent
Reaction—slightly acid to slightly alkaline

C horizon:

Hue—10YR
Value—4 to 7 dry, 3 to 6 moist
Chroma—2 to 4
Texture—very fine sandy loam to silty clay loam, commonly stratified, on stream terraces; silt loam and silty clay loam on the uplands
Reaction—slightly alkaline or moderately alkaline
Special features—buried horizons common in some areas; material coarser than very fine sandy loam below a depth of 40 inches in some pedons

Inavale Series

The Inavale series consists of very deep, excessively drained soils that formed mainly in sandy alluvium. These soils are on flood plains. Permeability is rapid. Slopes range from 0 to 11 percent. The mean annual temperature is about 53 degrees, and the mean annual precipitation is about 23 inches at the type location.

Typical Pedon

Inavale loamy fine sand, on a slope of less than 2 percent, in an area of rangeland about 3 miles west and 2 miles south of Red Cloud, in Webster County, Nebraska; 1,700 feet east and 1,200 feet north of the southwest corner of sec. 9, T. 1 N., R. 11 W.

A—0 to 8 inches; grayish brown (10YR 5/2) loamy fine sand, dark grayish brown (10YR 4/2) moist; weak coarse granular structure; loose; slightly alkaline; clear smooth boundary.

AC—8 to 17 inches; light brownish gray (10YR 6/2) loamy sand, grayish brown (10YR 5/2) moist; single grain; loose; slightly alkaline; abrupt smooth boundary.

C—17 to 60 inches; light gray (10YR 7/2) fine sand, light brownish gray (10YR 6/2) moist; single grain; loose; thin strata of finer and coarser textured sediments; slightly alkaline.

Range in Characteristics

Soil moisture: The soil moisture control section is moist in some part from September through June and intermittently moist from July through September.

Depth to secondary carbonates: The depth to layers of continuous carbonates is typically more than 40 inches. Profiles that have thin strata that effervesce slightly are included in the series.

Thickness of the mollic epipedon: 4 to 6 inches (if it occurs)

A horizon:
Hue—10YR
Value—5 to 7 dry, 3 to 5 moist
Chroma—1 to 3
Texture—loamy fine sand, sand, fine sand, loamy sand, sandy loam, fine sandy loam, loam, or silt loam
Reaction—moderately acid to slightly alkaline
Special features—the horizon has mollic colors but does not have sufficient organic carbon to qualify as a mollic epipedon.

AC horizon (if it occurs) and C horizon:
Hue—10YR
Value—5 to 8 dry, 4 to 6 moist
Chroma—2 or 3
Texture—loamy fine sand, loamy sand, fine sand, very fine sandy loam, or sand
Reaction—moderately acid to slightly alkaline
Special features—coarse sand in subhorizons in some pedons; strata of finer and coarser textured material in the C horizon; a few faint iron stains in the soil matrix below a depth of 40 inches in some pedons; no AC horizon in some pedons

Ipage Series

The Ipage series consists of very deep, moderately well drained soils that formed in eolian and alluvial sands. These soils occur on hummocks in interdunes and on stream terraces. Permeability is rapid. Slopes range from 0 to 6 percent. The mean annual precipitation is about 21 inches, and the mean annual temperature is about 50 degrees F at the type location.

Typical Pedon

Ipage sand, on a convex, north-facing slope of 1 percent, in an area of native rangeland about 2 miles south and 10 miles west of O'Neill, in Holt County, Nebraska; 1,000 feet south and 225 feet east of the northwest corner of sec. 9, T. 28 N., R. 13 W. When this pedon was described, the soil was dry above a depth of 24 inches.

A—0 to 5 inches; dark grayish brown (10YR 4/2) sand, very dark grayish brown (10YR 3/2) moist; weak medium and fine granular structure; soft, very friable; moderately acid; clear smooth boundary.

AC—5 to 11 inches; grayish brown (10YR 5/2) sand, dark grayish brown (10YR 4/2) moist; single grain; loose; moderately acid; gradual wavy boundary.

C1—11 to 21 inches; pale brown (10YR 6/3) sand, brown (10YR 5/3) moist; single grain; loose; moderately acid; gradual wavy boundary.

C2—21 to 32 inches; very pale brown (10YR 7/3) fine sand, pale brown (10YR 6/3) moist; single grain; loose; moderately acid; gradual wavy boundary.

C3—32 to 54 inches; very pale brown (10YR 8/2) fine sand, light gray (10YR 7/2) moist; common medium and fine distinct yellowish brown (10YR 5/6 (moist) iron masses in the soil matrix; single grain; loose; moderately acid; gradual smooth boundary.

2Cg—54 to 80 inches; light gray (10YR 7/2) coarse sand, light brownish gray (10YR 6/2) moist; single grain; loose; moderately acid.

Range in Characteristics

Depth to carbonates: More than 60 inches, but some pedons have strata of carbonates between depths of 20 and 40 inches.

Other features: A calcareous phase is recognized. Reaction ranges from neutral to moderately alkaline in the upper part and from slightly alkaline to strongly alkaline in the lower part. Typically, carbonates are at a depth of less than 15 inches. Buried loamy layers are in the lower part of some pedons.

A horizon:
Hue—10YR
Value—4 to 6 dry, 3 or 4 moist
Chroma—1 to 3
Texture—sand, loamy sand, loamy fine sand, or fine sand
Reaction—strongly acid to neutral

AC horizon (if it occurs):
Hue—10YR
Value—5 or 6 dry, 3 to 5 moist

Chroma—2 or 3
Texture—sand, fine sand, loamy sand, or loamy fine sand
Reaction—strongly acid to neutral

C horizon:
Hue—10YR or 2.5Y
Value—4 to 8 dry, 3 to 7 moist
Chroma—2 or 3
Redoximorphic features—few or common distinct or prominent gray to yellowish brown redoximorphic features within a depth of 40 inches; a loamy substratum that is loam or clay loam below a depth of 60 inches in some pedons
Texture—fine sand, sand, loamy fine sand, or loamy sand
Reaction—strongly acid to neutral in the upper part; moderately acid to slightly alkaline below a depth of 40 inches

2Cg horizon (if it occurs):
Hue—10YR
Value—6 to 8 dry, 4 to 7 moist
Chroma—2 or 3
Texture—coarse sand or sand

Jansen Series

The Jansen series consists of very deep, well drained soils that formed in loamy sediments over alluvial sand and gravel. These soils are on uplands. Permeability is moderate. Slopes range from 0 to 30 percent. The mean annual air temperature is about 50 degrees F, and the mean annual precipitation is about 21 inches.

Typical Pedon

Jansen loam, on a convex, south-facing slope of 0.6 percent, in a cultivated field about 4 miles north of the eastern edge of O'Neill, in Holt County, Nebraska; 2,000 feet south and 100 feet west of the northeast corner of sec. 6, T. 29 N., R. 11 W. When described, the soil was moist throughout.

Ap—0 to 6 inches; dark gray (10YR 4/1) loam, very dark brown (10YR 2/2) moist; weak medium subangular blocky structure parting to weak medium and fine granular; slightly hard, very friable; strongly acid; abrupt smooth boundary.

A—6 to 12 inches; dark gray (10YR 4/1) loam, very dark brown (10YR 2/2) moist; weak coarse blocky structure parting to weak fine subangular blocky; slightly hard, friable; moderately acid; clear smooth boundary.

BA—12 to 15 inches; dark grayish brown (10YR 4/2) loam, very dark grayish brown (10YR 3/2) moist; moderate coarse blocky structure parting to moderate medium and fine subangular blocky; slightly hard, friable; slightly acid; clear smooth boundary.

Bt1—15 to 18 inches; brown (10YR 4/3) loam, dark brown (10YR 3/3) moist; moderate coarse prismatic structure parting to moderate medium subangular blocky; hard, firm; slightly acid; clear smooth boundary.

Bt2—18 to 25 inches; brown (10YR 5/3) sandy clay loam, dark yellowish brown (10YR 3/4) moist; moderate coarse prismatic structure parting to moderate medium and fine subangular blocky; hard, firm; moderately acid; clear wavy boundary.

2BC—25 to 30 inches; light yellowish brown (10YR 6/4) loamy coarse sand, yellowish brown (10YR 5/4) moist; weak fine and medium subangular blocky structure breaking to single grain; soft, very friable; moderately acid; gradual wavy boundary.

2C—30 to 60 inches; very pale brown (10YR 7/4) gravelly coarse sand and gravel, yellowish brown (10YR 5/4) moist; single grain; loose; slightly acid.

Range in Characteristics

Soil moisture: The soil moisture control section is moist in some part from October through April, intermittently moist from May through July, and driest from July through September.
Depth to carbonates: 20 to 40 inches
Thickness of the mollic epipedon: 7 to 20 inches
Thickness of the solum: 20 to 40 inches
Depth to coarse sand and gravel: 20 to 40 inches
Other features: Gravel is on the surface and is mixed throughout the profile of some pedons.

A horizon:
Hue—10YR or 7.5YR
Value—4 or 5 dry, 2 or 3 moist
Chroma—1 or 2
Texture—loam, silt loam, or loamy sand
Reaction—strongly acid to neutral

Bt horizon:
Hue—10YR or 7.5YR
Value—4 to 6 dry, 3 or 4 moist
Chroma—2 to 4
Texture—loam, clay loam, or sandy clay loam
Content of clay—18 to 32 percent
Reaction—strongly acid to neutral
Structure—weak to moderate prismatic and subangular blocky parting to fine or medium subangular blocky
Special features—faint continuous clay films on faces of some peds

2C horizon:
Hue—10YR or 7.5YR
Value—6 or 7 dry, 5 or 6 moist
Chroma—3 or 4
Texture—stratified sand, gravelly coarse sand, or coarse sand
Content of rock fragments—2 to 40 percent rounded gravel, by volume (2 to 75 mm diameter)
Reaction—strongly acid to neutral

Janude Series

The Janude series consists of very deep, moderately well drained soils that formed in loamy alluvial sediments. These soils are on bottom land. Permeability is moderate. Slopes range from 0 to 2 percent. The mean annual temperature is about 50 degrees F, and the mean annual precipitation is about 29 inches.

Typical Pedon

Janude loam, on a nearly level slope, in a cultivated field about 2.5 miles west and 0.5 mile north of Ames, in Dodge County, Nebraska; 2,376 feet south and 50 feet east of the northwest corner of sec. 7, T. 17 N., R. 7 E.

Ap—0 to 7 inches; dark gray (10YR 4/1) loam, black (10YR 2/1) moist; weak fine granular structure; slightly hard, very friable; neutral; abrupt smooth boundary.
A—7 to 16 inches; dark gray (10YR 4/1) loam, black (10YR 2/1) moist; weak coarse prismatic structure parting to weak fine subangular blocky; slightly hard, very friable; neutral; abrupt smooth boundary.
AC—16 to 40 inches; gray (10YR 5/1) loam, very dark grayish brown (10YR 3/2) moist; weak coarse prismatic structure parting to weak medium and fine subangular blocky; slightly hard, very friable; violent effervescence; moderately alkaline; clear wavy boundary.
C1—40 to 52 inches; light brownish gray (10YR 6/2) loam, dark grayish brown (10YR 4/2) moist; many medium distinct reddish brown (5YR 4/4) (moist) iron masses in the matrix; massive; slightly hard, very friable; slight effervescence; moderately alkaline; abrupt smooth boundary.
C2—52 to 60 inches; light gray (10YR 7/1) loam, grayish brown (10YR 5/2) moist; few medium distinct reddish brown (5YR 4/4) (moist) iron masses in the matrix; massive; hard, friable; slight effervescence; moderately alkaline.

Range in Characteristics

Thickness of the solum: 27 to 45 inches
Depth to free carbonates: 14 to 30 inches; ranges from 14 to 60 inches or more
Content of clay at a depth of 10 to 40 inches in the particle-size control section (weighted average): 10 to 18 percent
Content of clay below a depth of 40 inches in the particle-size control section (weighted average): 18 to 35 percent
Reaction: Neutral to moderately alkaline in the control section
Other features: Some pedons have a Bw horizon that has colors and textures similar to those of the AC horizon.

A horizon:
Hue—10YR
Value—4 or 5 dry, 2 or 3 moist
Chroma—1 or 2
Texture—loam, fine sandy loam, or sandy loam
Reaction—neutral or slightly alkaline

AC horizon:
Hue—10YR
Value—4 or 5 dry, 2 or 3 moist
Chroma—1 or 2
Texture—loam or fine sandy loam

C horizon:
Hue—10YR
Value—5 to 7 dry, 3 to 5 moist
Chroma—1 or 2
Redoximorphic features—few to many faint or distinct
Texture—loam; layers of fine sandy loam, heavy loam, clay loam, silt loam, or silty clay loam below a depth of 40 inches; thin layers with more than 35 percent clay below a depth of 40 inches and a clayey substratum phase in some pedons; sandy material at a depth of more than 60 inches in some pedons

Kenesaw Series

The Kenesaw series consists of very deep, well drained soils that formed in recent loess. These soils are on hummocky uplands. Permeability is moderate. Slopes range from 0 to 11 percent but are typically 0 to 5 percent. The mean annual temperature is 51 degrees F, and the mean annual precipitation is 23 inches at the type location.

Typical Pedon

Kenesaw silt loam, on a slope of less than 1 percent, in a cultivated field about 13 miles north of Shelton, in Buffalo County, Nebraska; 150 feet north and 150 feet east of the southwest corner of sec. 25, T. 12 N., R. 13 W.

Ap—0 to 8 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; slightly hard, very friable; neutral; abrupt smooth boundary.

Bw—8 to 22 inches; light brownish gray (10YR 6/2) loam, dark grayish brown (10YR 4/2) moist; weak medium subangular blocky structure; slightly hard, very friable; neutral; clear smooth boundary.

C—22 to 60 inches; light gray (2.5Y 7/2) silt loam, light brownish gray (2.5Y 6/2) moist; massive; slightly hard, very friable; slightly alkaline; strong effervescence.

Range in Characteristics

Thickness of the solum: 12 to 26 inches
Depth to carbonates: 10 to 36 inches; dominantly 15 to 28 inches
Other features: Some pedons have a BC horizon.

A horizon:
Hue—10YR
Value—4 or 5 dry, 2 or 3 moist
Chroma—1 to 3
Texture—silt loam, loam, or very fine sandy loam
Reaction—slightly acid or neutral

Bw horizon:
Hue—10YR
Value—5 or 6 dry, 4 or 5 moist
Chroma—2 or 3
Texture—loam, silt loam, or very fine sandy loam
Reaction—neutral to moderately alkaline

C horizon:
Hue—10YR or 2.5Y
Value—5 to 7 dry, 4 to 6 moist
Chroma—2 or 3
Texture—silt loam, loam, or very fine sandy loam; thin wind stratification common, including material ranging from loam to sand
Redoximorphic features—reddish or brownish mottles in the C horizon of some pedons; not related to a present water table
Reaction—slightly alkaline or moderately alkaline

Lamo Series

The Lamo series consists of very deep, somewhat poorly drained soils that formed in calcareous loamy alluvium. These soils are on flood plains. Permeability is moderately slow. Slopes range from 0 to 2 percent. The mean annual temperature is 53 degrees F, and the mean annual precipitation is 27 inches at the type location.

Typical Pedon

Lamo silty clay loam, on a slope of less than 1 percent, in an area of cropland about 3 miles east and 1 mile south of Beaver Crossing, in Seward County, Nebraska; 300 feet east and 1,056 feet north of the southwest corner of sec. 9, T. 9 N., R. 2 E.

Ap—0 to 7 inches; dark gray (10YR 4/1) silty clay loam, black (10YR 2/1) moist; weak fine and medium granular structure; slightly hard, friable; common fine roots throughout; slightly alkaline; abrupt smooth boundary.

A—7 to 15 inches; very dark gray (10YR 3/1) silty clay loam, black (10YR 2/1) moist; weak medium granular structure; slightly hard, friable; common fine roots throughout; few fine tubular pores; strong effervescence; slightly alkaline; clear smooth boundary.

AB—15 to 26 inches; gray (10YR 5/1) silty clay loam, very dark gray (10YR 3/1) moist; moderate medium subangular blocky structure; hard, firm; few fine roots throughout; common fine tubular pores; strong effervescence; moderately alkaline; clear smooth boundary.

Bg1—26 to 32 inches; gray (10YR 6/1) silty clay loam, dark gray (10YR 4/1) moist; moderate medium subangular blocky structure; hard, firm; few fine prominent yellowish brown (10YR 5/6) iron masses in the soil matrix: common medium lime concretions; strong effervescence; moderately alkaline; gradual smooth boundary.

Bg2—32 to 46 inches; gray (10YR 6/1) silty clay loam, dark gray (10YR 4/1) moist; weak coarse subangular blocky structure; hard, firm; common medium concretions; strong effervescence; moderately alkaline; gradual smooth boundary.

Cg—46 to 80 inches; gray (10YR 6/1) silty clay loam, dark gray (10YR 4/1) moist; massive; hard, firm; common medium lime concretions; strong effervescence; moderately alkaline.

Range in Characteristics

Soil moisture: Moist in all parts of the soil moisture control section for less than 90 cumulative days in the 120 days following the summer solstice; moist in some part of the soil moisture control section for more than 90 cumulative days in the 120 days following the summer solstice.

Depth to secondary carbonates: Commonly 5 to 10 inches; ranges from 0 to 20 inches
Calcium carbonate equivalent: 5 to 10 percent; ranges from 1 to 15 percent
Calcium carbonate accumulations: Below a depth of 24 inches
Redoximorphic features: Few fine and common distinct yellowish brown (hue of 10YR or 2.5Y, value of 4, and chroma of 4 to 6) iron concentrations below a depth of 40 inches in the matrix; common fine prominent greenish gray (5G 5/1) iron depletions in the matrix.
Depth to endosaturation: 18 inches (winter and spring); 36 inches or more (summer and fall)
Thickness of the mollic epipedon: 24 to more than 40 inches; the surface layer is slightly lighter colored in some pedons because of recent overwash.
Thickness of the solum: 24 to more than 60 inches

A horizon:
Hue—10YR or 2.5Y
Value—3 to 5 dry, 2 or 3 moist
Chroma—1 or 2
Texture—silt loam, loam, silty clay loam, silty clay, or clay
Reaction—slightly alkaline or moderately alkaline
Electrical conductivity (mmhos/cm)—0 to 2

AB horizon and AC horizon (if it occurs):
Hue—10YR or 2.5Y
Value—4 or 5 dry, 2 or 3 moist
Chroma—1 or 2
Texture—silt loam, loam, clay loam, or silty clay loam
Reaction—slightly alkaline or moderately alkaline
Special features—horizon has redoximorphic features; in some pedons, this horizon does not occur but the mollic epipedon is 24 inches thick.

Bg and Cg horizons:
Hue—10YR, 2.5Y, or 5Y
Value—5 to 7 dry, 3 to 6 moist
Chroma—1 or 2
Texture—silt loam, silty clay, clay loam, sandy clay loam, clay, or silty clay loam; fine sandy loam, loamy sand, fine sand, and sand below a depth of 40 inches in some pedons; coarse sand and gravelly coarse sand below a depth of 60 inches in some pedons
Content of clay—28 to 35 percent; thin strata with less than 20 percent or more than 35 percent in some pedons
Reaction—slightly alkaline or moderately alkaline

Lawet Series

The Lawet series consists of very deep, poorly drained and very poorly drained soils that formed in loamy alluvium. These soils are on bottom land. Permeability is moderate or moderately slow. Slopes range from 0 to 2 percent. The mean annual precipitation is about 26 inches, and the mean annual air temperature is about 49 degrees F at the type location.

Typical Pedon

Lawet loam, on a slope of less than 2 percent, in a native meadow about 2 miles west and 2 miles north of Foster, in Pierce County, Nebraska; 2,130 feet south and 130 feet west of the northeast corner of sec. 19, T. 27 N., R. 3 W.

Ak—0 to 10 inches; dark gray (N 4/0) loam, black (10YR 2/1) moist; moderate fine and very fine granular structure; slightly hard, friable; violent effervescence (18 percent calcium carbonate equivalent); moderately alkaline; clear smooth boundary.
ABk—10 to 18 inches; gray (N 5/0) sandy clay loam, very dark gray (10YR 3/1) moist; moderate fine and very fine granular structure; hard, firm; violent effervescence (20 percent calcium carbonate equivalent); moderately alkaline; gradual smooth boundary.
Bk1—18 to 25 inches; gray (N 6/0) sandy clay loam, dark gray (10YR 4/1) moist; moderate fine and very fine granular structure; hard, firm; violent effervescence (20 percent calcium carbonate equivalent); moderately alkaline; clear smooth boundary.
Bk2—25 to 31 inches; gray (5Y 6/1) sandy loam, gray (5Y 5/1) moist; moderate and weak very fine granular structure; slightly hard, very friable; violent effervescence (12 percent calcium carbonate equivalent); moderately alkaline; clear smooth boundary.
Bk3—31 to 55 inches; gray (5Y 6/1) sandy clay loam, gray (5Y 5/1) moist; many medium prominent reddish brown (5YR 4/4) (moist) mottles; weak medium and very fine subangular blocky structure; slightly hard, firm; small accumulations of lime; violent effervescence (22 percent calcium carbonate equivalent); moderately alkaline; gradual smooth boundary.
Cg—55 to 60 inches; light olive gray (5Y 6/2) sandy loam, light greenish gray (5GY 7/1) moist; massive; slightly hard, firm; neutral.

Range in Characteristics

Soil moisture: Saturated in most parts of the soil moisture control section; moist in some part of the soil moisture control section for more than 90 cumulative days in the 120 days following the summer solstice
Secondary carbonates: Typically at or very near the surface
Redoximorphic features: Distinct or prominent iron concentrations (hue of 5YR or 7.5YR, value of 3 to 5, and chroma of 3 to 6) are above a depth of 40 inches.
Depth to endosaturation: 0 to 24 inches
Thickness of the mollic epipedon: 7 to 24 inches
Thickness of the solum: 16 to 55 inches

A horizon:
Hue—10YR, 2.5Y, or N
Value—3 to 5 dry, 2 or 3 moist
Chroma—0 or 1
Texture—loam, very fine sandy loam, fine sandy loam, sandy clay loam, silt loam, or silty clay loam
Calcium carbonate equivalent—15 to 40 percent; the range includes 12 percent within 15 inches of the soil surface
Reaction—slightly alkaline or moderately alkaline

Bk horizon:
Hue—10YR, 5Y, 2.5Y, or N
Value—5 to 7 dry, 4 or 5 moist
Chroma—0 to 2
Texture—sandy clay loam, clay loam, loam, very fine sandy loam, or silty clay loam
Calcium carbonate equivalent—15 to 40 percent
Reaction—slightly alkaline or moderately alkaline

Cg horizon:
Hue—10YR, 2.5Y, 5Y, 5GY, or N
Value—5 to 7 dry, 4 to 7 moist
Chroma—0 to 2
Texture—sandy clay loam, loam, clay loam, sandy loam, or very fine sandy loam; coarse textured strata, which contain smaller amounts of calcium carbonate than the finer textured strata, below a depth of 40 inches in some pedons
Reaction—neutral to moderately alkaline

Lex Series

The Lex series consists of very deep, somewhat poorly drained soils that formed in 20 to 40 inches of loamy alluvium deposited over coarse sand or gravelly sand. These soils are on flood plains. Permeability is moderate or moderately slow in the solum and very rapid in the substratum. Slopes range from 0 to 2 percent. The mean annual temperature is about 51 degrees F, and the mean annual precipitation is about 20 inches at the type location.

Typical Pedon

Lex silt loam, on a slope of less than 1 percent, in an area of irrigated cropland about 4 miles east of Kearney, in Buffalo County, Nebraska; 150 feet east and 2,000 feet south of the northwest corner of sec. 1, T. 8 N., R. 15 W.; Newark USGS topographic quadrangle; lat. 40 degrees 41 minutes 37 seconds N. and long. 98 degrees 58 minutes 09 seconds W.

Ap—0 to 7 inches; gray (10YR 5/1) silt loam, very dark gray (10YR 3/1) moist; weak medium granular structure; hard, friable; many medium roots; violent effervescence; slightly alkaline; clear smooth boundary.

A1—7 to 9 inches; gray (10YR 5/1) silt loam, very dark gray (10YR 3/1) moist; moderate medium granular structure; hard, friable; common fine roots; violent effervescence; slightly alkaline; clear smooth boundary.

A2—9 to 18 inches; gray (N 5/0) silty clay loam, very dark gray (N 3/0) moist; moderate fine and medium subangular blocky structure; hard, firm; common fine roots; few fine tubular pores; strong effervescence; slightly alkaline; gradual smooth boundary.

C—18 to 23 inches; light gray (2.5Y 7/2) fine sandy loam, grayish brown (2.5Y 5/2) moist; few small and medium prominent dark yellowish brown (10YR 4/4) iron masses in the soil matrix; massive; slightly hard, friable; few fine roots; few fine tubular pores; slight effervescence; slightly alkaline; abrupt smooth boundary.

2Cg—23 to 80 inches; light gray (10YR 7/2) gravelly sand, light brownish gray (10YR 6/2) moist; few large prominent reddish brown (5YR 5/4) iron masses in the soil matrix; single grain; loose; slightly alkaline.

Range in Characteristics

Soil moisture: The soil is moist from December through April and intermittently moist from May through December. July through September, the driest period, is within the intermittently moist period from May through December.
Depth to secondary carbonates: Calcium carbonate is typically at the surface or within a depth of 10 inches.
Redoximorphic features: Few or common fine and medium faint, distinct, or prominent iron concentrations (hue of 5YR, 7.5YR, or 10YR,

value of 3 to 6 moist, and chroma of 2 to 8) are common; these redoximorphic features are in the lower part of the A horizon and throughout the C horizon.

Depth to endosaturation: 1 to 3 feet

Thickness of the mollic epipedon: 10 to 24 inches

Depth to rock fragments: Depth to the coarse sand or gravelly sand is typically 23 to 35 inches but ranges from 20 to 40 inches.

A horizon and AC horizon (if it occurs):

Hue—10YR, 2.5Y, or N
Value—3 to 5 dry, 2 or 3 moist
Chroma—0 to 2
Texture—silt loam, loam, clay loam, or silty clay loam
Electrical conductivity (mmhos/cm)—0 to 4
Reaction—slightly alkaline or moderately alkaline

C horizon:

Hue—10YR or 2.5Y
Value—5 to 7 dry, 4 to 6 moist
Chroma—1 to 3
Texture—loam, silt loam, sandy clay loam, clay loam, very fine sandy loam, fine sandy loam, or sandy loam containing more than 18 percent clay; commonly stratified with various colors and textures of soil material
Electrical conductivity (mmhos/cm)—0 to 4
Reaction—slightly acid to moderately alkaline

2C horizon:

Hue—10YR or 2.5Y
Value—6 to 8 dry, 5 to 7 moist
Chroma—1 to 4
Texture—gravelly sand, gravelly coarse sand, or coarse sand
Content of rock fragments—15 to 35 percent gravel, by volume
Reaction—slightly acid to slightly alkaline

Libory Series

The Libory series consists of very deep, moderately well drained soils that formed in eolian sands 20 to 36 inches thick over loess or loamy alluvium. These soils are on stream terraces. Permeability is rapid in the sandy upper part and moderate in the loamy lower part. Slopes range from 0 to 6 percent but are dominantly less than 1 percent. The mean annual temperature is 49 degrees F, and the mean annual precipitation is 23 inches at the type location.

Typical Pedon

Libory loamy fine sand, on a slope of about 1 percent, in an area of native grass about 2 miles south and 9 miles west of O'Neill, in Holt County, Nebraska; 1,900 feet east and 75 feet north of the southwest corner of sec. 3, T. 28 N., R. 13 W.

A1—0 to 12 inches; gray (10YR 5/1) loamy fine sand, very dark gray (10YR 3/1) moist; weak coarse subangular blocky structure parting to weak medium and fine granular; soft, very friable; neutral; clear smooth boundary.

A2—12 to 18 inches; grayish brown (10YR 5/2) loamy fine sand, dark grayish brown (10YR 4/2) moist; weak medium and coarse subangular blocky structure parting to weak medium granular; soft, very friable; neutral; clear smooth boundary.

Bw1—18 to 30 inches; pale brown (10YR 6/3) fine sand, brown (10YR 5/3) moist; few fine faint yellowish brown (10YR 5/4) (moist) iron masses in the soil matrix; single grain; loose; neutral; abrupt wavy boundary.

2Bw2—30 to 42 inches; light brownish gray (2.5Y 6/2) silty clay loam, grayish brown (2.5Y 5/2) moist; few fine distinct dark yellowish brown (10YR 4/6) (moist) iron masses in the soil matrix; weak and medium coarse subangular blocky structure; slightly hard, friable; slightly alkaline; gradual smooth boundary.

2C—42 to 60 inches; light gray (2.5Y 7/2) silty clay loam, light brownish gray (2.5Y 6/2) moist; common medium faint light yellowish brown (10YR 6/4) (moist) iron masses in the soil matrix; massive; slightly hard, friable; moderately alkaline.

Range in Characteristics

Soil moisture: The soil moisture control section is moist in some part from October through April, intermittently moist from May through July, and driest from July through September.

Depth to secondary carbonates: 20 to more than 60 inches

Redoximorphic features: Concentrations within the 2B horizons occur as few to many distinct or prominent iron masses.

Depth to endosaturation: 1.5 to 3 feet

Thickness of the mollic epipedon: 10 to 20 inches

Depth to loamy substratum: 20 to 36 inches

Other features: Some pedons have a C horizon above the 2Bw horizon.

A horizons:

Hue—10YR
Value—3 to 6 dry; 2 to 5 moist
Chroma—1 to 3
Texture—loamy fine sand, loamy sand, or fine sand
Reaction—moderately acid to neutral

Bw horizon (if it occurs):
Hue—10YR
Value—4 to 8 dry, 3 to 7 moist
Chroma—2 or 3
Texture—loamy fine sand, loamy sand, or fine sand
Special features—some pedons that have a thin solum do not have a Bw horizon above the loamy material

2Bw horizon and 2BC horizon (if it occurs):
Hue—10YR to 5Y
Value—3 to 6 dry, 2 to 5 moist
Chroma—1 to 3
Texture—silty clay loam, very fine sandy loam, loam, silt loam, sandy clay loam, or clay loam
Reaction—moderately acid to slightly alkaline

2C horizon:
Hue—2.5Y, 10YR, or 5Y
Value—3 to 7 dry, 2 to 6 moist
Chroma—2 or 3
Texture—silty clay loam, silt loam, very fine sandy loam, or fine sandy loam; free carbonates in some pedons
Redoximorphic features—concentrations occur as few to many distinct or prominent iron masses
Reaction—moderately acid to slightly alkaline; slightly alkaline or moderately alkaline in pedons that have carbonates

Lockton Series

The Lockton series consists of moderately well drained soils that are moderately deep over gravelly sand. These soils are on stream terraces. Permeability is moderate in the upper part and very rapid in the lower part. Slopes range from 0 to 2 percent. The mean annual temperature is about 51 degrees F, and the mean annual precipitation is about 25 inches at the type location.

Typical Pedon

Lockton loam, on a slope of less than 1 percent, in an irrigated field about 1.5 miles west of Central City, in Merrick County, Nebraska; 1,800 feet north and 100 feet west of the southeast corner of sec. 6, T. 13 N., R. 6 W.

Ap—0 to 5 inches; dark grayish brown (10YR 4/2) loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium granular structure; soft, very friable; moderately acid; abrupt smooth boundary.

A—5 to 13 inches; dark gray (10YR 4/1) loam, very dark gray (10YR 3/1) moist; moderate medium and coarse granular structure; slightly hard, friable; slightly acid; clear smooth boundary.

AC—13 to 23 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium subangular blocky structure; hard, friable; moderately acid; clear smooth boundary.

C1—23 to 27 inches; grayish brown (10YR 5/2) coarse sandy loam, dark grayish brown (10YR 4/2) moist; weak fine and medium subangular blocky structure; hard, friable; slightly acid; clear wavy boundary.

2C2—27 to 60 inches; very pale brown (10YR 7/3) gravelly coarse sand, pale brown (10YR 6/3) moist; common medium distinct reddish brown (5YR 4/4) (moist) redoximorphic concentrations; single grain; loose; about 22 percent gravel; moderately acid.

Range in Characteristics

Soil moisture regime: Ustic; the soil moisture control section is moist in some part from October through April, intermittently moist from May through July, and driest from July through September.
Depth to secondary carbonates: Typically free carbonates do not occur in the profile; however, carbonates are below a depth of 30 inches in some pedons.
Redoximorphic features: Common fine and medium distinct (10YR 4/6 to 5/6) yellowish brown iron concentrations in the lower part of the A horizon and in the C and 2C horizons; some pedons do not have redoximorphic features above a depth of 40 inches.
Depth to endosaturation: 3 to 5 feet
Thickness of the mollic epipedon: 20 to 36 inches
Thickness of the solum: 20 to 30 inches
Other features: Gravelly coarse sand, sand, or coarse sand is at a depth of 20 to 40 inches.

A horizon:
Hue—10YR or 2.5Y
Value—3 to 5 dry, 2 or 3 moist
Chroma—1 or 2
Texture—loam, silt loam, clay loam, silty clay loam, sandy loam, or fine sandy loam
Reaction—moderately acid or slightly acid

2C horizon and C horizon (if it occurs):
Hue—10YR or 2.5Y
Value—5 to 8 dry, 4 to 6 moist
Chroma—1 to 3

Texture—gravelly coarse sand, coarse sandy loam, loamy coarse sand, or sand; commonly stratified
Content of rock fragments—3 to 15 percent gravel, by volume
Reaction—moderately acid to neutral

Loup Series

The Loup series consists of very deep, poorly drained and very poorly drained soils that formed in loamy and sandy alluvium. These soils are in interdunal areas in the sandhills and on stream terraces. Permeability is rapid. Slopes range from 0 to 2 percent. The mean annual temperature is about 49 degrees F, and the mean annual precipitation is about 20 inches.

Typical Pedon

Loup fine sandy loam, on a slope of 1 percent, in an area of rangeland about 2 miles south and 2 miles west of Ainsworth, in Brown County, Nebraska; 1,000 feet south and 300 feet west of the northeast corner of sec. 8, T. 29 N., R. 22 W.; Ainsworth SW. USGS topographic quadrangle; lat. 42 degrees 30 minutes 12 seconds N. and long. 99 degrees 54 minutes 41 seconds W. When described, the soil was moist throughout.

A1—0 to 10 inches; dark gray (10YR 4/1) fine sandy loam, black (10YR 2/1) moist; weak fine granular structure; soft, very friable; many fine and very fine roots; neutral; clear wavy boundary.
AC—10 to 15 inches; gray (10YR 5/1) fine sand, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable; few fine distinct grayish brown (2.5Y 5/2) (moist) iron masses; common fine and very fine roots; neutral; clear smooth boundary.
Cg1—15 to 25 inches; gray (10YR 6/1) fine sand, gray (10YR 5/1) moist; single grain; loose; few fine distinct grayish brown (2.5Y 5/2) (moist) iron masses; few very fine roots; neutral; clear smooth boundary.
Cg2—25 to 48 inches; light gray (10YR 7/2) sand, light brownish gray (10YR 6/2) moist; single grain; loose; few fine distinct yellowish brown (10YR 5/4) (moist) iron masses; few very fine roots; neutral; clear smooth boundary.
Ab—48 to 60 inches; dark gray (10YR 4/1) loamy fine sand, very dark gray (10YR 3/1) moist; massive; soft, very friable; few very fine roots; neutral.

Range in Characteristics

Soil moisture regime: Aquic; the soil is generally saturated to or near the surface during most of the growing season.
Depth to secondary carbonates: The surface layer in some pedons is calcareous.
Redoximorphic features: Few fine distinct grayish brown (hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 4 to 6) iron concentrations in the A and AC horizons; common fine and medium distinct very dark gray to greenish gray (hue of 2.5Y or 5GY, value of 3 to 5, and chroma of 1) iron depletions in the C and 2C horizons.
Depth to endosaturation: 0.5 to 1.0 foot
Thickness of the mollic epipedon: 7 to 20 inches
Other features: Some pedons have an organic layer 1 to 6 inches thick on the surface. Other pedons have dark, sandy and loamy buried layers below a depth of 40 inches.

A horizon:
Hue—10YR or 2.5Y
Value—3 to 5 dry, 2 or 3 moist
Chroma—1 or 2
Texture—loam, fine sandy loam, loamy fine sand, loamy sand, sandy loam, fine sand, silt loam, clay loam, or sandy clay loam
Reaction—moderately acid to slightly alkaline; slightly alkaline or moderately alkaline in some pedons where the surface layer is calcareous

AC horizon (if it occurs):
Hue—10YR
Value—4 or 5 dry, 3 or 4 moist
Chroma—2 or 3
Texture—loamy fine sand, fine sandy loam, loamy sand, sandy loam, fine sand, silt loam, clay loam, or sandy clay loam
Reaction—slightly alkaline or moderately alkaline

C horizon:
Hue—10YR to 5Y
Value—5 to 8 dry, 4 to 7 moist
Chroma—1 or 2
Texture—loamy sand, loamy fine sand, fine sand, or sand
Reaction—moderately acid to neutral

Marlake Series

The Marlake series consists of very deep, very poorly drained soils that formed in eolian and alluvial sand. These soils are in depressions in interdunal areas in the sandhills and are covered with water most of the growing season. Permeability is rapid. Slopes range from 0 to 2 percent. The mean annual precipitation is about 20 inches, and the mean annual temperature is about 50 degrees F.

Typical Pedon

Marlake fine sandy loam, on a concave slope of less than 1 percent, under vegetation consisting of bulrushes, cattails, arrowheads, and other water-tolerant plants, about 1 mile west and 1.5 miles north of Cody, in Cherry County, Nebraska; 1,400 feet west and 650 feet north of the southeast corner of sec. 36, T. 35 N., R. 34 W.; Eli USGS topographic quadrangle; lat. 42 degrees 57 minutes 39 seconds N. and long. 101 degrees 15 minutes 50 seconds W. When this pedon was described, the soil was wet to 9 inches and saturated below that depth.

Oe—0 to 2 inches; peaty muck, dark grayish brown (10YR 3/2) unrubbed, very dark brown (10YR 2/2) rubbed; neutral; abrupt smooth boundary.

A—2 to 9 inches; gray (10YR 5/1) fine sandy loam, very dark gray (10YR 3/1) moist; weak fine and medium granular structure; soft, very friable; many fine and very fine roots throughout; strong effervescence; moderately alkaline; abrupt smooth boundary.

ACg—9 to 16 inches; gray (10YR 5/1) loamy fine sand, very dark gray (10YR 3/1) moist; stratified with light olive gray (5Y 6/2) sand, olive gray (5Y 5/2) moist; common medium distinct olive (5Y 4/4) (moist) and light olive brown (2.5Y 5/6) (moist) iron depletions in the matrix; weak medium and coarse subangular blocky structure; soft, very friable; common fine and very fine roots throughout; slight effervescence; slightly alkaline; clear smooth boundary.

Cg—16 to 80 inches; gray (5Y 6/1) sand, dark gray (5Y 4/1) moist; many fine faint olive (5Y 5/3) (moist) iron depletions in the matrix; single grain; loose; few fine and very fine roots throughout; neutral.

Range in Characteristics

Soil moisture regime: Aquic; the soil is generally ponded or saturated to or near the surface during most of the growing season.

Depth to secondary carbonates: 0 to 15 inches (if they occur)

Redoximorphic features: Typically visible throughout the profile below the dark A horizon; iron masses or concentrations in the AC and C horizons range from few to many, are faint to prominent, and are reddish brown to olive yellow and decrease with depth.

Depth to endosaturation: 2 feet above to 1 foot below the surface

Thickness of the mollic epipedon: 6 to 10 inches

Other features: Snail shells are common in the upper part of the profile. Some pedons have layers of calcium carbonate accumulation in the upper part of the C horizon.

A horizon:
Hue—10YR
Value—4 or 5 dry, 2 or 3 moist
Chroma—1 or 2
Texture—fine sandy loam, loamy sand, loamy fine sand, very fine sandy loam, or loam; common fine stratification from sources other than present flooding
Reaction—slightly acid to moderately alkaline
Special features—a layer of decayed material 1 to 16 inches thick is typically at the surface; a mucky peat surface layer is recognized.

ACg horizon (if it occurs):
Hue—10YR to 5Y
Value—3 to 7 dry, 2 to 6 moist
Chroma—1 or 2
Texture—loamy sand, loamy fine sand, or fine sand; may be stratified or mixed with sand to organically enriched loamy fine sand; strata (if they occur) are typically less than 1/4 inch thick but may range up to 2 inches thick
Reaction—slightly acid to slightly alkaline

Cg horizon:
Hue—10YR, 2.5Y, 5Y, or 5GY
Value—4 to 7 dry, 3 to 6 moist
Chroma—1 or 2
Texture—sand, fine sand, or loamy fine sand; loamy substratum composed of layers of silt loam, sandy clay, clay loam, or silty clay loam in some pedons
Reaction—slightly acid or neutral
Special features—thin organic strata and dark buried layers are common

Meadin Series

The Meadin series consists of very deep, excessively drained soils that formed in loamy and sandy material over gravelly sand. These soils are on uplands. Permeability is rapid. Slopes range from 0 to 35 percent. The mean annual air temperature is about

49 degrees F, and the mean annual precipitation is about 22 inches.

Typical Pedon

Meadin sandy loam, on a convex, southeast-facing slope of 10 percent, in an area of rangeland about 5.5 miles east and 4.5 miles north of Mills, in Keya Paha County, Nebraska; 250 feet north and 100 feet east of the southwest corner of sec. 21, T. 35 N., R. 17 W. When described, the soil was moist throughout.

A—0 to 7 inches; dark grayish brown (10YR 4/2) sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; loose; 10 percent fine and medium gravel, by volume; neutral; gradual smooth boundary.

AC—7 to 15 inches; brown (10YR 4/3) gravelly sandy loam, dark brown (10YR 3/3) moist; single grain; slightly hard, friable; many fine roots; 20 percent fine and medium gravel, by volume; neutral; gradual wavy boundary.

2C1—15 to 30 inches; light yellowish brown (10YR 6/4) gravelly coarse sand, yellowish brown (10YR 5/4) moist; single grain; loose; 35 percent gravel, by volume (pebbles are as much as 1 inch in diameter); neutral; gradual wavy boundary.

2C2—30 to 60 inches; very pale brown (10YR 7/3) gravelly coarse sand, pale brown (10YR 6/3) moist; single grain; loose; 30 percent fine and medium gravel, by volume; neutral.

Range in Characteristics

Soil moisture: The soil moisture control section is moist in some part from October through April, intermittently moist from May through July, and driest from July through September.
Depth to carbonates: More than 80 inches
Thickness of the mollic epipedon: 7 to 20 inches
Depth to gravelly or very gravelly coarse sand or sand: 8 to 20 inches
Content of gravel in the particle-size control section: 15 to 35 percent, by volume

A horizon:
Value—4 or 5 dry, 2 or 3 moist
Chroma—1 or 2
Texture—silt loam, loam, fine sandy loam, sandy loam, loamy fine sand, or loamy sand; gravelly phase recognized
Content of rock fragments—3 to 25 percent rounded gravel, by volume (2 to 75 mm in diameter)
Reaction—strongly acid to neutral

AC horizon:
Hue—10YR or 7.5YR
Value—4 to 6 dry, 3 or 4 moist
Chroma—2 to 4
Texture—sandy loam, gravelly sandy loam, loamy sand, sand, gravelly loamy sand, or gravelly sand
Content of rock fragments—10 to 35 percent rounded gravel, by volume (2 to 75 mm in diameter)
Reaction—strongly acid to neutral

2C horizon:
Hue—10YR or 7.5YR
Value—5 to 7 dry, 4 to 6 moist
Chroma—2 to 4
Texture—gravelly coarse sand, gravelly sand, or very gravelly coarse sand; stratified with finer materials in some pedons
Content of rock fragments—20 to 35 percent rounded gravel, by volume (2 to 75 mm in diameter); as much as 55 percent gravel, by volume, in some horizons
Reaction—slightly acid or neutral

O'Neill Series

The O'Neill series consists of very deep, well drained soils that formed in loamy material 20 to 40 inches deep over gravelly sand. These soils are on uplands and terraces. Permeability is moderately rapid in the solum and very rapid in the underlying material. Slopes range from 0 to 30 percent. The mean annual temperature is about 50 degrees F, and the mean annual precipitation is about 20 inches.

Typical Pedon

O'Neill fine sandy loam, on a convex, northeast-facing slope of 1 percent, in a cultivated field about 3 miles north and 2.5 miles west of Ainsworth, in Brown County, Nebraska; 1,840 feet north and 50 feet west of the southeast corner of sec. 5, T. 30 N., R. 22 W. When described, the soil was moist throughout.

Ap—0 to 5 inches; grayish brown (10YR 5/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak thick platy structure parting to weak fine granular; slightly hard, friable; slightly acid; abrupt smooth boundary.

A—5 to 8 inches; grayish brown (10YR 5/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak coarse subangular blocky structure parting to weak fine subangular blocky; slightly hard, friable; slightly acid; clear smooth boundary.

Bw1—8 to 16 inches; brown (10YR 4/3) fine sandy loam, dark brown (10YR 3/3) moist; weak coarse prismatic structure parting to weak fine subangular blocky; slightly hard, friable; slightly acid; clear smooth boundary.

Bw2—16 to 26 inches; brown (10YR 5/3) fine sandy loam, dark yellowish brown (10YR 4/4) moist; weak coarse prismatic structure parting to weak medium subangular blocky; slightly hard, very friable; slightly acid; clear smooth boundary.

2C1—26 to 32 inches; pale brown (10YR 6/3) gravelly sand, yellowish brown (10YR 5/4) moist; single grain; soft, very friable; neutral; clear smooth boundary.

2C2—32 to 80 inches; light yellowish brown (10YR 6/4) coarse sand and gravel, yellowish brown (10YR 5/4) moist; single grain; loose; neutral.

Range in Characteristics

Thickness of the solum: 20 to 40 inches

Thickness of the mollic epipedon: 7 to 20 inches; the mollic epipedon includes the A horizon and, in some pedons, the upper part of the B horizon

Reaction: strongly acid to neutral

Other features: In a few pedons, clay has accumulated in the lower part of the Bw2 horizon so that the layer is noticeably finer in texture than the layer above and below.

A horizon:

Hue—10YR
Value—4 or 5 dry, 2 or 3 moist
Chroma—1 or 2
Texture—loam, fine sandy loam, sandy loam, loamy fine sand, or loamy sand

Bw horizon:

Hue—10YR
Value—4 to 6 dry, 3 or 4 moist
Chroma—2 to 4
Texture—fine sandy loam or sandy loam

2C horizon:

Hue—10YR
Value—6 to 8 dry, 5 or 6 moist
Chroma—3 or 4
Texture—gravelly sand, coarse sand, or sand

Ortello Series

The Ortello series consists of very deep, well drained soils on uplands and stream terraces. These soils formed in loamy and sandy sediments derived from glacial deposits, alluvium, and residuum. Permeability is moderately rapid. Slopes range from 0 to 30 percent. The mean annual precipitation is 26 inches, and the mean annual air temperature is 48 degrees F at the type location.

Typical Pedon

Ortello fine sandy loam, on a slope of 3 percent, in a cultivated field about 3 miles south and 3 miles west of Emerson, in Thurston County, Nebraska; 500 feet east and 200 feet south of the northwest corner of sec. 18, T. 26 N., R. 6 E.

Ap—0 to 6 inches; dark grayish brown (10YR 4/2) fine sandy loam, very dark brown (10YR 2/2) moist; weak fine granular structure; loose, very friable; neutral; abrupt smooth boundary.

A—6 to 12 inches; dark grayish brown (10YR 4/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium blocky structure; slightly hard, very friable; neutral; clear wavy boundary.

AB—12 to 16 inches; brown (10YR 4/3) fine sandy loam, dark brown (10YR 3/3) moist; weak medium blocky structure; slightly hard, very friable; neutral; gradual wavy boundary.

Bw—16 to 28 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 4/3) moist; weak coarse prismatic structure; slightly hard, very friable; neutral; gradual wavy boundary.

BC—28 to 34 inches; yellowish brown (10YR 5/4) fine sandy loam, dark yellowish brown (10YR 4/4) moist; weak coarse prismatic structure; slightly hard, very friable; neutral; gradual wavy boundary.

C—34 to 80 inches; very pale brown (10YR 7/3) loamy fine sand, pale brown (10YR 6/3) moist; single grain; loose; slightly alkaline.

Range in Characteristics

Thickness of the solum: 24 to 50 inches

Thickness of the mollic epipedon: 8 to 20 inches

Free calcium carbonates: Below a depth of 60 inches, except where strata of finer textured material are in the underlying material

Other features: A few pebbles are scattered throughout the profile in some areas.

A horizon:

Hue—10YR
Value—3 to 5 dry, 2 or 3 moist
Chroma—1 to 3
Texture—fine sandy loam, loam, very fine sandy loam, sandy loam, or loamy fine sand
Reaction—moderately acid to neutral

B horizon:

Hue—10YR to 7.5Y
Value—4 to 6 dry, 3 to 5 moist
Chroma—2 to 4
Texture—fine sandy loam or sandy loam; commonly becomes coarser with depth
Reaction—slightly acid or neutral

C horizon:
Hue—10YR, 7.5YR, or 2.5Y
Value—5 to 8 dry, 4 to 6 moist
Chroma—2 to 4
Texture—loamy fine sand, loamy sand, fine sandy loam, sandy loam, coarse sandy loam, fine sand, or loamy coarse sand; coarse textures are commonly in the lower part of the control section or deeper; silt loam, loam, or very fine sandy loam below a depth of 40 inches in the loamy substratum phase
Reaction—neutral or slightly alkaline

Ovina Series

The Ovina series consists of deep, somewhat poorly drained soils that formed in loamy and sandy eolian and alluvial material. These soils are on flood plains and terraces. Permeability is moderate in the subsoil and moderately rapid in the substratum. Slopes range from 0 to 6 percent. The mean annual precipitation is about 22 inches, and the mean annual air temperature is about 50 degrees F.

Typical Pedon

Ovina loamy fine sand, on a convex, northwest-facing slope of 1 percent, in a meadow of native grass hay about 3.5 miles east of Dannebrog, in Howard County, Nebraska; 1,100 feet south and 800 feet east of the northwest corner of sec. 9, T. 13 N., R. 10 W. When this pedon was described, the soil was wet below a depth of 20 inches.

A1—0 to 8 inches; very dark gray (10YR 3/1) loamy fine sand, black (10YR 2/1) moist; weak fine granular structure parting to weak very fine granular; soft, very friable; violent effervescence; slightly alkaline; abrupt smooth boundary.

A2—8 to 11 inches; dark grayish brown (10YR 4/2) loamy fine sand, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure parting to weak fine granular; soft, very friable; violent effervescence; moderately alkaline; clear wavy boundary.

C1—11 to 26 inches; light brownish gray (10YR 6/2) fine sandy loam, grayish brown (10YR 5/2) moist; a few fine distinct reddish brown (5YR 4/4) (moist) iron masses in the matrix in the lower part; weak coarse subangular blocky structure parting to weak fine subangular blocky; soft, very friable; violent effervescence; moderately alkaline; clear wavy boundary.

C2—26 to 30 inches; gray (10YR 5/1) fine sandy loam, dark gray (10YR 4/1) moist; a few fine distinct reddish brown (5YR 4/4) (moist) iron masses in the matrix; weak coarse subangular blocky structure; slightly hard, friable; strong effervescence; moderately alkaline; clear wavy boundary.

C3—30 to 40 inches; light brownish gray (2.5Y 6/2) loam, grayish brown (2.5Y 5/2) moist; a few fine distinct dark reddish brown (5YR 3/3) (moist) iron masses in the matrix; massive; slightly hard, friable; strong effervescence; slightly alkaline; gradual wavy boundary.

C4—40 to 80 inches; light gray (2.5Y 7/2) fine sandy loam, light brownish gray (2.5Y 6/2) moist; a few fine distinct dark reddish brown (5YR 3/3) (moist) iron masses in the matrix; massive; soft, very friable; strong effervescence; slightly alkaline.

Range in Characteristics

Thickness of the solum: 10 to 20 inches
Thickness of the mollic epipedon: 7 to 20 inches
Free carbonates: In the solum

A horizon:
Hue—10YR
Value—3 to 5 dry, 2 or 3 moist
Chroma—1 or 2
Texture—fine sandy loam, loamy fine sand, loam, or fine sand
Reaction—neutral to moderately alkaline

C horizon:
Hue—10YR in the upper part; 2.5Y in the lower part
Value—5 to 7 dry, 4 to 6 moist
Chroma—1 or 2
Redoximorphic features—few to many distinct iron masses in the matrix (hue of 5YR or 7.5YR, value of 3 or 4, and chroma of 3 to 6)
Texture—fine sandy loam or loam; thin strata of loamy fine sand through silty clay loam 1 to 3 inches thick occur in the C horizon; finer textured strata, commonly darker than the other parts of the C horizon, restrict the downward movement of moisture.
Reaction—slightly alkaline or moderately alkaline

Pivot Series

The Pivot series consists of somewhat excessively drained soils. These soils are moderately deep over gravelly coarse sand. They are on stream terraces and uplands. Permeability is rapid in the solum and very rapid in the underlying material. Slopes range from 0 to 20 percent. The mean annual air temperature is about 50 degrees F, and the mean annual precipitation is about 21 inches.

Typical Pedon

Pivot loamy sand, on a convex slope of 1 percent, in a cultivated field about 3.5 miles east of O'Neill, in Holt County, Nebraska; 2,200 feet east and 230 feet south of the northwest corner of sec. 35, T. 29 N., R. 11 W. When described, the soil was moist throughout.

A1—0 to 6 inches; dark gray (10YR 4/1) loamy sand, black (10YR 2/1) moist; weak medium subangular blocky structure parting to weak medium and fine granular; soft, very friable; common fine roots; moderately acid; clear smooth boundary.

A2—6 to 16 inches; dark grayish brown (10YR 4/2) loamy sand, very dark brown (10YR 2/2) moist; weak medium subangular blocky structure parting to weak medium granular; soft, very friable; few fine and very fine roots; moderately acid; clear smooth boundary.

AC—16 to 21 inches; grayish brown (10YR 5/2) loamy sand, dark grayish brown (10YR 4/2) moist; weak coarse and medium subangular blocky structure parting to weak medium and fine granular; soft, very friable; few very fine roots; few fine gravel; moderately acid; clear smooth boundary.

C1—21 to 28 inches; brown (10YR 5/3) coarse sand, brown (10YR 4/3) moist; single grain; loose, very friable; few very fine roots; 1 percent fine gravel, by volume; moderately acid; clear smooth boundary.

2C2—28 to 80 inches; pale brown (10YR 6/3) gravelly coarse sand, brown (10YR 5/3) moist; single grain; loose; 35 percent fine and medium gravel, by volume; moderately acid.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to 2C horizon: 20 to 40 inches
Thickness of the mollic epipedon: 10 to 20 inches; the mollic epipedon may extend into the AC horizon.
Reaction: Moderately acid to neutral

A horizon:
Hue—10YR
Value—4 or 5 dry, 2 or 3 moist
Chroma—1 or 2
Texture—loamy sand or loamy fine sand
Content of rock fragments—0 to 2 percent gravel, by volume

AC horizon:
Hue—10YR
Value—4 or 5 dry, 3 or 4 moist
Chroma—2 or 3
Texture—loamy sand, loamy fine sand, loamy coarse sand, fine sand, or sand
Content of rock fragments—0 to 2 percent gravel, by volume

C horizon (if it occurs):
Hue—10YR
Value—5 or 6 dry, 4 or 5 moist
Chroma—2 to 4
Texture—loamy coarse sand, sand, or coarse sand; loamy material has accumulated in the lower part of the C horizon (layer is noticeably finer in texture than the layers above and below) in a few pedons
Content of rock fragments—0 to 2 percent gravel, by volume

2C horizon:
Hue—10YR
Value—5 to 7 dry, 4 to 6 moist
Chroma—2 to 4
Texture—coarse sand or gravelly coarse sand
Content of rock fragments—15 to 35 percent gravel, by volume; ranges from 5 to 35 percent gravel; ranges to 45 percent gravel in some subhorizons

Platte Series

The Platte series consists of soils that are shallow over coarse sand to gravelly coarse sand. These soils are somewhat poorly drained. They formed in sandy and loamy alluvium deposited over coarse sand or gravelly sand on flood plains of river valleys. Permeability is moderate or moderately rapid in the upper part and very rapid in the lower part. Slopes range from 0 to 3 percent but are typically less than 1 percent. The mean annual temperature is about 51 degrees F, and the mean annual precipitation is about 25 inches at the type location.

Typical Pedon

Platte loam, on a slope of less than 1 percent, in an area of irrigated cropland about 4 miles north and 2.5 miles west of Kenesaw, in Adams County, Nebraska; about 1,300 feet west and 1,050 feet north of the southeast corner of sec. 6, T. 8 N., R. 12 W.; Denman USGS topographic quadrangle; lat. 40 degrees 41 minutes 09 seconds N. and long. 98 degrees 42 minutes 35 seconds W. When described, the soil was moist throughout.

Ap—0 to 5 inches; dark gray (10YR 4/1) loam, very dark gray (10YR 3/1) moist; weak fine granular structure; soft, friable; strong effervescence; moderately alkaline; abrupt smooth boundary.

A—5 to 8 inches; dark gray (10YR 4/1) very fine sandy loam, very dark gray (10YR 3/1) moist; common medium distinct brown (7.5YR 5/4) iron masses in the soil matrix; weak medium and fine granular structure; soft, very friable; strong effervescence; moderately alkaline; clear smooth boundary.

C—8 to 16 inches; light gray (10YR 7/2) very fine sandy loam, grayish brown (10YR 5/2) moist; common fine to coarse distinct brown (7.5YR 5/4) iron masses in the matrix; massive; soft, very friable; strata of loamy sand in the lower part; strong effervescence; moderately alkaline; gradual smooth boundary.

2Cg—16 to 80 inches; light gray (10YR 7/2) gravelly coarse sand, light brownish gray (10YR 6/2) moist; single grain; loose; slightly alkaline.

Range in Characteristics

Soil moisture: The soil is moist in the solum from December through April and intermittently moist from May through December. July through September, the driest period, is within the intermittently moist period from May through December.

Depth to secondary carbonates: Typically more than a depth of 80 inches; beginning within a depth of 40 inches in some pedons

Depth to secondary calcium carbonate: Calcium carbonate typically is disseminated throughout the A horizon but does not occur in some pedons.

Redoximorphic features: Common fine and medium yellowish brown to brown (hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6) iron masses or concentrations

Depth to endosaturation: 1 to 3 feet

Thickness of the mollic colors: 6 to 9 inches; corresponds to the thickness of the A horizon

Depth to rock fragments: 10 to 20 inches

Other features: Some pedons have an AC horizon.

A horizon:

Hue—10YR or 2.5Y
Value—4 or 5 dry, 2 or 3 moist
Chroma—1 or 2
Texture—loam, fine sandy loam, silty clay loam, silt loam, very fine sandy loam, sandy loam, loamy fine sand, or loamy sand
Reaction—neutral to moderately alkaline

C horizon:

Hue—10YR or 2.5Y
Value—6 to 8 dry, 4 to 6 moist
Chroma—1 to 3
Texture—loam, very fine sandy loam, fine sandy loam, or sandy loam; loamy fine sand, loamy sand, or sand in the lower part of some pedons
Content of rock fragments—0 to 5 percent gravel, by volume
Calcium carbonate equivalent—0 to 10 percent
Reaction—neutral to moderately alkaline

2Cg horizon:

Hue—10YR or 2.5Y
Value—6 to 8 dry, 4 to 6 moist
Chroma—1 to 4
Texture—coarse sand, gravelly coarse sand, or gravelly sand
Content of rock fragments—typically 15 to 35 percent gravel, by volume; ranges from 2 to 35 percent; the upper part of the horizon commonly contains less gravel than the lower part; stratification of the sandy and gravelly layers is common
Calcium carbonate equivalent—0 to 5 percent
Reaction—typically neutral or slightly alkaline; ranges from neutral to moderately alkaline

Rusco Series

The Rusco series consists of very deep, moderately well drained soils that formed in loess or old alluvium. These soils are typically in depressions on uplands or stream terraces. Permeability is moderately slow. Slopes range from 0 to 2 percent. The mean annual temperature is 51 degrees F, and the mean annual precipitation is 23 inches at the type location.

Typical Pedon

Rusco silt loam, on a slope of less than 1 percent, in a cultivated field about 3 miles east and 0.75 mile south of Palmer, in Merrick County, Nebraska; 600 feet north and 100 feet east of the southwest corner of sec. 1, T. 14 N., R. 8 W.

Ap—0 to 5 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; hard, friable; neutral; clear smooth boundary.

A—5 to 12 inches; dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; moderate fine and medium granular structure; hard, friable; neutral; clear smooth boundary.

Bt1—12 to 16 inches; light brownish gray (10YR 6/2) silty clay loam, dark grayish brown (10YR 4/2) moist; moderate medium subangular blocky structure; hard, firm; neutral; clear smooth boundary.

Bt2—16 to 24 inches; light brownish gray (2.5Y 6/2) silty clay loam, grayish brown (2.5Y 5/2) moist; few fine distinct brown (7.5YR 5/6) (moist) iron masses in the matrix; weak fine and medium subangular blocky structure; hard, firm; slightly alkaline; clear smooth boundary.

BC—24 to 36 inches; light gray (2.5Y 7/2) silt loam, grayish brown (2.5Y 5/2) moist; common medium distinct strong brown (7.5YR 5/6) (moist) iron masses in the matrix; weak medium subangular blocky structure; slightly hard, friable; slight effervescence; moderately alkaline; clear smooth boundary.

C—36 to 60 inches; light gray (2.5Y 7/2) silt loam, light brownish gray (2.5Y 6/2) moist; common medium distinct strong brown (7.5YR 5/6) (moist) iron masses in the matrix; massive; few small masses of carbonates; slightly hard, very friable; strong effervescence; moderately alkaline.

Range in Characteristics

Thickness of the solum: 19 to 40 inches
Thickness of the mollic epipedon: 7 to 20 inches; includes the upper part of the argillic horizon in some pedons
Depth to free carbonates: 15 to 30 inches; below a depth of 60 inches in some pedons
Other features: A ponded phase is recognized.

A horizon:
Hue—10YR
Value—3 to 5 dry, 1 to 3 moist
Chroma—1 or 2
Texture—silt loam, light silty clay loam, or loam
Reaction—slightly acid to slightly alkaline

Bt horizon:
Hue—10YR or 2.5Y
Value—4 to 6 dry, 3 to 5 moist
Redoximorphic features—in the lower part
Chroma—1 to 3; darker colors in the upper part
Texture—silty clay loam averaging between 28 and 35 percent clay; thin subhorizons with more than 35 percent clay in some pedons
Reaction—neutral to moderately alkaline

BC and C horizons:
Hue—10YR or 2.5Y
Value—5 to 7 dry, 4 to 6 moist
Chroma—1 to 3
Texture of the C horizon—silt loam or loam; commonly stratified; the lower part is very fine sandy loam or fine sandy loam in some pedons
Redoximorphic features—few or common faint or distinct redoximorphic features in the C horizon
Reaction—neutral to moderately alkaline

Scott Series

The Scott series consists of very deep, poorly drained and very poorly drained soils. These soils formed in loess. They are in depressions on uplands and stream terraces. Permeability is very slow. Slopes are 0 to 1 percent. The mean annual temperature is 55 degrees F, and the mean annual precipitation is 23 inches at the type location.

Typical Pedon

Scott silt loam, on a slope of less than 1 percent, in an area of pasture about 3 miles west and 2 miles south of Hildreth, in Franklin County, Nebraska; 1,600 feet east and 50 feet north of the southwest corner of sec. 14, T. 4 N., R. 16 W.; Hildreth USGS topographic quadrangle; lat. 40 degrees 18 minutes 26 seconds N. and long. 99 degrees 06 minutes 54 seconds W.

A—0 to 5 inches; gray (10YR 5/1) silt loam, very dark gray (10YR 3/1) moist; moderate medium granular structure; slightly hard, friable; slightly acid; abrupt smooth boundary.

E—5 to 8 inches; gray (10YR 6/1) silt loam, gray (10YR 5/1) moist; moderate thin and medium platy structure parting to moderate fine subangular blocky; slightly hard, friable; slightly acid; abrupt smooth boundary.

Bt1—8 to 20 inches; dark gray (N 4/0) silty clay, very dark gray (N 3/0) moist; common medium prominent yellowish brown (10YR 5/4) iron masses; strong coarse prismatic structure parting to strong medium angular blocky; very hard, very firm; shiny surfaces on faces of most peds; many hard ferro-manganese pellets 1 to 2 mm in diameter; neutral; clear smooth boundary.

Bt2—20 to 34 inches; dark gray (N 4/0) clay, very dark gray (N 3/0) moist; few fine prominent yellowish brown (10YR 5/4) iron masses; strong coarse prismatic structure parting to strong fine angular blocky; very hard, very firm; shiny surfaces on faces of most peds; many hard ferro-manganese pellets 1 to 2 mm in diameter; neutral; clear smooth boundary.

BC—34 to 46 inches; light brownish gray (2.5Y 6/2) silty clay loam, dark grayish brown (2.5Y 4/2) moist; moderate medium subangular blocky structure; hard, firm; neutral; gradual smooth boundary.

C1—46 to 56 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; weak coarse prismatic structure; slightly hard, friable; slightly alkaline; gradual smooth boundary.

C2—56 to 60 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; weak coarse prismatic structure; slightly hard, friable; violent effervescence; slightly alkaline.

Range in Characteristics

Soil moisture: The soil moisture control section is ponded or saturated to the surface from November through March. It ranges from saturated to the surface to intermittently dry in the surface layer but generally contains water at near saturation in the perched zone within the lower soil horizons from April through July. It is driest from August through October.

Depth to secondary calcium carbonates: 35 to 60 inches; carbonates below a depth of 60 inches in some pedons

Redoximorphic features: Directly beneath the albic horizon or at the top of the Bt horizon are many fine distinct soft yellowish brown (10YR 4/4) masses of iron accumulation and common hard dark brown (10YR 2/2) iron-manganese concretions 2 to 25 mm in diameter; in the BC horizon and the upper part of the C horizon are common medium reddish brown (5YR 5/4) to yellowish brown (10YR 5/6) iron masses; these iron masses become larger and less bright with increasing depth.

Thickness of the mollic epipedon: 19 to 46 inches

Thickness of the solum: 27 to more than 66 inches

Other features: Shiny faces on peds are less distinct in the lower part of the B horizon.

A horizon:
Hue—10YR
Value—3 to 5 dry, 2 or 3 moist
Chroma—1 or 2
Texture—silt loam or silty clay loam
Reaction—strongly acid to slightly acid

E horizon:
Hue—10YR
Value—5 or 6 dry, 4 or 5 moist
Chroma—1
Texture—silt loam or loam
Reaction—strongly acid to slightly acid

Bt horizon:
Hue—10YR, 2.5Y, 5Y, or N
Value—3 to 6 dry, 2 to 5 moist
Chroma—0 to 2
Texture—silty clay or clay; between 40 and 55 percent clay
Reaction—moderately acid to slightly alkaline

BC horizon:
Hue—10YR or 2.5Y
Value—4 to 6 dry, 3 or 4 moist
Chroma—2
Texture—silty clay loam, clay loam, or silt loam
Reaction—neutral to moderately alkaline

C horizon:
Hue—10YR or 2.5Y
Value—5 to 7 dry, 4 to 6 moist
Chroma—2 to 4
Texture—silt loam, clay loam, loam, or silty clay loam
Calcium carbonates—common soft to hard fine to coarse prominent white (10YR 8/1) calcium carbonate concentrations or mycelia-like filaments and coatings on cleavage planes in some pedons
Reaction—neutral to moderately alkaline

Silver Creek Series

The Silver Creek series includes very deep, somewhat poorly drained soils that formed in alluvium. These soils are on flood plains or low stream terraces. Permeability is slow. Slopes range from 0 to 2 percent. The mean annual temperature is about 51 degrees F, and the mean annual precipitation is about 23 inches at the type location.

Typical Pedon

Silver Creek silt loam, on a slope of less than 1 percent, in a cultivated field about 1.5 miles south and 1.5 miles east of Gibbon, in Buffalo County, Nebraska; 1,110 feet south and 150 feet east of the northwest corner of sec. 29, T. 9 N., R. 13 W.

Ap—0 to 7 inches; very dark gray (10YR 3/1) silt loam, black (10YR 2/1) moist; weak medium granular structure; slightly hard, very friable; neutral; abrupt smooth boundary.

A—7 to 10 inches; very dark gray (10YR 3/1) silt loam, black (10YR 2/1) moist; moderate medium granular structure; slightly hard, very friable; slight effervescence; slightly alkaline; clear smooth boundary.

Bt1—10 to 14 inches; very dark gray (10YR 3/1) silty clay loam, black (10YR 2/1) moist; moderate medium columnar structure parting to moderate medium subangular blocky; hard, firm; strong effervescence; moderately alkaline; clear wavy boundary.

Bt2—14 to 21 inches; dark gray (2.5Y 4/1) silty clay, black (10YR 2/1) moist; moderate medium columnar structure parting to moderate medium blocky; hard, firm; violent effervescence; streaks and soft masses of lime; moderately alkaline; clear wavy boundary.

Btk—21 to 27 inches; gray (2.5Y 5/1) silty clay, dark gray (2.5Y 4/1) moist; moderate medium prismatic structure parting to weak medium subangular blocky; hard, firm; violent effervescence; streaks and soft masses of lime; moderately alkaline; clear wavy boundary.

BCk—27 to 38 inches; light gray (2.5Y 6/1) silt loam, gray (2.5Y 5/1) moist; weak coarse subangular blocky structure; slightly hard, very friable; violent effervescence; streaks and soft masses of lime; moderately alkaline; abrupt wavy boundary.

C1—38 to 42 inches; light olive gray (5Y 6/2) fine sandy loam, olive gray (5Y 5/2) moist; common medium distinct light olive brown (2.5Y 5/6) (moist) iron masses in the soil matrix; massive; slightly hard, very friable; moderately alkaline; abrupt smooth boundary.

C2—42 to 80 inches; light olive gray (5Y 6/2) loamy fine sand, light olive gray (5Y 6/2) moist; common coarse distinct light olive brown (2.5Y 5/6) (moist) iron masses in the soil matrix; single grain; soft, loose; moderately alkaline.

Range in Characteristics

Soil moisture regime: Ustic; the soil moisture control section is moist in some part from October through April, intermittently moist from May through July, and driest from July through September.

Depth to secondary carbonates: The soil contains free carbonates within a depth of 10 inches. In some pedons, carbonates are at the surface.

Redoximorphic features: Distinct or prominent iron masses begin at a depth of about 27 inches and extend to a depth of 80 inches.

Depth to endosaturation: Seasonal highs between depths of 2 and 4 feet

Thickness of the mollic epipedon: 7 to 24 inches; the mollic epipedon includes all of the A horizon and the upper part of the B horizon.

Thickness of the solum: 18 to 42 inches

A horizon:
Hue—10YR or 2.5Y
Value—3 or 4 dry, 2 or 3 moist
Chroma—1 or 2
Texture—silt loam or silty clay loam
Reaction—neutral or slightly alkaline

Bt horizon:
Hue—10YR or 2.5Y
Value—3 to 5 dry, 2 to 4 moist
Chroma—1
Texture—silty clay loam or silty clay
Content of clay—35 to 48 percent
Reaction—slightly alkaline or moderately alkaline
Exchangeable sodium—15 to 24 percent; a small amount of other soluble salts
Special features—streaks and soft masses of lime in the lower part

BCk and C horizons:
Hue—2.5Y or 5Y
Value—5 to 7 dry, 3 to 6 moist
Chroma—1 or 2
Reaction—moderately alkaline or strongly alkaline in the upper part; moderately alkaline in the lower part

Simeon Series

The Simeon series consists of very deep, excessively drained soils that formed in sandy alluvium and outwash material. Permeability is rapid. Slopes range from 0 to 30 percent. The mean annual air temperature is about 50 degrees F, and the mean annual precipitation is about 22 inches.

Typical Pedon

Simeon loamy sand, on a convex, south-facing slope of 2 percent, in an area of rangeland about 2 miles south and 1 mile west of St. Paul, in Howard County, Nebraska; 0.1 mile south and 300 feet east of the northwest corner of sec. 21, T. 14 W., R. 10 W. When described, the soil was moist throughout.

A—0 to 8 inches; dark gray (10YR 4/1) loamy sand, very dark brown (10YR 2/2) moist; weak very fine granular structure parting to single grain; soft, very friable; slightly acid; clear smooth boundary.

AC—8 to 11 inches; grayish brown (10YR 5/2) sand, dark grayish brown (10YR 4/2) moist; single grain; loose; neutral; clear smooth boundary.

C—11 to 80 inches; very pale brown (10YR 8/2) sand, light gray (10YR 7/2) moist; single grain; loose; 2 to 10 percent gravel, by volume; neutral.

Range in Characteristics

Soil moisture: The soil moisture control section is moist in some part from October through April, intermittently moist from May through July, and driest from July through September.

Thickness of the solum: 7 to 20 inches
Depth to carbonates: More than 80 inches

A horizon:
Hue—10YR
Value—3 to 6 dry, 2 to 5 moist
Chroma—1 to 3
Texture—loamy fine sand, loamy sand, sand, fine sand, sandy loam, or loam
Reaction—slightly acid to slightly alkaline
Organic matter content—less than 1 percent

AC horizon:
Hue—10YR or 2.5Y
Value—4 to 7 dry, 4 to 6 moist
Chroma—2 or 3
Texture—sand or loamy sand; more than 35 percent medium sand, coarse sand, or loamy coarse sand
Reaction—slightly acid to slightly alkaline

C horizon:
Hue—10YR or 2.5Y
Value—6 to 8 dry, 5 to 7 moist
Chroma—2 to 4
Texture—sand or loamy sand; more than 35 percent medium sand, coarse sand, or loamy coarse sand
Content of rock fragments—0 to 15 percent rounded granitic gravel, by volume (2 to 75 mm in diameter)
Reaction—slightly acid to slightly alkaline

Thurman Series

The Thurman series consists of very deep, somewhat excessively drained soils that formed mainly in sandy eolian material. These soils are on uplands and stream terraces. Permeability is rapid. Slopes range from 0 to 40 percent. The mean annual temperature is about 49 degrees F, and the mean annual precipitation is about 25 inches at the type location.

Typical Pedon

Thurman loamy fine sand, on a slope of 4 percent, in a cultivated field about 1 mile east and 3 miles south of Breslau, in Pierce County, Nebraska; 1,320 feet east and 50 feet south of the northwest corner of sec. 21, T. 27 N., R. 3 W.

Ap—0 to 6 inches; dark grayish brown (10YR 4/2) loamy fine sand, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; soft, very friable; slightly acid; abrupt smooth boundary.

A—6 to 10 inches; dark grayish brown (10YR 4/2) loamy fine sand, very dark gray (10YR 3/1) moist; weak coarse blocky structure; soft, very friable; slightly acid; clear smooth boundary.

AC—10 to 14 inches; brown (10YR 5/3) loamy fine sand, dark brown (10YR 4/3) moist; weak coarse prismatic structure; soft, very friable; slightly acid; clear smooth boundary.

C1—14 to 32 inches; light yellowish brown (10YR 6/4) loamy fine sand, brown (10YR 5/3) moist; single grain; loose; neutral; gradual smooth boundary.

C2—32 to 80 inches; light yellowish brown (10YR 6/4) fine sand, yellowish brown (10YR 5/4) moist; single grain; loose; neutral.

Range in Characteristics

Soil moisture regime: Ustic; the soil moisture control section is moist in some part from October through April, intermittently moist from May through June, and driest from July through September.
Depth to secondary carbonates: Free calcium carbonates typically do not occur within a depth of 5 feet.
Thickness of the mollic epipedon: 10 to 20 inches
Depth to rock fragments: A few small or medium pebbles are scattered throughout the profile in some places.

A horizon:
Hue—10YR
Value—3 to 5 dry, 2 or 3 moist
Chroma—1 or 2
Texture—loamy fine sand, fine sand, sand, loamy sand, sandy loam, or fine sandy loam
Reaction—slightly acid or neutral

AC horizon:
Hue—10YR
Value—3 to 5 dry, 2 or 3 moist
Chroma—2 or 3
Texture—loamy fine sand, fine sand, sand, loamy sand, or sandy loam
Reaction—slightly acid or neutral

C horizon:
Hue—10YR or 2.5Y
Value—5 to 7 dry, 4 or 5 moist
Chroma—2 to 4
Texture—loamy fine sand, fine sand, loamy sand, sand, or very fine sand
Reaction—moderately acid to neutral; overlying horizon in soils underlain by calcareous bedrock or other calcareous materials is slightly alkaline or moderately alkaline

Tryon Series

The Tryon series consists of very deep, poorly drained and very poorly drained soils that formed in eolian and alluvial sediments. These soils are in sandhill interdunes and on stream terraces. Permeability is rapid. Slopes range from 0 to 2 percent. The mean annual precipitation is about 21 inches, and the mean annual air temperature is about 49 degrees F at the type location.

Typical Pedon

Tryon loamy fine sand, on a slope of less than 1 percent, in a native meadow that has been overseeded with legumes, about 14 miles northwest of Brownlee, in Cherry County, Nebraska; 1,600 feet east and 600 feet south of the northwest corner of sec. 33, T. 29 N., R. 30 W.; Bull Lake USGS topographic quadrangle; lat. 42 degrees 27 minutes 03 seconds N. and long. 100 degrees 50 minutes 48 seconds W.

A—0 to 6 inches; dark gray (10YR 4/1) loamy fine sand, black (10YR 2/1) moist; common fine distinct dark yellowish brown (10YR 4/4) (moist) and dark yellowish brown (10YR 4/6) (moist) iron masses in the matrix; weak fine granular structure; soft, friable; many very fine and fine roots throughout; moderately acid; clear wavy boundary.

Cg1—6 to 12 inches; light brownish gray (10YR 6/2) loamy fine sand, grayish brown (10YR 5/2) moist; many fine faint yellowish brown (10YR 5/4) (moist) and many fine and medium prominent strong brown (7.5YR 5/6) (moist) iron masses in the matrix; single grain; loose; common very fine and fine roots throughout; moderately acid; gradual wavy boundary.

Cg2—12 to 80 inches; light gray (2.5Y 7/2) fine sand, light brownish gray (2.5Y 6/2) moist; many fine and medium prominent strong brown (7.5YR 5/6) (moist) iron masses in the matrix; single grain; loose; few very fine roots throughout; moderately acid.

Range in Characteristics

Soil moisture regime: Aquic; the soil is generally saturated to or near the surface during most of the growing season.

Depth to carbonates: Most pedons do not have carbonates but some pedons have carbonates in the surface layer.

*Other features.*A silty substratum phase is recognized.

A horizon:

Hue—10YR
Value—3 to 5 dry, 2 to 4 moist
Chroma—1 or 2
Texture—loamy fine sand, fine sand, sand, loamy sand, or fine sandy loam; silt loam to silty clay loam below a depth of 40 inches
Reaction—moderately acid to moderately alkaline
Special feature—a decomposed layer of organic matter 1 to 4 inches thick is on the surface.

AC horizon (if it occurs):

Hue—2.5Y or 10YR
Value—5 to 7 dry, 3 to 5 moist
Chroma—1 or 2
Texture—fine sand, sand, loamy sand, loamy fine sand, or fine sandy loam
Reaction—moderately acid to slightly alkaline

C horizon:

Hue—5Y to 10YR
Value—5 to 8 dry, 4 to 7 moist
Chroma—1 to 3
Texture—fine sand, sand, loamy sand, or loamy fine sand
Reaction—moderately acid to slightly alkaline
Special features—thin layers of fine textured and darker material below a depth of 40 inches in some pedons

Uly Series

The Uly series consists of very deep, well drained soils that formed in loess. These soils are on uplands. Permeability is moderate. Slopes range from 0 to 30 percent. The mean annual temperature is 50 degrees F, and the mean annual precipitation is 21 inches at the type location.

Typical Pedon

Uly silt loam, on a slope of about 12 percent, in an area of rangeland about 11 miles south and 1 mile west of Broken Bow, in Custer County, Nebraska; 150 feet north and 150 feet west of the southeast corner of sec. 26, T. 15 N., R. 21 W.

A—0 to 10 inches; dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; weak medium prismatic structure parting to weak fine granular; slightly hard, friable; neutral; clear smooth boundary.

BA—10 to 15 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak medium prismatic structure parting to weak fine subangular blocky; slightly hard, friable; neutral; clear smooth boundary.

Bw—15 to 21 inches; light brownish gray (10YR 6/2) silt loam, dark grayish brown (10YR 4/2) moist;

weak medium prismatic structure parting to weak medium and fine subangular blocky; hard, friable; neutral; clear smooth boundary.

BC—21 to 25 inches; light gray (10YR 7/2) silt loam, dark grayish brown (10YR 4/2) moist; weak medium prismatic structure parting to weak medium subangular blocky; slightly hard, friable; strong effervescence; moderately alkaline; clear smooth boundary.

C—25 to 80 inches; very pale brown (10YR 8/2) silt loam, pale brown (10YR 6/3) moist; massive; slightly hard, very friable; strong effervescence; moderately alkaline.

Range in Characteristics

Soil moisture: The soil moisture control section is moist in some part from October through April, intermittently moist from May through July, and driest from July through September.

Depth to secondary carbonates: 7 to 20 inches; carbonates extend into the B horizon in some pedons

Thickness of the mollic epipedon: Typically 12 to 30 inches; thicker in some pedons

Thickness of the solum: 12 to 36 inches

Content of clay in the particle-size control section (weighted average): 18 to 29 percent

A horizon:
Hue—10YR
Value—3 to 5 dry, 2 or 3 moist
Chroma—2
Texture—silt loam, very fine sandy loam, or loam
Reaction—slightly acid to slightly alkaline

Bw horizon and Bk horizon (if it occurs):
Hue—10YR or 2.5Y
Value—4 to 7 dry, 2 to 5 moist
Chroma—2 or 3
Texture—silt loam or silty clay loam
Reaction—slightly acid to moderately alkaline

C horizon:
Hue—10YR, 7.5YR, or 2.5Y
Value—4 to 8 dry, 4 to 6 moist
Chroma—2 to 4
Texture—silt loam or very fine sandy loam
Reaction—slightly alkaline or moderately alkaline

Valentine Series

The Valentine series consists of very deep, excessively drained soils that formed in eolian sands. These soils are on uplands. Permeability is rapid. Slopes range from 0 to 60 percent. The mean annual temperature is about 51 degrees F, and the mean annual precipitation is about 20 inches.

Typical Pedon

Valentine fine sand, on a convex, northwest-facing slope of 8 percent, in an area of rangeland about 12.5 miles north of Stapleton, in Logan County, Nebraska; 1,060 feet north and 530 feet west of the center of sec. 36, T. 20 N., R. 28 W. When described, the soil was moist throughout.

A—0 to 5 inches; grayish brown (10YR 5/2) fine sand, dark grayish brown (10YR 4/2) moist; weak fine granular structure parting to single grain; loose; slightly acid; abrupt smooth boundary.

AC—5 to 9 inches; brown (10YR 5/3) fine sand, grayish brown (10YR 5/2) moist; weak coarse prismatic structure parting to single grain; loose; slightly acid; clear smooth boundary.

C1—9 to 17 inches; pale brown (10YR 6/3) fine sand, pale brown (10YR 6/3) moist; weak coarse prismatic structure parting to single grain; loose; slightly acid; gradual smooth boundary.

C2—17 to 60 inches; very pale brown (10YR 7/3) fine sand, pale brown (10YR 6/3) moist; single grain, loose; neutral.

Range in Characteristics

Soil moisture regime: Ustic; the soil moisture control section is moist in some part from October through April, intermittently moist from May through June, and driest from July through September.

A horizon:
Hue—10YR
Value—4 to 6 dry, 3 to 5 moist
Chroma—2 or 3
Texture—fine sand, loamy fine sand, sand, or loamy sand
Reaction—moderately acid to neutral

AC horizon (if it occurs):
Hue—10YR
Value—5 to 7 dry, 4 to 6 moist
Chroma—2 or 3
Texture—fine sand or loamy fine sand; includes sand or loamy sand that contains less than 35 percent medium sand and less than 10 percent coarse or very coarse sand
Reaction—moderately acid to neutral

C horizon:
Hue—10YR
Value—6 or 7 dry, 5 or 6 moist
Chroma—2 to 4

Texture—fine sand or loamy fine sand; includes sand or loamy sand that contains less than 35 percent medium sand and less than 10 percent coarse or very coarse sand
Reaction—moderately acid to neutral
Special features—dark, loamy strata ranging from 1/8 inch to 2 inches in thickness are below a depth of 20 inches in some pedons.

Wann Series

The Wann series includes very deep, somewhat poorly drained soils that formed in stratified calcareous alluvium. These soils are on flood plains. Permeability is moderately rapid. Slopes range from 0 to 2 percent. The mean annual temperature is about 51 degrees F, and the mean annual precipitation is about 25 inches at the type location.

Typical Pedon

Wann fine sandy loam, on a slope of less than 1 percent, in a cultivated field about 10 miles north and 1 mile west of Shelby, in Polk County, Nebraska; 800 feet south and 100 feet east of the northwest corner of sec. 28, T. 16 N., R. 1 W. Columbus SW. USGS topographic quadrangle; lat. 41 degrees 20 minutes 06 seconds N. and long. 97 degrees 26 minutes 40 seconds W.

Ap—0 to 6 inches; dark gray (10YR 4/1) fine sandy loam, very dark gray (10YR 3/1) moist; weak medium granular structure; soft, very friable; many fine roots throughout; slightly alkaline; abrupt smooth boundary.

A—6 to 16 inches; gray (10YR 5/1) fine sandy loam, very dark gray (10YR 3/1) moist; weak coarse blocky structure parting to moderate medium granular; soft, friable; common fine roots throughout; strong effervescence; moderately alkaline; abrupt smooth boundary.

C—16 to 50 inches; light brownish gray (10YR 6/2) sandy loam, grayish brown (10YR 5/2) moist; thin strata of gray (10YR 5/1) fine sandy loam, very dark gray (10YR 3/1) moist; common medium distinct yellowish brown (10YR 5/4) (moist) iron masses in the matrix; weak coarse prismatic structure; soft, friable; strong effervescence; moderately alkaline; clear wavy boundary.

Cg—50 to 60 inches; gray (10YR 6/1) sandy loam, dark gray (10YR 4/1) moist; single grain; loose; soft white masses of lime above a depth of 52 inches; strong effervescence; moderately alkaline.

Range in Characteristics

Soil moisture: The soil is moist in the solum from December through April and intermittently moist from May through December. July through September, the driest period, is within the intermittently moist period from May through December.
Depth to secondary carbonates: Some pedons contain carbonates at the surface and typically contain free carbonates throughout the control section.
Redoximorphic features: Typically occur in the C horizon; can occur in any part of the profile below the A horizon.
Depth to endosaturation: 1.5 feet in most wet years to 3.5 feet in most dry years
Thickness of the mollic epipedon: 8 to 20 inches

A horizon:
Hue—10YR
Value—4 or 5 dry, 2 or 3 moist
Chroma—1 to 3
Texture—fine sandy loam, loam, or sandy loam; silt loam to loamy sand in the upper 10 inches
Reaction—neutral to strongly alkaline

AC horizon (if it occurs):
Thickness—1 to 10 inches
Hue—10YR
Value—4 or 5 dry, 3 or 4 moist
Chroma—2 or 3
Texture—fine sandy loam, sandy loam, or loamy fine sand
Reaction—neutral to strongly alkaline

C and Cg horizons:
Hue—10YR or 2.5Y
Value—5 to 7 dry, 4 to 6 moist
Chroma—1 to 4
Texture—fine sandy loam or sandy loam; typically is coarser textured below a depth of 40 inches; thin strata of loam or loamy sand 1 to 3 inches thick common in the control section; sand, gravelly to gravelly coarse sand, or loam below a depth of 40 inches in some pedons
Reaction—neutral to strongly alkaline

Wood River Series

The Wood River series includes very deep, moderately well drained soils that formed in silty and clayey alluvium. These soils are on stream terraces. Permeability is slow. Slopes range from 0 to 7 percent. The mean annual temperature is 51 degrees F, and the mean annual precipitation is 24 inches at the type location.

Typical Pedon

Wood River silt loam, on a slope of less than 1 percent, in an area of irrigated cropland about 6.5 miles west of Wood River, in Hall County, Nebraska; 2,100 feet north and 200 feet east of the southwest corner of sec. 19, T. 10 N., R. 12 W.; Shelton USGS quadrangle; lat. 40 degrees 49 minutes 17 seconds N. and long. 98 degrees 43 minutes 15 seconds W.

Ap—0 to 6 inches; dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; weak medium granular structure; slightly hard, friable; neutral; clear smooth boundary.

A—6 to 10 inches; dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; weak medium and coarse subangular blocky structure parting to weak medium granular; slightly hard, friable; slightly alkaline; clear smooth boundary.

E—10 to 13 inches; gray (10YR 5/1) silt loam, very dark gray (10YR 3/1) moist; weak thin platy structure; soft, very friable; 9 percent exchangeable sodium; moderately alkaline; abrupt smooth boundary.

Bt1—13 to 21 inches; grayish brown (10YR 5/2) silty clay loam, brown (10YR 4/3) moist; moderate medium and coarse columnar structure; hard, firm; dark organic coatings on surface of peds; thin patchy clay films on faces of peds; 17 percent exchangeable sodium; moderately alkaline; gradual smooth boundary.

Bt2—21 to 28 inches; grayish brown (2.5Y 5/2) silty clay, dark grayish brown (2.5Y 4/2) moist; moderate medium angular blocky structure; hard, firm; thin patchy clay films on faces of peds; 15 percent exchangeable sodium; strongly alkaline; abrupt smooth boundary.

Btz—28 to 30 inches; light brownish gray (2.5Y 6/2) silty clay, light olive brown (2.5Y 5/4) moist; weak medium subangular blocky structure; slightly hard, friable; thin patchy clay films on faces of peds; many visible white salt crystals and masses of soft lime; 8 percent exchangeable sodium; 0.37 percent soluble salts; strong effervescence; moderately alkaline; clear smooth boundary.

Bk—30 to 38 inches; light yellowish brown (10YR 6/4) silty clay loam, yellowish brown (10YR 5/4) moist; weak coarse subangular blocky structure; soft, friable; streaks and masses of segregated lime; 15 percent exchangeable sodium; strong effervescence; very strongly alkaline; clear smooth boundary.

C1—38 to 53 inches; very pale brown (10YR 7/4) silty clay loam, light yellowish brown (10YR 6/4) moist; massive; soft, friable; many soft masses of lime; 9 percent exchangeable sodium; strong effervescence; strongly alkaline; clear smooth boundary.

C2—53 to 80 inches; very pale brown (10YR 7/4) silt loam, light yellowish brown (10YR 6/4) moist; massive; soft, friable; few fine masses of segregated lime; 6 percent exchangeable sodium; few fine distinct yellowish brown (10YR 5/6) (moist) iron masses in the soil matrix; strong effervescence; strongly alkaline.

Range in Characteristics

Soil moisture regime: Ustic; the soil moisture control section is moist in some part from October through April, intermittently moist from May through July, and driest from July through September.

Depth to secondary carbonates: 18 to 35 inches; free carbonates typically do not occur in the the A and Bt horizons.

Thickness of the mollic epipedon: 7 to 20 inches

Thickness of the solum: 25 to 48 inches

A horizon:

Hue—10YR
Value—3 or 4 dry, 2 or 3 moist
Chroma—1 or 2
Texture—silt loam, silty clay loam, or fine sandy loam
Reaction—moderately acid to slightly alkaline

E horizon (if it occurs):

Hue—10YR
Value—4 to 6 dry, 3 or 4 moist
Chroma—1
Texture—silt loam
Reaction—neutral to moderately alkaline

Bt horizon:

Hue—10YR or 2.5Y
Value—4 to 6 dry, 3 to 5 moist
Chroma—2 to 4
Texture—silty clay loam or silty clay
Content of clay—35 to 45 percent
Reaction—slightly alkaline to strongly alkaline
Special features—dark organic stains typically on the surface of peds

C horizon and Bk horizon (if it occurs):
Hue—10YR or 2.5Y
Value—5 to 8 dry, 4 to 6 moist
Chroma—2 to 4
Texture—silt loam or silty clay loam; stratified loamy and sandy alluvium or gravelly sand below a depth of 40 inches in some pedons
Reaction—slightly alkaline to very strongly alkaline
Special features—in some pedons, the C horizon contains streaks and soft masses of calcium carbonate and concentrations of soluble salts; the lower part does not have streaks and accumulations of segregated lime in some pedons.

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Glossary

ABC soil. A soil having an A, a B, and a C horizon.

AC soil. A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alkali (sodic) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Aspect. The direction in which a slope faces.

Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	greater than 12

Backslope. The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Base slope. A geomorphic component of hills consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bedrock-controlled topography. A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Brush management. Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Channery soil material. Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Claypan. A slowly permeable soil horizon that contains much more clay than the horizons above it. A claypan is commonly hard when dry and plastic or stiff when wet.

Climax plant community. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse textured soil. Sand or loamy sand.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material. Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

COLE (coefficient of linear extensibility). See Linear extensibility.

Colluvium. Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosion. Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Decreasers. The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained.* These classes are defined in the "Soil Survey Manual."

Drainage, surface. Runoff, or surface flow of water, from an area.

Ecological site. An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Eolian soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Fallow. Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity.*

Fine textured soil. Sandy clay, silty clay, or clay.

Firebreak. Area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.

Flaggy soil material. Material that has, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.

Flagstone. A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Fluvial. Of or pertaining to rivers; produced by river action, as a fluvial plain.

Footslope. The position that forms the inner, gently inclined surface at the base of a hillslope. In profile, footslopes are commonly concave. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Forb. Any herbaceous plant not a grass or a sedge.

Frost action (in tables). Freezing and thawing of soil moisture. Frost action can damage roads, buildings and other structures, and plant roots.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gilgai. Commonly, a succession of microbasins and microknolls in nearly level areas or of microvalleys and microridges parallel with the slope. Typically, the microrelief of clayey soils that shrink and swell considerably with changes in moisture content.

Glacial drift. Pulverized and other rock material transported by glacial ice and then deposited. Also, the sorted and unsorted material deposited by streams flowing from glaciers.

Glacial outwash. Gravel, sand, and silt, commonly stratified, deposited by glacial meltwater.

Glacial till. Unsorted, nonstratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited by glacial ice.

Glaciofluvial deposits. Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur as kames, eskers, deltas, and outwash plains.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Graded stripcropping. Growing crops in strips that grade toward a protected waterway.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water. Water filling all the unblocked pores of the material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Head slope. A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.

High-residue crops. Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill. A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Increasers. Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to livestock.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Interfluve. An elevated area between two drainageways that sheds water to those drainageways.

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Invaders. On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:
Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.
Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.
Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.
Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.
Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.
Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.
Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.
Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.
Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

Knoll. A small, low, rounded hill rising above adjacent landforms.

K_{sat}. Saturated hydraulic conductivity. (See Permeability.)

Leaching. The removal of soluble material from soil or other material by percolating water.

Linear extensibility. Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Low-residue crops. Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Low strength. The soil is not strong enough to support loads.

Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Moraine. An accumulation of earth, stones, and other debris deposited by a glacier. Some types are terminal, lateral, medial, and ground.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent.* The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Mudstone. Sedimentary rock formed by induration of silt and clay in approximately equal amounts.

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Natric horizon. A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

Nose slope. A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	greater than 8.0 percent

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan.*

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedisediment. A thin layer of alluvial material that mantles an erosion surface and has been transported to its present position from higher lying areas of the erosion surface.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The movement of water through the soil.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

Extremely slow	0.0 to 0.01 inch
Very slow	0.01 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	greater than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Playa. The generally dry and nearly level plain that occupies the lowest parts of closed depressional areas. Temporary ponding occurs primarily in response to precipitation and runoff.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Potential native plant community. See Climax plant community.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Rangeland. Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	greater than 9.0

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Saline soil. A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.

Salty water (in tables). Water that is too salty for consumption by livestock.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Scarification. The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shoulder. The position that forms the uppermost inclined surface near the top of a hillslope. It is a transition from backslope to summit. The surface is dominantly convex in profile and erosional in origin.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Side slope. A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

Slick spot. A small area of soil having a puddled, crusted, or smooth surface and an excess of exchangeable sodium. The soil generally is silty or clayey, is slippery when wet, and is low in productivity.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Nearly level	0 to 2 percent
Gently sloping	2 to 5 percent
Strongly sloping	5 to 12 percent
Moderately steep	12 to 18 percent
Steep	18 to 30 percent
Very steep	30 percent and higher

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Slow refill (in tables). The slow filing of ponds, resulting from restricted permeability in the soil.

Sodic (alkali) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Sodicity. The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium adsorption ratio (SAR) of a saturation extract, or the ratio of Na^+ to Ca^{++} + Mg^{++}. The degrees of sodicity and their respective ratios are:

Slight	less than 13:1
Moderate	13-30:1
Strong	greater than 30:1

Sodium adsorption ratio (SAR). A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Stone line. A concentration of coarse fragments in a soil. Generally, it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summer fallow. The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

Summit. The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay.* The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The position that forms the gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Upland. Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Tables

Table 1.--Temperature and Precipitation

(Recorded in the period 1971-2000 at Grand Island, Nebraska)

Month	Temperature			Precipitation				
					30% chance will have			
	Average daily max	Average daily min	Average	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	In	In	In		In
January	33.4	12.4	22.9	0.54	0.30	0.69	1	6.2
February	39.5	17.9	28.7	0.68	0.27	0.83	2	5.9
March	50.3	27.2	38.7	2.04	0.82	2.68	4	6.6
April	62.6	37.9	50.3	2.61	1.62	3.52	4	1.5
May	72.6	49.5	61.0	4.07	2.82	5.15	6	0.0
June	83.7	59.3	71.5	3.72	2.28	4.83	5	0.0
July	87.8	64.5	76.2	3.14	2.01	3.58	5	0.0
August	85.8	62.6	74.2	3.13	1.83	3.65	5	0.0
September	77.8	52.0	64.9	2.43	1.12	3.36	4	0.2
October	65.5	39.4	52.4	1.47	0.68	2.24	3	1.0
November	47.8	26.0	36.9	1.41	0.61	1.88	2	4.7
December	36.4	16.1	26.2	0.66	0.26	0.79	1	6.4
Annual	---	---	---	---	22.95	28.86	---	---
Average	61.9	38.7	50.3	---	---	---	---	---
Total	---	---	---	25.91	---	---	42	32.5

Table 2.--Freeze Dates in Spring and Fall

(Recorded in the period 1961-90 at Grand Island, Nebraska)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	Apr. 20	May 2	May 12
2 years in 10 later than--	Apr. 16	Apr. 26	May 6
5 years in 10 later than--	Apr. 6	Apr. 15	Apr. 25
First freezing temperature in fall:			
1 year in 10 earlier than--	Oct. 10	Oct. 4	Sept. 24
2 years in 10 earlier than--	Oct. 16	Oct. 8	Sept. 28
5 years in 10 earlier than--	Oct. 26	Oct. 17	Oct. 7

Table 3.--Growing Season

(Recorded in the period 1961-90 at Grand Island, Nebraska)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
9 years in 10	183	164	143
8 years in 10	189	171	150
5 years in 10	202	184	164
2 years in 10	214	197	177
1 year in 10	220	204	184

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
1102	Alda sandy loam, rarely flooded	604	0.2
1104	Alda loam, rarely flooded	7,695	2.2
1166	Almeria loamy sand, frequently flooded	53	*
1348	Barney complex, channeled, frequently flooded	1,176	0.3
1354	Barney-Bolent complex, frequently flooded	1,873	0.5
1547	Blendon loam, 0 to 1 percent slopes	2,863	0.8
1669	Boelus, O'Neill, and Pivot complex, 0 to 3 percent slopes	1,896	0.5
1678	Bolent loam, occasionally flooded	1,127	0.3
1680	Bolent fine sandy loam, occasionally flooded	412	0.1
1688	Bolent loamy sand, occasionally flooded	505	0.1
1704	Bolent-Calamus complex, occasionally flooded	4,950	1.4
1796	Brocksburg loam, 0 to 1 percent slopes	4,947	1.4
1930	Butler silt loam, 0 to 1 percent slopes	5,497	1.6
1942	Calamus loamy fine sand, rarely flooded	1,156	0.3
2020	Caruso loam, rarely flooded	9,401	2.7
2168	Coly silt loam, 11 to 30 percent slopes	482	0.1
2223	Cozad loam, 0 to 1 percent slopes	2,674	0.8
2238	Cozad loam, sand substratum, 0 to 3 percent slopes	5,201	1.5
2240	Cozad, sand substratum-Hobbs, occasionally flooded, silt loams, 0 to 3 percent slopes	684	0.2
2371	Cullison fine sandy loam, 0 to 1 percent slopes	844	0.2
2415	Darr sandy loam, very rarely flooded	1,495	0.4
2430	Detroit silt loam, 0 to 1 percent slopes	33,719	9.5
2731	Els-Tryon complex, 0 to 2 percent slopes	1,112	0.3
2846	Fillmore silty clay loam, occasionally ponded	1,178	0.3
2918	Gates silt loam, 0 to 1 percent slopes	2,805	0.8
2920	Gates silt loam, 1 to 3 percent slopes	6,976	2.0
2924	Gates silt loam, 3 to 6 percent slopes	2,522	0.7
2925	Gates silt loam, 3 to 6 percent slopes, eroded	324	*
2927	Gates silt loam, 6 to 11 percent slopes	1,164	0.3
2940	Gates fine sandy loam, 0 to 3 percent slopes, hummocky	4,128	1.2
2972	Gayville loam, 0 to 2 percent slopes	347	*
3023	Gibbon silt loam, rarely flooded	3,362	1.0
3045	Gibbon loam, saline, 0 to 1 percent slopes, rarely flooded	291	*
3140	Gothenburg loam, frequently flooded	5,610	1.6
3290	Hall silt loam, 0 to 1 percent slopes	4,266	1.2
3293	Hall silt loam, 1 to 3 percent slopes, eroded	798	0.2
3294	Hall silt loam. 3 to 6 percent slopes, eroded	1,486	0.4
3300	Hall silt loam, sandy substratum, 0 to 1 percent slopes	17,876	5.1
3301	Hall, eroded-Hobbs, occasionally flooded, silt loams, 0 to 3 percent slopes	2,369	0.7
3330	Hastings silt loam, 0 to 1 percent slopes	9,826	2.8
3331	Hastings silt loam, 1 to 3 percent slopes	5,949	1.7
3478	Hersh fine sandy loam, silty substratum, 3 to 6 percent slopes	1,403	0.4
3532	Hobbs silt loam, occasionally flooded	2,295	0.6
3537	Hobbs silt loam, channeled, frequently flooded	3,229	0.9
3568	Holder loam, 0 to 3 percent slopes, overblown	1,309	0.4
3570	Holder silt loam, 0 to 1 percent slopes	1,368	0.4
3571	Holder silt loam, 1 to 3 percent slopes	1,251	0.4
3578	Holder silty clay loam, 6 to 11 percent slopes, eroded	1,494	0.4
3580	Holder silty clay loam, 3 to 6 percent slopes, eroded	1,450	0.4
3598	Holdrege silty clay loam, 3 to 6 percent slopes, eroded	1,402	0.4
3616	Holdrege silt loam, 1 to 3 percent slopes, overblown	3,283	0.9
3770	Hord silt loam, 0 to 1 percent slopes	5,552	1.6
3771	Hord silt loam, 1 to 3 percent slopes	640	0.2
3772	Hord silt loam, 3 to 6 percent slopes	382	0.1
3782	Hord silt loam, sandy substratum, 0 to 1 percent slopes	7,622	2.2
3869	Inavale loamy fine sand, very rarely flooded	3,177	0.9
3875	Inavale loamy sand, 3 to 9 percent slopes, very rarely flooded	893	0.3
3927	Ipage loamy fine sand, 0 to 3 percent slopes	1,408	0.4
3948	Ipage-Tryon, wet, complex, silty substratum, 0 to 3 percent slopes	3,360	1.0
3993	Jansen fine sandy loam, overblown, leveled	2,060	0.6
4019	Janude sandy loam, very rarely flooded	4,298	1.2

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
4020	Janude loam, calcareous, rarely flooded	2,499	0.7
4417	Lamo silt loam, sand substratum, 0 to 1 percent slopes	1,685	0.5
4586	Lex silt loam, rarely flooded	1,906	0.5
4613	Libory loamy fine sand, 0 to 2 percent slopes	3,483	1.0
4650	Lockton loam, 0 to 1 percent slopes	394	0.1
4744	Loup fine sandy loam, loamy substratum, 0 to 2 percent slopes	1,292	0.4
4932	Marlake loamy fine sand, frequently ponded	126	*
5705	O'Neill and Pivot loams, 0 to 2 percent slopes	10,960	3.1
5713	O'Neill sandy loam, 2 to 6 percent slopes	979	0.3
5905	Ortello fine sandy loam, silty substratum, 0 to 3 percent slopes	6,862	1.9
5909	Ortello, silty substratum-Holder, overblown, complex, 0 to 3 percent slopes	3,742	1.1
5914	Ortello loam, 0 to 1 percent slopes	326	*
5985	Ovina fine sandy loam, 0 to 2 percent slopes	1,511	0.4
6136	Platte-Alda loams, channeled, frequently flooded	634	0.2
6139	Platte-Bolent complex, 0 to 2 percent slopes, occasionally flooded	18,023	5.1
6143	Platte-Inavale complex, 0 to 9 percent slopes, occasionally flooded	1,290	0.4
6800	Scott silty clay loam, 0 to 1 percent slopes	138	*
6956	Silver Creek fine sandy loam, ponded, 0 to 2 percent slopes, overblown	689	0.2
6957	Silver Creek complex, saline-alkali, 0 to 2 percent slopes	2,516	0.7
6978	Simeon sandy loam, 0 to 2 percent slopes	1,660	0.5
7225	Thurman fine sandy loam, 0 to 3 percent slopes	363	0.1
7249	Thurman loamy fine sand, loamy substratum, 3 to 6 percent slopes	151	*
7250	Thurman loamy fine sand, loamy substratum, 0 to 3 percent slopes	503	0.1
7429	Uly silt loam, 1 to 3 percent slopes, eroded	2,063	0.6
7436	Uly, eroded-Coly silt loams, 6 to 11 percent slopes	3,388	1.0
7438	Uly silt loam, 3 to 6 percent slopes, eroded	564	0.2
7439	Uly, eroded-Coly silt loams, 11 to 17 percent slopes	1,066	0.3
7440	Uly, eroded-Hobbs silt loams, 2 to 40 percent slopes	1,606	0.5
7652	Valentine fine sand, 3 to 9 percent slopes	4,744	1.3
7656	Valentine fine sand, rolling	8,013	2.3
7659	Valentine fine sand, rolling and hilly	1,886	0.5
7662	Valentine loamy fine sand, 3 to 9 percent slopes	1,758	0.5
7664	Valentine loamy fine sand, rolling	1,743	0.5
7669	Valentine loamy fine sand, loamy substratum, 0 to 3 percent slopes	2,109	0.6
7721	Valentine-Libory complex, 0 to 9 percent slopes	8,020	2.3
7748	Valentine-Tryon, silty substratum, complex, 0 to 9 percent slopes	1,124	0.3
7924	Wann loam, 0 to 1 percent slopes, rarely flooded	2,821	0.8
7927	Wann sandy loam, 0 to 2 percent slopes, rarely flooded	931	0.3
8020	Wood River silt loam, 0 to 1 percent slopes	9,107	2.6
8022	Wood River-Silver Creek fine sandy loams, 0 to 2 percent slopes	4,617	1.3
8023	Wood River-Silver Creek silt loams, 0 to 1 percent slopes	13,938	3.9
9975	Sanitary landfill	378	0.1
9985	Gravel pits	968	0.3
9995	Miscellaneous water, sewage lagoons	46	*
9998	Water	5,060	1.4
	Total	347,201	100.0

* Less than 0.1 percent.

Table 5.--Prime Farmland

(If a soil is prime farmland only under certain conditions, the conditions are specified in parentheses after the soil name.)

Map symbol	Soil name
1102	Alda sandy loam, rarely flooded (where drained)
1104	Alda loam, rarely flooded (where drained)
1547	Blendon loam, 0 to 1 percent slopes
1796	Brocksburg loam, 0 to 1 percent slopes
1930	Butler silt loam, 0 to 1 percent slopes (where drained)
2223	Cozad loam, 0 to 1 percent slopes
2238	Cozad loam, sand substratum, 0 to 3 percent slopes
2240	Cozad, sand substratum-Hobbs, occasionally flooded, silt loams, 0 to 3 percent slopes (where protected from flooding or not frequently flooded during growing season)
2415	Darr sandy loam, very rarely flooded (where protected from flooding or not frequently flooded during growing season)
2430	Detroit silt loam, 0 to 1 percent slopes
2918	Gates silt loam, 0 to 1 percent slopes
2920	Gates silt loam, 1 to 3 percent slopes
2924	Gates silt loam, 3 to 6 percent slopes
2925	Gates silt loam, 3 to 6 percent slopes, eroded
2940	Gates fine sandy loam, 0 to 3 percent slopes, hummocky
3023	Gibbon silt loam, rarely flooded (where drained)
3290	Hall silt loam, 0 to 1 percent slopes
3293	Hall silt loam, 1 to 3 percent slopes, eroded
3294	Hall silt loam. 3 to 6 percent slopes, eroded
3300	Hall silt loam, sandy substratum, 0 to 1 percent slopes
3301	Hall, eroded-Hobbs, occasionally flooded, silt loams, 0 to 3 percent slopes (where protected from flooding or not frequently flooded during growing season)
3330	Hastings silt loam, 0 to 1 percent slopes
3331	Hastings silt loam, 1 to 3 percent slopes
3478	Hersh fine sandy loam, silty substratum, 3 to 6 percent slopes
3532	Hobbs silt loam, occasionally flooded (where protected from flooding or not frequently flooded during growing season)
3568	Holder loam, 0 to 3 percent slopes, overblown
3570	Holder silt loam, 0 to 1 percent slopes
3571	Holder silt loam, 1 to 3 percent slopes
3580	Holder silty clay loam, 3 to 6 percent slopes, eroded
3598	Holdrege silty clay loam, 3 to 6 percent slopes, eroded
3616	Holdrege silt loam, 1 to 3 percent slopes, overblown
3770	Hord silt loam, 0 to 1 percent slopes
3771	Hord silt loam, 1 to 3 percent slopes
3772	Hord silt loam, 3 to 6 percent slopes
3782	Hord silt loam, sandy substratum, 0 to 1 percent slopes
3993	Jansen fine sandy loam, overblown, leveled
4019	Janude sandy loam, very rarely flooded
4020	Janude loam, calcareous, rarely flooded
4417	Lamo silt loam, sand substratum, 0 to 1 percent slopes (where drained)
4586	Lex silt loam, rarely flooded (where drained)
4650	Lockton loam, 0 to 1 percent slopes
5905	Ortello fine sandy loam, silty substratum, 0 to 3 percent slopes
5909	Ortello, silty substraum-Holder, overblown complex, 0 to 3 percent slopes
5914	Ortello loam, 0 to 1 percent slopes
5985	Ovina fine sandy loam, 0 to 2 percent slopes
7225	Thurman fine sandy loam, 0 to 3 percent slopes
7429	Uly silt loam, 1 to 3 percent slopes, eroded
7438	Uly silt loam, 3 to 6 percent slopes, eroded
7924	Wann loam, 0 to 1 percent slope, rarely flooded (where drained)
7927	Wann sandy loam, 0 to 2 percent slopes, rarely flooded (where drained)
8020	Wood River silt loam, 0 to 1 percent slopes

Table 6.--Land Capability and Yields per Acre of Crops

(Yields in the "N" columns are for nonirrigated soils; those in the "I" columns are for irrigated soils. Yields are those that can be expected under a high level of nonirrigated and irrigated management by component. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil.)

Map symbol and soil name	Land capability		Alfalfa hay		Corn		Soybeans	
	N	I	N	I	N	I	N	I
			Tons		Bu		Bu	
1102:								
Alda	3w	3w	2.5	5.4	58	141	23	55
1104:								
Alda	3w	3w	2.8	5.5	56	143	22	56
1166:								
Almeria	5w	---	---	---	---	---	---	---
1348:								
Barney, frequently flooded	5w	---	---	---	---	---	---	---
Barney, wet, channeled	6w	---	---	---	---	---	---	---
1354:								
Barney	5w	---	---	---	---	---	---	---
Bolent	4w	4w	---	---	---	---	---	---
1547:								
Blendon	2c	1	2.5	6.1	55	159	21	62
1669:								
Boelus	3e	3e	3.2	5.6	50	145	20	57
O'Neill	3e	3e	1.5	5.8	36	151	14	59
Pivot	4e	3e	1.5	5.0	32	130	12	51
1678:								
Bolent	4w	4w	2.4	4.9	40	128	16	50
1680:								
Bolent	4w	4w	2.3	4.7	40	123	16	48
1688:								
Bolent	4w	4w	2.0	4.3	40	112	16	44
1704:								
Bolent	4w	4w	2.4	4.7	40	123	16	48
Calamus	6e	4e	1.5	3.9	25	100	10	39
1796:								
Brocksburg	2s	2s	2.0	5.9	40	154	16	60
1930:								
Butler	2w	2w	3.0	5.6	44	145	17	57
1942:								
Calamus	6e	4e	1.5	3.5	25	90	10	35
2020:								
Caruso	2w	2w	2.5	5.3	48	138	19	54

Table 6.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Corn		Soybeans	
	N	I	N	I	N	I	N	I
			Tons		Bu		Bu	
2168:								
Coly	6e	---	---	---	---	---	---	---
2223:								
Cozad	2c	1	3.7	6.3	62	162	24	63
2238:								
Cozad	2e	2e	3.4	6.3	60	162	23	63
2240:								
Cozad	2e	2e	3.7	6.1	60	158	23	62
Hobbs	2w	2w	3.7	6.0	68	156	27	61
2371:								
Cullison	5w	---	---	---	---	---	---	---
2415:								
Darr	2s	2s	2.9	5.0	69	130	27	51
2430:								
Detroit	2c	1	3.7	6.4	65	165	25	64
2731:								
Els	4w	4w	2.3	3.8	30	99	12	39
Tryon	5w	---	---	---	---	---	---	---
2846:								
Fillmore	3w	4w	2.5	3.0	50	77	20	30
2918:								
Gates	2c	1	3.5	6.1	62	158	24	62
2920:								
Gates	2e	2e	3.2	6.1	60	157	23	61
2924:								
Gates	3e	3e	2.8	5.4	51	140	20	55
2925:								
Gates	3e	3e	2.8	5.1	40	132	16	51
2927:								
Gates	4e	4e	2.5	4.6	42	120	16	47
2940:								
Gates	2e	2e	3.2	6.1	60	157	23	61
2972:								
Gayville	4s	4s	2.0	3.1	25	80	10	31
3023:								
Gibbon	2w	2w	3.8	5.6	69	145	27	57
3045:								
Gibbon	4s	3s	2.5	5.2	34	135	13	53
3140:								
Gothenburg	7s	---	---	---	---	---	---	---

Table 6.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability N	Land capability I	Alfalfa hay N	Alfalfa hay I	Corn N	Corn I	Soybeans N	Soybeans I
			Tons		Bu		Bu	
3290:								
Hall--------------------	2c	1	3.7	6.4	65	165	25	64
3293:								
Hall--------------------	2e	2e	3.2	6.1	62	159	24	62
3294:								
Hall--------------------	3e	3e	3.0	5.4	50	140	20	55
3300:								
Hall--------------------	2c	1	3.3	6.3	60	162	23	63
3301:								
Hall--------------------	2e	2e	3.5	6.1	68	156	27	61
Hobbs-------------------	2w	2w	3.7	6.0	68	156	27	61
3330:								
Hastings----------------	1	1	3.8	6.5	65	168	25	66
3331:								
Hastings----------------	2e	2e	3.6	6.3	63	162	25	63
3478:								
Hersh-------------------	3e	3e	1.9	5.1	36	132	14	51
3532:								
Hobbs-------------------	2w	2w	3.7	6.0	68	156	27	61
3537:								
Hobbs-------------------	6w	---	---	---	---	---	---	---
3568:								
Holder------------------	2e	2e	3.5	6.1	65	158	25	62
3570:								
Holder------------------	1	1	3.8	6.5	67	168	26	66
3571:								
Holder------------------	2e	2e	3.6	6.1	65	159	25	62
3578:								
Holder------------------	4e	4e	2.0	4.9	43	128	17	50
3580:								
Holder------------------	3e	3e	2.2	5.4	45	140	18	55
3598:								
Holdrege----------------	3e	3e	2.2	5.2	45	134	18	52
3616:								
Holdrege----------------	2e	2e	3.2	6.0	62	156	24	61
3770:								
Hord--------------------	2c	1	4.0	6.4	70	167	27	65
3771:								
Hord--------------------	2e	2e	3.3	5.6	54	145	21	57
3772:								
Hord--------------------	3e	3e	3.3	5.6	54	145	21	57

Table 6.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Corn		Soybeans	
	N	I	N	I	N	I	N	I
			Tons		Bu		Bu	
3782:								
Hord	2e	1	3.3	6.3	60	162	23	63
3869:								
Inavale	4e	3e	1.4	3.9	---	100	---	39
3875:								
Inavale	6e	4e	---	3.2	---	82	---	32
3927:								
Ipage	6e	4e	1.5	4.6	35	120	14	47
3948:								
Ipage	6e	4e	1.5	4.6	14	47	35	120
Tryon	5w	---	---	---	---	---	---	---
3993:								
Jansen	2e	2e	2.2	6.1	48	158	19	62
4019:								
Janude	2c	2c	3.4	5.9	65	154	25	60
4020:								
Janude	2c	2c	3.4	5.9	64	154	25	60
4417:								
Lamo	3w	3w	3.7	5.6	65	125	25	49
4586:								
Lex	3w	3w	3.1	5.3	65	138	25	54
4613:								
Libory	3e	3e	3.2	5.4	50	140	20	55
4650:								
Lockton	3s	3s	2.8	5.7	52	148	20	58
4744:								
Loup	5w	---	---	---	---	---	---	---
4932:								
Marlake	8w	---	---	---	---	---	---	---
5705:								
O'Neill	2s	2s	1.5	4.9	36	149	14	40
Pivot	4s	3s	1.0	4.5	34	135	13	40
5713:								
O'Neill	4e	4e	---	4.0	---	112	---	38
5905:								
Ortello	2e	2e	3.0	6.0	55	158	21	62
5909:								
Ortello	2e	2e	2.8	6.0	55	156	21	61
Holder	2e	2e	3.6	6.1	65	158	25	62
5914:								
Ortello	2c	1	2.9	6.1	55	159	21	62

Table 6.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Corn		Soybeans	
	N	I	N	I	N	I	N	I
			Tons		Bu		Bu	
5985:								
Ovina-------------------	3w	3w	3.8	5.3	60	137	23	53
6136:								
Platte------------------	7w	---	---	---	---	---	---	---
Alda--------------------	6w	---	---	---	---	---	---	---
6139:								
Platte------------------	6w	4w	2.0	3.8	35	99	14	39
Bolent------------------	4w	4w	---	4.7	---	123	---	48
6143:								
Platte------------------	6w	4w	2.0	3.8	35	99	14	39
Inavale-----------------	4e	3e	---	3.8	---	99	---	39
6800:								
Scott-------------------	4w	---	---	---	---	---	---	---
6956:								
Silver Creek------------	4s	4s	2.2	4.6	30	120	12	47
6957:								
Silver Creek, alkali----	4s	4s	2.2	4.3	30	112	12	44
Silver Creek, saline, alkali-----------------	6s	6s	2.2	4.2	29	110	11	43
6978:								
Simeon------------------	6s	4s	---	3.0	---	105	---	41
7225:								
Thurman-----------------	3e	3e	1.7	4.4	40	115	16	45
7249:								
Thurman-----------------	4e	4e	1.5	4.3	35	112	14	44
7250:								
Thurman-----------------	3e	3e	2.0	5.1	42	132	16	51
7429:								
Uly---------------------	2e	2e	3.4	5.9	63	154	25	60
7436:								
Uly---------------------	4e	4e	2.0	4.1	42	106	16	41
Coly--------------------	4e	4e	2.0	3.7	30	95	12	37
7438:								
Uly---------------------	3e	3e	2.8	5.4	52	141	20	55
7439:								
Uly---------------------	6e	6e	---	---	---	---	---	---
Coly--------------------	6e	6e	---	---	---	---	---	---
7440:								
Uly---------------------	6e	---	---	---	---	---	---	---
Hobbs-------------------	5w	---	---	---	---	---	---	---

Table 6.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Corn		Soybeans	
	N	I	N	I	N	I	N	I
			Tons		Bu		Bu	
7652:								
Valentine	6e	4e	---	3.1	30	80	---	31
7656:								
Valentine	6e	---	---	---	---	---	---	---
7659:								
Valentine, rolling	6e	---	---	---	---	---	---	---
Valentine, hilly	7e	---	---	---	---	---	---	---
7662:								
Valentine	6e	4e	1.5	3.5	30	90	12	35
7664:								
Valentine	6e	---	---	---	---	---	---	---
7669:								
Valentine	6e	4e	1.7	4.5	30	130	12	51
7721:								
Valentine	6e	4e	1.5	3.5	30	90	12	35
Libory	3e	3e	3.1	5.2	50	135	20	53
7748:								
Valentine	6e	4e	1.5	3.1	30	80	12	31
Tryon	5w	---	---	---	---	---	---	31
7924:								
Wann	2w	2w	3.8	5.7	68	148	27	58
7927:								
Wann	2w	2w	3.6	5.6	65	145	25	57
8020:								
Wood River	4s	3s	3.5	5.4	42	140	16	55
8022:								
Wood River	4s	3s	2.6	5.0	38	130	15	51
Silver Creek	4s	4s	3.0	4.6	35	120	14	47
8023:								
Wood River	4s	3s	2.7	5.3	40	137	16	53
Silver Creek	4s	4s	2.6	4.7	40	123	16	48
9985:								
Gravel pits	8s	---	---	---	---	---	---	---

Table 7.--Rangeland Productivity and Characteristic Plant Communities

(Only the soils that support rangeland vegetation suitable for grazing are rated.)

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Normal year	Unfavorable year	Characteristic vegetation	Rangeland composition
		Lb/acre	Lb/acre	Lb/acre		Pct
1102:						
Alda, rarely flooded----	Subirrigated; Veg. Zone 3	5,500	5,000	4,250	little bluestem----------------	15
					yellow Indiangrass-------------	15
					miscellaneous perennial grasses	10
					switchgrass--------------------	10
					miscellaneous perennial forbs--	5
					other perennial grasslikes-----	5
1104:						
Alda, rarely flooded----	Subirrigated; Veg. Zone 3	5,500	5,000	4,250	little bluestem----------------	15
					yellow Indiangrass-------------	15
					miscellaneous perennial grasses	10
					switchgrass--------------------	10
					miscellaneous perennial forbs--	5
					other perennial grasslikes-----	5
1166:						
Almeria-----------------	Wet Subirrigated; Veg. Zone 3	5,750	5,200	4,700	switchgrass--------------------	25
					reedgrass----------------------	15
					miscellaneous perennial forbs--	5
					miscellaneous perennial grasses	5
1348:						
Barney, frequently flooded----------------	Wet Subirrigated; Veg. Zone 3	5,200	5,000	4,500	bluejoint----------------------	20
					northern reedgrass-------------	20
					rush---------------------------	10
					miscellaneous perennial forbs--	5
					miscellaneous perennial grasses	5
					other perennial grasslikes-----	5
					plains bluegrass---------------	5
Barney, wet, channeled--	Wetland; Veg. Zone 3	5,300	4,700	4,500	bluejoint----------------------	20
					northern reedgrass-------------	20
					rush---------------------------	10
					miscellaneous perennial forbs--	5
					miscellaneous perennial grasses	5
					other perennial grasslikes-----	5
					plains bluegrass---------------	5
1354:						
Barney, frequently flooded----------------	Wet Subirrigated; Veg. Zone 3	5,200	5,000	4,500	bluejoint----------------------	20
					northern reedgrass-------------	20
					rush---------------------------	10
					miscellaneous perennial forbs--	5
					miscellaneous perennial grasses	5
					other perennial grasslikes-----	5
					plains bluegrass---------------	5
Bolent, occasionally flooded----------------	Subirrigated; Veg. Zone 3	5,000	4,500	4,200	big bluestem-------------------	30
					little bluestem----------------	15
					yellow Indiangrass-------------	15
					miscellaneous perennial grasses	10
					prairie cordgrass--------------	10
					switchgrass--------------------	10
					miscellaneous perennial forbs--	5
					sedge--------------------------	5

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Normal year	Unfavorable year	Characteristic vegetation	Rangeland composition
		Lb/acre	Lb/acre	Lb/acre		Pct
1547:						
Blendon----------------	Sandy; Veg. Zone 3	4,000	3,200	2,300	little bluestem---------------	25
					prairie sandreed--------------	20
					needleandthread---------------	15
					miscellaneous perennial forbs--	5
					porcupine grass---------------	5
					sand bluestem-----------------	5
1669:						
Boelus, sandy substratum	Sandy; Veg. Zone 3	3,500	3,300	3,000	little bluestem---------------	20
					sand bluestem-----------------	20
					needleandthread---------------	15
					prairie sandreed--------------	15
					miscellaneous perennial grasses	10
					miscellaneous perennial forbs--	5
					switchgrass-------------------	5
O'Neill----------------	Sandy; Veg. Zone 3	3,500	3,000	2,200	sand bluestem-----------------	20
					little bluestem---------------	15
					prairie sandreed--------------	15
					needleandthread---------------	10
					cudweed sagewort--------------	5
					miscellaneous perennial forbs--	5
					miscellaneous perennial grasses	5
					sand dropseed-----------------	5
					switchgrass-------------------	5
Pivot, loamy surface----	Sandy; Veg. Zone 3	3,300	3,000	2,600	sand bluestem-----------------	20
					little bluestem---------------	15
					prairie sandreed--------------	15
					needleandthread---------------	10
					miscellaneous perennial grasses	10
					miscellaneous perennial forbs--	5
					pricklypear-------------------	5
					sand dropseed-----------------	5
1678:						
Bolent, occasionally flooded---------------	Subirrigated; Veg. Zone 3	5,500	5,000	4,200	big bluestem------------------	30
					little bluestem---------------	15
					yellow Indiangrass------------	15
					miscellaneous perennial grasses	10
					prairie cordgrass-------------	10
					switchgrass-------------------	10
					miscellaneous perennial forbs--	5
					sedge-------------------------	5
1680:						
Bolent, occasionally flooded---------------	Subirrigated; Veg. Zone 3	5,500	5,000	4,200	big bluestem------------------	30
					little bluestem---------------	15
					yellow Indiangrass------------	15
					miscellaneous perennial grasses	10
					prairie cordgrass-------------	10
					switchgrass-------------------	10
					miscellaneous perennial forbs--	5
					sedge-------------------------	5

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Total dry-weight production: Normal year	Total dry-weight production: Unfavorable year	Characteristic vegetation	Rangeland composition
		Lb/acre	Lb/acre	Lb/acre		Pct
1688:						
Bolent, occasionally flooded	Subirrigated; Veg. Zone 3	5,500	5,000	4,200	little bluestem	15
					yellow Indiangrass	15
					miscellaneous perennial grasses	10
					switchgrass	10
					miscellaneous perennial forbs	5
1704:						
Bolent, occasionally flooded	Subirrigated; Veg. Zone 3	5,500	5,000	4,200	big bluestem	30
					little bluestem	15
					yellow Indiangrass	15
					miscellaneous perennial grasses	10
					prairie cordgrass	10
					switchgrass	10
					miscellaneous perennial forbs	5
					sedge	5
Calamus, rarely flooded	Sandy; Veg. Zone 3	3,500	3,000	2,900	sand bluestem	25
					little bluestem	15
					prairie sandreed	15
					porcupine grass	10
					switchgrass	10
					yellow Indiangrass	10
					sand dropseed	5
1796:						
Brocksburg	Silty; Veg. Zone 3	3,700	3,000	2,500	little bluestem	20
					sideoats grama	10
					western wheatgrass	10
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					switchgrass	5
					yellow Indiangrass	5
1930:						
Butler	Clayey; Veg. Zone 3	3,800	3,400	3,000	little bluestem	20
					switchgrass	10
					yellow Indiangrass	10
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					miscellaneous shrubs	5
					sideoats grama	5
					western wheatgrass	5
1942:						
Calamus, rarely flooded	Sandy; Veg. Zone 3	3,000	2,500	2,000	sand bluestem	25
					little bluestem	15
					prairie sandreed	15
					porcupine grass	10
					switchgrass	10
					yellow Indiangrass	10
					sand dropseed	5
2020:						
Caruso, rarely flooded	Subirrigated; Veg. Zone 3	5,500	5,000	4,200	switchgrass	15
					little bluestem	5
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					western wheatgrass	5
					yellow Indiangrass	5

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Normal year	Unfavorable year	Characteristic vegetation	Rangeland composition
		Lb/acre	Lb/acre	Lb/acre		Pct
2168:						
Coly	Limy Upland; Veg. Zone 3	3,000	2,800	2,600	little bluestem	35
					sideoats grama	10
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					porcupine grass	5
					switchgrass	5
					yellow Indiangrass	5
2223:						
Cozad	Silty Lowland; Veg. Zone 3	4,500	4,000	3,000	little bluestem	20
					western wheatgrass	15
					miscellaneous perennial grasses	10
					sideoats grama	10
					miscellaneous perennial forbs	5
2238:						
Cozad, sandy substratum	Silty Lowland; Veg. Zone 3	4,500	3,500	3,000	little bluestem	20
					miscellaneous perennial grasses	10
					switchgrass	10
					western wheatgrass	10
					miscellaneous perennial forbs	5
					other perennial grasslikes	5
					sideoats grama	5
2240:						
Cozad, sandy substratum	Silty Lowland; Veg. Zone 3	4,500	3,500	3,000	little bluestem	20
					miscellaneous perennial grasses	10
					switchgrass	10
					western wheatgrass	10
					miscellaneous perennial forbs	5
					other perennial grasslikes	5
					sideoats grama	5
Hobbs, occasionally flooded	Silty Overflow; Veg. Zone 3	4,500	3,500	3,000	western wheatgrass	20
					little bluestem	15
					miscellaneous perennial grasses	10
					switchgrass	10
					miscellaneous perennial forbs	5
					sideoats grama	5
2371:						
Cullison	Wet Subirrigated; Veg. Zone 3	5,800	5,000	4,500	big bluestem	20
					miscellaneous perennial grasses	15
					prairie cordgrass	15
					switchgrass	15
					other perennial grasslikes	10
					yellow Indiangrass	10
					miscellaneous perennial forbs	5
					plains bluegrass	5
					slender wheatgrass	5
2415:						
Darr, very rarely flooded	Sandy Lowland; Veg. Zone 3	3,800	3,500	3,000	sand bluestem	30
					little bluestem	15
					prairie sandreed	15
					miscellaneous perennial grasses	10
					porcupine grass	10
					switchgrass	10
					miscellaneous perennial forbs	5
					yellow Indiangrass	5

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Normal year	Unfavorable year	Characteristic vegetation	Rangeland composition
		Lb/acre	Lb/acre	Lb/acre		Pct
2430:						
Detroit	Silty Lowland; Veg. Zone 3	4,500	4,200	3,800	little bluestem	10
					sideoats grama	10
					switchgrass	10
					western wheatgrass	10
					yellow Indiangrass	5
2731:						
Els	Subirrigated; Veg. Zone 3	5,500	5,000	4,200	big bluestem	30
					little bluestem	20
					prairie cordgrass	10
					sedge	10
					switchgrass	10
					yellow Indiangrass	10
					miscellaneous perennial grasses	5
					slender wheatgrass	5
Tryon	Wet Subirrigated; Veg. Zone 3	6,000	5,800	5,500	big bluestem	20
					miscellaneous perennial grasses	15
					prairie cordgrass	15
					switchgrass	15
					other perennial grasslikes	10
					yellow Indiangrass	10
					miscellaneous perennial forbs	5
					plains bluegrass	5
					slender wheatgrass	5
2846:						
Fillmore	Clayey Overflow; Veg. Zone 3	3,200	2,700	2,200	little bluestem	20
					switchgrass	15
					western wheatgrass	10
					Kentucky bluegrass	5
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					yellow Indiangrass	5
2918:						
Gates	Silty; Veg. Zone 3	3,500	3,100	2,700	little bluestem	15
					switchgrass	10
					yellow Indiangrass	10
					needleandthread	5
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					sideoats grama	5
2920:						
Gates	Silty; Veg. Zone 3	3,500	3,100	2,700	little bluestem	15
					switchgrass	10
					yellow Indiangrass	10
					needleandthread	5
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					sideoats grama	5
2924:						
Gates	Silty; Veg. Zone 3	3,500	3,100	2,700	little bluestem	15
					switchgrass	10
					yellow Indiangrass	10
					needleandthread	5
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					sideoats grama	5

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
2925:						
Gates, eroded----------	Limy Upland; Veg. Zone 3	3,500	3,100	2,700	little bluestem---------------	15
					switchgrass-------------------	10
					yellow Indiangrass------------	10
					needleandthread---------------	5
					miscellaneous perennial forbs--	5
					miscellaneous perennial grasses	5
					sideoats grama----------------	5
2927:						
Gates------------------	Silty; Veg. Zone 3	3,500	3,100	2,700	little bluestem---------------	15
					switchgrass-------------------	10
					yellow Indiangrass------------	10
					needleandthread---------------	5
					miscellaneous perennial forbs--	5
					miscellaneous perennial grasses	5
					sideoats grama----------------	5
2940:						
Gates, overblown--------	Silty; Veg. Zone 3	3,500	3,100	2,700	little bluestem---------------	15
					switchgrass-------------------	10
					yellow Indiangrass------------	10
					needleandthread---------------	5
					miscellaneous perennial forbs--	5
					miscellaneous perennial grasses	5
					sideoats grama----------------	5
2972:						
Gayville---------------	Saline Subirrigated; Veg. Zone 3	3,000	2,500	2,000	western wheatgrass------------	30
					miscellaneous perennial forbs--	10
					miscellaneous perennial grasses	10
					switchgrass-------------------	10
					Kentucky bluegrass------------	5
3023:						
Gibbon, rarely flooded--	Subirrigated; Veg. Zone 3	5,500	5,000	4,500	little bluestem---------------	15
					yellow Indiangrass------------	10
					Kentucky bluegrass------------	5
					miscellaneous perennial forbs--	5
					miscellaneous perennial grasses	5
					switchgrass-------------------	5
3045:						
Gibbon, saline, rarely flooded---------------	Saline Subirrigated; Veg. Zone 3	4,000	3,200	2,700	little bluestem---------------	15
					yellow Indiangrass------------	10
					Kentucky bluegrass------------	5
					miscellaneous perennial forbs--	5
					miscellaneous perennial grasses	5
					switchgrass-------------------	5
3140:						
Gothenburg, frequently flooded---------------	None; Veg. Zone 3	---	---	---	---	---
3290:						
Hall-------------------	Silty Lowland; Veg. Zone 3	4,500	3,700	3,000	little bluestem---------------	25
					western wheatgrass------------	15
					sideoats grama----------------	10
					miscellaneous perennial forbs--	5
					miscellaneous perennial grasses	5
					switchgrass-------------------	5

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Normal year	Unfavorable year	Characteristic vegetation	Rangeland composition
		Lb/acre	Lb/acre	Lb/acre		Pct
3293:						
Hall, eroded	Silty; Veg. Zone 3	4,200	3,700	3,000	little bluestem	25
					western wheatgrass	15
					sideoats grama	10
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					switchgrass	5
3294:						
Hall, eroded	Silty; Veg. Zone 3	4,000	3,600	3,000	little bluestem	25
					western wheatgrass	15
					sideoats grama	10
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					switchgrass	5
3300:						
Hall, sandy substratum	Silty Lowland; Veg. Zone 3	4,500	3,700	3,000	little bluestem	25
					western wheatgrass	15
					sideoats grama	10
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					switchgrass	5
3301:						
Hall, eroded	Silty; Veg. Zone 3	4,000	3,600	3,300	little bluestem	25
					western wheatgrass	15
					sideoats grama	10
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					switchgrass	5
Hobbs, occasionally flooded	Silty Overflow; Veg. Zone 3	4,500	4,000	3,800	western wheatgrass	20
					little bluestem	15
					miscellaneous perennial grasses	10
					switchgrass	10
					miscellaneous perennial forbs	5
					sideoats grama	5
3330:						
Hastings	Silty; Veg. Zone 3	4,200	3,800	3,500	little bluestem	25
					miscellaneous perennial grasses	10
					switchgrass	10
					miscellaneous perennial forbs	5
					porcupine grass	5
					sideoats grama	5
					yellow Indiangrass	5
3331:						
Hastings	Silty; Veg. Zone 3	4,200	3,800	3,500	little bluestem	25
					miscellaneous perennial grasses	10
					switchgrass	10
					miscellaneous perennial forbs	5
					porcupine grass	5
					sideoats grama	5
					yellow Indiangrass	5

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
3478:						
Hersh------------------	Sandy; Veg. Zone 3	3,500	3,300	3,000	sand bluestem-----------------	30
					little bluestem---------------	25
					prairie sandreed--------------	15
					needleandthread---------------	10
					miscellaneous perennial forbs--	5
					miscellaneous perennial grasses	5
					switchgrass-------------------	5
3532:						
Hobbs, occasionally flooded---------------	Silty Overflow; Veg. Zone 3	4,500	3,500	3,000	western wheatgrass------------	20
					little bluestem---------------	15
					miscellaneous perennial grasses	10
					switchgrass-------------------	10
					miscellaneous perennial forbs--	5
					sideoats grama----------------	5
3537:						
Hobbs, frequently flooded---------------	Silty Overflow; Veg. Zone 3	4,000	3,500	3,000	western wheatgrass------------	20
					little bluestem---------------	15
					miscellaneous perennial grasses	10
					switchgrass-------------------	10
					miscellaneous perennial forbs--	5
					sideoats grama----------------	5
3568:						
Holder, overblown-------	Silty; Veg. Zone 3	4,000	3,600	3,300	little bluestem---------------	30
					switchgrass-------------------	10
					miscellaneous perennial forbs--	5
					miscellaneous perennial grasses	5
					porcupine grass---------------	5
					sideoats grama----------------	5
					yellow Indiangrass------------	5
3570:						
Holder-----------------	Silty; Veg. Zone 3	4,000	3,600	3,300	little bluestem---------------	30
					switchgrass-------------------	10
					miscellaneous perennial forbs--	5
					miscellaneous perennial grasses	5
					porcupine grass---------------	5
					sideoats grama----------------	5
					yellow Indiangrass------------	5
3571:						
Holder-----------------	Silty; Veg. Zone 3	4,000	3,600	3,300	little bluestem---------------	30
					switchgrass-------------------	10
					miscellaneous perennial forbs--	5
					miscellaneous perennial grasses	5
					porcupine grass---------------	5
					sideoats grama----------------	5
					yellow Indiangrass------------	5
3578:						
Holder, severely eroded-	Silty; Veg. Zone 3	3,800	3,300	2,700	little bluestem---------------	30
					switchgrass-------------------	10
					miscellaneous perennial forbs--	5
					miscellaneous perennial grasses	5
					porcupine grass---------------	5
					sideoats grama----------------	5
					yellow Indiangrass------------	5

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Normal year	Unfavorable year	Characteristic vegetation	Rangeland composition
		Lb/acre	Lb/acre	Lb/acre		Pct
3580:						
Holder, eroded	Silty; Veg. Zone 3	3,800	3,300	2,700	little bluestem	30
					switchgrass	10
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					porcupine grass	5
					sideoats grama	5
					yellow Indiangrass	5
3598:						
Holdrege, eroded	Silty; Veg. Zone 3	3,800	3,300	2,700	little bluestem	20
					sideoats grama	10
					western wheatgrass	10
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					sand dropseed	5
					yellow Indiangrass	5
3616:						
Holdrege, overblown	Silty; Veg. Zone 3	4,000	3,600	3,300	little bluestem	20
					sideoats grama	10
					western wheatgrass	10
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					sand dropseed	5
					yellow Indiangrass	5
3770:						
Hord	Silty Lowland; Veg. Zone 3	4,500	3,600	3,300	little bluestem	20
					miscellaneous perennial grasses	10
					switchgrass	10
					western wheatgrass	10
					miscellaneous perennial forbs	5
					other perennial grasslikes	5
					sideoats grama	5
3771:						
Hord	Silty Lowland; Veg. Zone 3	4,500	3,600	3,300	little bluestem	20
					miscellaneous perennial grasses	10
					switchgrass	10
					western wheatgrass	10
					miscellaneous perennial forbs	5
					other perennial grasslikes	5
					sideoats grama	5
3772:						
Hord	Silty Lowland; Veg. Zone 3	4,500	3,600	3,300	little bluestem	20
					miscellaneous perennial grasses	10
					switchgrass	10
					western wheatgrass	10
					miscellaneous perennial forbs	5
					other perennial grasslikes	5
					sideoats grama	5
3782:						
Hord, sandy substratum	Silty Lowland; Veg. Zone 3	4,200	3,400	3,000	little bluestem	10
					switchgrass	10
					yellow Indiangrass	10
					Kentucky bluegrass	5
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					porcupine grass	5
					sideoats grama	5
					western wheatgrass	5

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Normal year	Unfavorable year	Characteristic vegetation	Rangeland composition
		Lb/acre	Lb/acre	Lb/acre		Pct
3869:						
Inavale, very rarely flooded	Sandy Lowland; Veg. Zone 3	3,800	3,000	2,200	sand bluestem	30
					little bluestem	25
					prairie sandreed	20
					switchgrass	15
					needleandthread	5
					yellow Indiangrass	5
3875:						
Inavale, very rarely flooded	Sandy Lowland; Veg. Zone 3	3,800	3,000	2,200	sand bluestem	30
					little bluestem	25
					prairie sandreed	20
					switchgrass	15
					needleandthread	5
					yellow Indiangrass	5
3927:						
Ipage	Sandy Lowland; Veg. Zone 3	3,500	3,000	2,500	sand bluestem	25
					little bluestem	20
					prairie sandreed	15
					needleandthread	10
					blue grama	5
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					switchgrass	5
					yellow Indiangrass	5
3948:						
Ipage, silty substratum	Sandy Lowland; Veg. Zone 3	3,500	3,000	2,500	sand bluestem	25
					little bluestem	20
					prairie sandreed	15
					needleandthread	10
					blue grama	5
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					switchgrass	5
					yellow Indiangrass	5
Tryon, silty substratum, wet	Wetland; Veg. Zone 3	6,000	5,750	5,500	little bluestem	15
					switchgrass	10
					yellow Indiangrass	10
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					plains bluegrass	5
3993:						
Jansen, overblown	Silty; Veg. Zone 3	3,900	3,300	3,000	little bluestem	25
					sand bluestem	15
					blue grama	10
					needleandthread	10
					prairie sandreed	10
					sand dropseed	10
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					purple lovegrass	5
					sedge	5
					western wheatgrass	5

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Normal year	Unfavorable year	Characteristic vegetation	Rangeland composition
		Lb/acre	Lb/acre	Lb/acre		Pct
4019:						
Janude, sandy substratum, very rarely flooded	Sandy Lowland; Veg. Zone 3	3,800	3,000	2,800	little bluestem	25
					switchgrass	10
					yellow Indiangrass	10
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					sideoats grama	5
4020:						
Janude, calcareous, very rarely flooded	Silty Lowland; Veg. Zone 3	4,200	3,400	3,000	little bluestem	25
					switchgrass	10
					yellow Indiangrass	10
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					sideoats grama	5
4417:						
Lamo, sand substratum, rarely flooded	Wet Subirrigated; Veg. Zone 3	5,700	5,300	4,700	switchgrass	20
					miscellaneous perennial grasses	10
					other perennial grasslikes	10
					yellow Indiangrass	10
					miscellaneous perennial forbs	5
					spikerush	5
4586:						
Lex, rarely flooded	Subirrigated; Veg. Zone 3	5,200	4,900	4,000	little bluestem	25
					yellow Indiangrass	10
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					other perennial grasslikes	5
					switchgrass	5
4613:						
Libory	Sandy Lowland; Veg. Zone 3	5,000	4,200	3,000	sand bluestem	30
					little bluestem	20
					prairie sandreed	20
					switchgrass	15
					yellow Indiangrass	10
					miscellaneous perennial grasses	5
4650:						
Lockton	Subirrigated; Veg. Zone 3	5,500	5,000	4,200	little bluestem	15
					switchgrass	10
					yellow Indiangrass	10
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					other perennial grasslikes	5
					plains bluegrass	5
					slender wheatgrass	5
4744:						
Loup, loamy substratum	Wet Subirrigated; Veg. Zone 3	6,000	5,800	5,500	little bluestem	15
					switchgrass	10
					yellow Indiangrass	10
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					plains bluegrass	5

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Total dry-weight production: Normal year	Total dry-weight production: Unfavorable year	Characteristic vegetation	Rangeland composition
		Lb/acre	Lb/acre	Lb/acre		Pct
4932:						
Marlake	None; Veg. Zone 3	---	---	---	---	---
5705:						
O'Neill	Sandy; Veg. Zone 3	3,500	3,000	2,200	sand bluestem	20
					little bluestem	15
					prairie sandreed	15
					needleandthread	10
					cudweed sagewort	5
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					sand dropseed	5
					switchgrass	5
Pivot, loamy surface	Sandy; Veg. Zone 3	3,300	3,000	2,600	sand bluestem	20
					little bluestem	15
					prairie sandreed	15
					needleandthread	10
					miscellaneous perennial grasses	10
					miscellaneous perennial forbs	5
					pricklypear	5
					sand dropseed	5
5713:						
O'Neill	Sandy; Veg. Zone 3	3,500	3,000	2,200	sand bluestem	20
					little bluestem	15
					prairie sandreed	15
					needleandthread	10
					cudweed sagewort	5
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					sand dropseed	5
					switchgrass	5
5905:						
Ortello, silty substratum	Sandy; Veg. Zone 3	3,500	3,300	3,000	little bluestem	25
					needleandthread	15
					prairie sandreed	15
					sand bluestem	15
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					switchgrass	5
					western wheatgrass	5
5909:						
Ortello, silty substratum	Sandy; Veg. Zone 3	3,500	3,300	3,000	sand bluestem	25
					little bluestem	20
					needleandthread	10
					prairie sandreed	10
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					miscellaneous shrubs	5
					switchgrass	5
					western wheatgrass	5
Holder, loamy overblown	Silty; Veg. Zone 3	4,000	3,600	3,300	little bluestem	30
					switchgrass	10
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					porcupine grass	5
					sideoats grama	5
					yellow Indiangrass	5

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Normal year	Unfavorable year	Characteristic vegetation	Rangeland composition
		Lb/acre	Lb/acre	Lb/acre		Pct
5914:						
Ortello	Sandy; Veg. Zone 3	3,500	3,300	3,000	little bluestem	25
					needleandthread	15
					prairie sandreed	15
					sand bluestem	15
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					switchgrass	5
					western wheatgrass	5
5985:						
Ovina	Subirrigated; Veg. Zone 3	5,700	5,000	4,200	little bluestem	20
					yellow Indiangrass	15
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					other perennial grasslikes	5
					switchgrass	5
6136:						
Platte, frequently flooded	Subirrigated; Veg. Zone 3	5,000	4,000	3,000	little bluestem	15
					yellow Indiangrass	15
					other perennial grasslikes	10
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					switchgrass	5
Alda, frequently flooded	Subirrigated; Veg. Zone 3	5,500	5,000	4,250	little bluestem	15
					yellow Indiangrass	15
					miscellaneous perennial grasses	10
					switchgrass	10
					miscellaneous perennial forbs	5
					other perennial grasslikes	5
6139:						
Platte, occasionally flooded	Subirrigated; Veg. Zone 3	5,000	4,000	3,000	little bluestem	15
					yellow Indiangrass	15
					other perennial grasslikes	10
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					switchgrass	5
Bolent, occasionally flooded	Subirrigated; Veg. Zone 3	5,500	5,000	4,200	big bluestem	30
					little bluestem	15
					yellow Indiangrass	15
					miscellaneous perennial grasses	10
					prairie cordgrass	10
					switchgrass	10
					miscellaneous perennial forbs	5
					sedge	5
6143:						
Platte, occasionally flooded	Subirrigated; Veg. Zone 3	5,000	4,000	3,000	little bluestem	15
					yellow Indiangrass	15
					other perennial grasslikes	10
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					switchgrass	5

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Normal year	Unfavorable year	Characteristic vegetation	Rangeland composition
		Lb/acre	Lb/acre	Lb/acre		Pct
6143:						
Inavale, very rarely flooded	Sandy Lowland; Veg. Zone 3	3,800	3,000	2,200	sand bluestem	30
					little bluestem	25
					prairie sandreed	20
					switchgrass	15
					needleandthread	5
					yellow Indiangrass	5
6800:						
Scott	None; Veg. Zone 3	---	---	---	---	---
6956:						
Silver Creek, overblown, ponded	Saline Subirrigated; Veg. Zone 3	4,000	3,300	2,500	western wheatgrass	25
					switchgrass	15
					Kentucky bluegrass	10
					miscellaneous perennial forbs	10
					miscellaneous perennial grasses	10
					slender wheatgrass	10
6957:						
Silver Creek, alkali	Saline Subirrigated; Veg. Zone 3	4,000	3,300	2,500	western wheatgrass	25
					switchgrass	15
					Kentucky bluegrass	10
					miscellaneous perennial forbs	10
					miscellaneous perennial grasses	10
					slender wheatgrass	10
Silver Creek, saline, alkali	Saline Lowland; Veg. Zone 3	3,000	2,200	1,700	western wheatgrass	30
					miscellaneous perennial forbs	10
					miscellaneous perennial grasses	10
					switchgrass	10
					Kentucky bluegrass	5
6978:						
Simeon	Shallow to Gravel; Veg. Zone 3	1,800	1,200	750	needleandthread	15
					prairie sandreed	15
					clubmoss	10
					little bluestem	10
					sand bluestem	10
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					sand dropseed	5
7225:						
Thurman	Sandy; Veg. Zone 3	3,500	3,000	2,500	sand bluestem	25
					little bluestem	20
					prairie sandreed	15
					needleandthread	10
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					switchgrass	5
7249:						
Thurman, loamy substratum	Sandy; Veg. Zone 3	3,500	3,000	2,500	sand bluestem	25
					little bluestem	20
					prairie sandreed	20
					switchgrass	10
					needleandthread	5
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Normal year	Unfavorable year	Characteristic vegetation	Rangeland composition
		Lb/acre	Lb/acre	Lb/acre		Pct
7250:						
Thurman, loamy substratum	Sandy; Veg. Zone 3	3,500	3,000	2,500	sand bluestem	25
					little bluestem	20
					prairie sandreed	20
					switchgrass	10
					needleandthread	5
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
7429:						
Uly, eroded	Silty; Veg. Zone 3	3,700	3,200	2,700	little bluestem	25
					sideoats grama	10
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					switchgrass	5
					western wheatgrass	5
					yellow Indiangrass	5
7436:						
Uly, eroded	Silty; Veg. Zone 3	3,700	3,200	2,700	little bluestem	25
					sideoats grama	10
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					switchgrass	5
					western wheatgrass	5
					yellow Indiangrass	5
Coly	Limy Upland; Veg. Zone 3	3,300	3,000	2,700	little bluestem	30
					miscellaneous perennial grasses	10
					sideoats grama	10
					western wheatgrass	10
					miscellaneous perennial forbs	5
					yellow Indiangrass	5
7438:						
Uly, eroded	Silty; Veg. Zone 3	3,700	3,200	2,700	little bluestem	25
					sideoats grama	10
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					switchgrass	5
					western wheatgrass	5
					yellow Indiangrass	5
7439:						
Uly, eroded	Silty; Veg. Zone 3	3,700	3,200	2,700	little bluestem	25
					sideoats grama	10
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					switchgrass	5
					western wheatgrass	5
					yellow Indiangrass	5
Coly	Limy Upland; Veg. Zone 3	3,300	3,000	2,700	little bluestem	30
					miscellaneous perennial grasses	10
					sideoats grama	10
					western wheatgrass	10
					miscellaneous perennial forbs	5
					yellow Indiangrass	5

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Normal year	Unfavorable year	Characteristic vegetation	Rangeland composition
		Lb/acre	Lb/acre	Lb/acre		Pct
7440:						
Uly	Silty; Veg. Zone 3	3,700	3,200	2,700	little bluestem	25
					sideoats grama	10
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					switchgrass	5
					western wheatgrass	5
					yellow Indiangrass	5
Hobbs, occasionally flooded	Silty Overflow; Veg. Zone 3	4,500	3,500	3,000	western wheatgrass	20
					little bluestem	15
					miscellaneous perennial grasses	10
					switchgrass	10
					miscellaneous perennial forbs	5
					sideoats grama	5
7652:						
Valentine	Sands; Veg. Zone 3	3,200	2,800	2,200	sand bluestem	25
					little bluestem	20
					prairie sandreed	20
					switchgrass	10
					needleandthread	5
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
7656:						
Valentine, rolling	Sands; Veg. Zone 3	3,200	2,800	2,200	sand bluestem	25
					little bluestem	20
					prairie sandreed	20
					switchgrass	10
					needleandthread	5
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
7659:						
Valentine, rolling	Sands; Veg. Zone 3	3,200	2,800	2,200	sand bluestem	25
					little bluestem	20
					prairie sandreed	20
					switchgrass	10
					needleandthread	5
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
Valentine, hilly	Choppy Sands; Veg. Zone 3	3,000	2,600	2,000	sand bluestem	25
					little bluestem	20
					prairie sandreed	20
					switchgrass	10
					needleandthread	5
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
7662:						
Valentine	Sands; Veg. Zone 3	3,200	2,800	2,200	sand bluestem	25
					little bluestem	20
					prairie sandreed	20
					switchgrass	10
					needleandthread	5
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Normal year	Unfavorable year	Characteristic vegetation	Rangeland composition
		Lb/acre	Lb/acre	Lb/acre		Pct
7664:						
Valentine	Sands; Veg. Zone 3	3,200	2,800	2,200	sand bluestem	25
					little bluestem	20
					prairie sandreed	20
					switchgrass	10
					needleandthread	5
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
7669:						
Valentine, loamy substratum	Sands; Veg. Zone 3	3,200	2,800	2,200	sand bluestem	25
					little bluestem	20
					prairie sandreed	20
					switchgrass	10
					needleandthread	5
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
7721:						
Valentine	Sands; Veg. Zone 3	3,200	2,800	2,200	sand bluestem	25
					little bluestem	20
					prairie sandreed	20
					switchgrass	10
					needleandthread	5
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
Libory	Subirrigated; Veg. Zone 3	5,000	4,200	3,000	sand bluestem	30
					little bluestem	20
					prairie sandreed	20
					switchgrass	15
					yellow Indiangrass	10
					miscellaneous perennial grasses	5
7748:						
Valentine	Sands; Veg. Zone 3	3,200	2,800	2,200	sand bluestem	25
					little bluestem	20
					prairie sandreed	20
					switchgrass	10
					needleandthread	5
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
Tryon, silty substratum, wet	Wetland; Veg. Zone 3	6,000	5,750	5,500	little bluestem	15
					switchgrass	10
					yellow Indiangrass	10
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					plains bluegrass	5
7924:						
Wann, rarely flooded	Subirrigated; Veg. Zone 3	6,000	5,000	4,500	little bluestem	15
					yellow Indiangrass	15
					switchgrass	10
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Normal year	Unfavorable year	Characteristic vegetation	Rangeland composition
		Lb/acre	Lb/acre	Lb/acre		Pct
7927:						
Wann, rarely flooded----	Subirrigated; Veg. Zone 3	6,000	5,000	4,500	little bluestem----------------	15
					yellow Indiangrass-------------	15
					switchgrass--------------------	10
					miscellaneous perennial forbs--	5
					miscellaneous perennial grasses	5
8020:						
Wood River--------------	Saline Lowland; Veg. Zone 3	3,000	2,400	1,700	miscellaneous perennial grasses	15
					slender wheatgrass-------------	15
					miscellaneous perennial forbs--	10
					switchgrass--------------------	10
					western wheatgrass-------------	10
8022:						
Wood River, overblown---	Saline Lowland; Veg. Zone 3	3,000	2,400	1,700	miscellaneous perennial grasses	15
					slender wheatgrass-------------	15
					miscellaneous perennial forbs--	10
					switchgrass--------------------	10
					western wheatgrass-------------	10
Silver Creek, overblown, alkali----------------	Saline Lowland; Veg. Zone 3	4,000	3,300	2,500	western wheatgrass-------------	25
					switchgrass--------------------	15
					Kentucky bluegrass-------------	10
					miscellaneous perennial forbs--	10
					miscellaneous perennial grasses	10
					slender wheatgrass-------------	10
8023:						
Wood River--------------	Saline Lowland; Veg. Zone 3	3,000	2,400	1,700	miscellaneous perennial grasses	15
					slender wheatgrass-------------	15
					miscellaneous perennial forbs--	10
					switchgrass--------------------	10
					western wheatgrass-------------	10
Silver Creek, alkali----	Saline Lowland; Veg. Zone 3	3,000	2,200	1,700	western wheatgrass-------------	25
					switchgrass--------------------	15
					Kentucky bluegrass-------------	10
					miscellaneous perennial forbs--	10
					miscellaneous perennial grasses	10
					slender wheatgrass-------------	10

Table 8.--Windbreaks and Environmental Plantings

(Absence of an entry indicates that trees generally do not grow to the given height.)

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
1102:					
Alda	American plum, redosier dogwood	Common chokecherry	Common hackberry, eastern redcedar	Austrian pine, green ash, golden willow, northern red oak, honeylocust, silver maple	Eastern cottonwood
1104:					
Alda	American plum, redosier dogwood	Common chokecherry	Common hackberry, eastern redcedar	Austrian pine, green ash, golden willow, northern red oak, honeylocust, silver maple	Eastern cottonwood
1166:					
Almeria	Redosier dogwood	---	---	Golden willow	Eastern cottonwood
1348:					
Barney, frequently flooded.					
Barney, wet, channeled.					
1354:					
Barney.					
Bolent.					
1547:					
Blendon	Common lilac, Siberian peashrub, skunkbush sumac	Manchurian crabapple	Eastern redcedar, Russian olive, common hackberry, green ash, ponderosa pine, honeylocust	Siberian elm	---
1669:					
Boelus	Common lilac, Siberian peashrub, skunkbush sumac	Manchurian crabapple	Eastern redcedar, Russian olive, common hackberry, green ash, ponderosa pine, honeylocust	Siberian elm	---
O'Neill	Common lilac, Siberian peashrub	Eastern redcedar, Manchurian crabapple, ponderosa pine, Rocky Mountain juniper, Russian olive	Bur oak, green ash, honeylocust	Siberian elm	---
Pivot	Common lilac, Siberian peashrub, skunkbush sumac	Manchurian crabapple	Eastern redcedar, Russian olive, common hackberry, green ash, ponderosa pine, honeylocust	Siberian elm	---

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
1678:					
Bolent.					
1680:					
Bolent.					
1688:					
Bolent	American plum, common lilac, Siberian peashrub	---	Common hackberry, eastern redcedar, Manchurian crabapple, ponderosa pine, green ash	Golden willow, honeylocust	Eastern cottonwood
1704:					
Bolent.					
Calamus	American plum	Common chokecherry, common lilac, skunkbush sumac	---	Eastern redcedar, common hackberry, green ash, honeylocust, ponderosa pine, Scotch pine	Siberian elm
1796:					
Brocksburg	Common lilac, Siberian peashrub	Eastern redcedar, Manchurian crabapple, ponderosa pine, Rocky Mountain juniper, Russian olive	Bur oak, green ash, honeylocust	Siberian elm	---
1930:					
Butler	---	---	Eastern redcedar, blue spruce, common hackberry, ponderosa pine	Golden willow, green ash, honeylocust, silver maple	Eastern cottonwood
1942:					
Calamus	American plum	Common chokecherry, common lilac, skunkbush sumac	---	Eastern redcedar, common hackberry, green ash, honeylocust, ponderosa pine, Scotch pine	Siberian elm
2020:					
Caruso	American plum, common chokecherry, common lilac, Siberian peashrub, 'Konza' fragrant sumac, tatarian honeysuckle	Silver buffaloberry	Eastern redcedar, osageorange, Rocky Mountain juniper, Russian mulberry, Russian olive, black walnut, ponderosa pine, black willow	Black locust, bur oak, common hackberry, golden willow, green ash, honeylocust, Siberian elm	---
2168:					
Coly.					

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
2223:					
Cozad	American plum, common lilac	Amur honeysuckle	Russian olive, Austrian pine, eastern redcedar, ponderosa pine, Russian mulberry	Common hackberry, green ash, honeylocust	Eastern cottonwood
2238:					
Cozad	---	American plum, common lilac, Siberian peashrub	Eastern redcedar, Manchurian crabapple, blue spruce, ponderosa pine	Common hackberry, golden willow, green ash	Eastern cottonwood
2240:					
Cozad	---	American plum, common lilac, Siberian peashrub	Eastern redcedar, Manchurian crabapple, blue spruce, ponderosa pine	Common hackberry, golden willow, green ash	Eastern cottonwood
Hobbs	American plum, common lilac	Amur honeysuckle, Siberian peashrub	Austrian pine, eastern redcedar, ponderosa pine, Russian mulberry	Common hackberry, green ash, honeylocust	Eastern cottonwood
2371:					
Cullison	Redosier dogwood	---	---	Golden willow	Eastern cottonwood
2415:					
Darr	Blackhaw	Siberian peashrub	Washington hawthorn, Russian olive, eastern redcedar, osageorange	Bur oak, common hackberry, green ash, honeylocust	Eastern cottonwood
2430:					
Detroit	American plum, common lilac	Amur honeysuckle	Russian olive, Austrian pine, eastern redcedar, ponderosa pine, Russian mulberry	Common hackberry, green ash, honeylocust	Eastern cottonwood
2731:					
Els	American plum, common lilac, Siberian peashrub	---	Common hackberry, eastern redcedar, Manchurian crabapple, ponderosa pine, blue spruce, green ash	Golden willow	Eastern cottonwood
Tryon	Redosier dogwood	---	---	Golden willow	Eastern cottonwood
2846:					
Fillmore	American plum, redosier dogwood	Common chokecherry	Common hackberry, eastern redcedar	Austrian pine, green ash, golden willow, northern red oak, honeylocust, silver maple	Eastern cottonwood

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
2918: Gates	Amur honeysuckle, common lilac	Russian mulberry	Common hackberry, eastern redcedar, ponderosa pine, Russian olive, bur oak, green ash	Honeylocust, Siberian elm	---
2920: Gates	Amur honeysuckle, common lilac	Russian mulberry	Common hackberry, eastern redcedar, ponderosa pine, Russian olive, bur oak, green ash	Honeylocust, Siberian elm	---
2924: Gates	Amur honeysuckle, common lilac	Russian mulberry	Common hackberry, eastern redcedar, ponderosa pine, Russian olive, bur oak, green ash	Honeylocust, Siberian elm	---
2925: Gates	Amur honeysuckle, common lilac	Russian mulberry	Common hackberry, eastern redcedar, ponderosa pine, Russian olive, bur oak, green ash	Honeylocust, Siberian elm	---
2927: Gates	Amur honeysuckle, common lilac	Russian mulberry	Common hackberry, eastern redcedar, ponderosa pine, Russian olive, bur oak, green ash	Honeylocust, Siberian elm	---
2940: Gates	Amur honeysuckle, common lilac	Russian mulberry	Common hackberry, eastern redcedar, ponderosa pine, Russian olive, bur oak, green ash	Honeylocust, Siberian elm	---
2972: Gayville.					
3023: Gibbon	American plum, redosier dogwood	Common chokecherry	Eastern redcedar, Austrian pine, common hackberry, Russian mulberry	Green ash, honeylocust, golden willow, silver maple	Eastern cottonwood
3045: Gibbon	American plum, redosier dogwood	Common chokecherry	Eastern redcedar, Austrian pine, common hackberry, Russian mulberry	Green ash, honeylocust, golden willow, silver maple	Eastern cottonwood
3140: Gothenburg.					

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
3290:					
Hall	Amur honeysuckle, common lilac	Russian mulberry	Austrian pine, common hackberry, eastern redcedar, Russian olive, bur oak, green ash	Honeylocust, Siberian elm	---
3293:					
Hall	Amur honeysuckle, common lilac	Russian mulberry	Austrian pine, common hackberry, eastern redcedar, Russian olive, bur oak, green ash	Honeylocust, Siberian elm	---
3294:					
Hall	Amur honeysuckle, common lilac	Russian mulberry	Austrian pine, common hackberry, eastern redcedar, Russian olive, bur oak, green ash	Honeylocust, Siberian elm	---
3300:					
Hall	Amur honeysuckle, common lilac	Russian mulberry	Austrian pine, common hackberry, eastern redcedar, Russian olive, bur oak, green ash	Honeylocust, Siberian elm	---
3301:					
Hall	Amur honeysuckle, common lilac	Russian mulberry	Austrian pine, common hackberry, eastern redcedar, Russian olive, bur oak, green ash	Honeylocust, Siberian elm	---
Hobbs	American plum, common lilac	Amur honeysuckle, Siberian peashrub	Austrian pine, eastern redcedar, ponderosa pine, Russian mulberry	Common hackberry, green ash, honeylocust	Eastern cottonwood
3330:					
Hastings	Amur honeysuckle, common lilac	Russian mulberry	Austrian pine, common hackberry, eastern redcedar, Russian olive, bur oak, green ash	Honeylocust, Siberian elm	---
3331:					
Hastings	Amur honeysuckle, common lilac	Russian mulberry	Austrian pine, common hackberry, eastern redcedar, Russian olive, bur oak, green ash	Honeylocust, Siberian elm	---

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
3478:					
Hersh	American plum, common lilac	Common chokecherry	Common hackberry, eastern redcedar, Russian mulberry, Austrian pine, green ash, honeylocust, ponderosa pine, Scotch pine	Siberian elm	---
3532:					
Hobbs	American plum, common lilac	Amur honeysuckle, Siberian peashrub	Austrian pine, eastern redcedar, ponderosa pine, Russian mulberry	Common hackberry, green ash, honeylocust	Eastern cottonwood
3537:					
Hobbs	American plum, common lilac	Amur honeysuckle, Siberian peashrub	Austrian pine, eastern redcedar, ponderosa pine, Russian mulberry	Common hackberry, green ash, honeylocust	Eastern cottonwood
3568:					
Holder	Amur honeysuckle, common lilac	Russian mulberry	Austrian pine, common hackberry, eastern redcedar, Russian olive, bur oak, green ash	Honeylocust, Siberian elm	---
3570:					
Holder	Amur honeysuckle, common lilac	Russian mulberry	Austrian pine, common hackberry, eastern redcedar, Russian olive, bur oak, green ash	Honeylocust, Siberian elm	---
3571:					
Holder	Amur honeysuckle, common lilac	Russian mulberry	Austrian pine, common hackberry, eastern redcedar, Russian olive, bur oak, green ash	Honeylocust, Siberian elm	---
3578:					
Holder	Amur honeysuckle, common lilac	Russian mulberry	Austrian pine, common hackberry, eastern redcedar, Russian olive, bur oak, green ash	Honeylocust, Siberian elm	---
3580:					
Holder	Amur honeysuckle, common lilac	Russian mulberry	Austrian pine, common hackberry, eastern redcedar, Russian olive, bur oak, green ash	Honeylocust, Siberian elm	---

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
3598: Holdrege	Amur honeysuckle, common lilac	Russian mulberry	Austrian pine, common hackberry, eastern redcedar, Russian olive, bur oak, green ash	Honeylocust, Siberian elm	---
3616: Holdrege	Amur honeysuckle, common lilac	Russian mulberry	Austrian pine, common hackberry, eastern redcedar, Russian olive, bur oak, green ash	Honeylocust, Siberian elm	---
3770: Hord	---	American plum, common lilac, Siberian peashrub	Eastern redcedar, Manchurian crabapple, blue spruce, ponderosa pine	Common hackberry, golden willow, green ash	Eastern cottonwood
3771: Hord	---	American plum, common lilac, Siberian peashrub	Eastern redcedar, Manchurian crabapple, blue spruce, ponderosa pine	Common hackberry, golden willow, green ash	Eastern cottonwood
3772: Hord	---	American plum, common lilac, Siberian peashrub	Eastern redcedar, Manchurian crabapple, blue spruce, ponderosa pine	Common hackberry, golden willow, green ash	Eastern cottonwood
3782: Hord	---	American plum, common lilac, Siberian peashrub	Eastern redcedar, Manchurian crabapple, bur oak, ponderosa pine, Russian olive, blue spruce, common hackberry	Green ash, honeylocust	---
3869: Inavale	American plum, common lilac	Common chokecherry	Eastern redcedar, Russian mulberry, common hackberry, ponderosa pine, Austrian pine, green ash, honeylocust, Scotch pine	Siberian elm	---

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
3875:					
Inavale	American plum, common lilac	Common chokecherry	Eastern redcedar, Russian mulberry, common hackberry, ponderosa pine, Austrian pine, green ash, honeylocust, Scotch pine	Siberian elm	---
3927:					
Ipage	---	Rocky Mountain juniper	Austrian pine, eastern redcedar, jack pine, ponderosa pine	---	---
3948:					
Ipage		Rocky Mountain juniper	Austrian pine, eastern redcedar, jack pine, ponderosa pine		
Tryon	American plum, common lilac, Siberian peashrub	---	Common hackberry, eastern redcedar, Manchurian crabapple, ponderosa pine, blue spruce, green ash	Golden willow	Eastern cottonwood
3993:					
Jansen	Common lilac, Siberian peashrub	Eastern redcedar, Manchurian crabapple, ponderosa pine, Rocky Mountain juniper, Russian olive	Bur oak, green ash, honeylocust	Siberian elm	---
4019:					
Janude	---	American plum, common lilac, Siberian peashrub	Eastern redcedar, Manchurian crabapple, blue spruce, ponderosa pine	Common hackberry, golden willow, green ash	Eastern cottonwood
4020:					
Janude	---	American plum, common lilac, Siberian peashrub	Eastern redcedar, Manchurian crabapple, blue spruce, ponderosa pine	Common hackberry, golden willow, green ash	Eastern cottonwood
4417:					
Lamo	Common lilac, redosier dogwood, Siberian peashrub	---	Eastern redcedar, common hackberry, ponderosa pine, green ash	Honeylocust, golden willow	Eastern cottonwood

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
4586:					
Lex	American plum	Common chokecherry	Manchurian crabapple, eastern redcedar, Austrian pine, common hackberry, Russian mulberry	Green ash, honeylocust, golden willow	Eastern cottonwood
4613:					
Libory	Common lilac, Siberian peashrub, skunkbush sumac	Manchurian crabapple	Eastern redcedar, Russian olive, common hackberry, green ash, ponderosa pine, honeylocust	Siberian elm	---
4650:					
Lockton	---	American plum, common lilac, Siberian peashrub	Eastern redcedar, Manchurian crabapple, ponderosa pine	Common hackberry, green ash, honeylocust, golden willow	Eastern cottonwood
4744:					
Loup	American plum, common lilac, Siberian peashrub	---	Common hackberry, eastern redcedar, Manchurian crabapple, ponderosa pine, blue spruce, green ash	Golden willow	Eastern cottonwood
4932:					
Marlake.					
5705:					
O'Neill	Common lilac, Siberian peashrub	Eastern redcedar, Manchurian crabapple, ponderosa pine, Rocky Mountain juniper, Russian olive	Bur oak, green ash, honeylocust	Siberian elm	---
Pivot	Common lilac, Siberian peashrub, skunkbush sumac	Manchurian crabapple	Eastern redcedar, Russian olive, common hackberry, green ash, ponderosa pine, honeylocust	Siberian elm	---
5713:					
O'Neill	Common lilac, Siberian peashrub	Eastern redcedar, Manchurian crabapple, ponderosa pine, Rocky Mountain juniper, Russian olive	Bur oak, green ash, honeylocust	Siberian elm	---

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
5905:					
Ortello	American plum, common lilac	Common chokecherry	Common hackberry, eastern redcedar, Russian mulberry, Austrian pine, green ash, honeylocust, ponderosa pine, Scotch pine	Siberian elm	---
5909:					
Ortello	Siberian peashrub, skunkbush sumac	Common chokecherry, Manchurian crabapple	Eastern redcedar, Russian olive, common hackberry, green ash, ponderosa pine, honeylocust	Siberian elm	---
Holder	Amur honeysuckle, common lilac	Russian mulberry	Austrian pine, common hackberry, eastern redcedar, Russian olive, bur oak, green ash	Honeylocust, Siberian elm	---
5914:					
Ortello	American plum, common lilac	Common chokecherry	Common hackberry, eastern redcedar, Russian mulberry, Austrian pine, green ash, honeylocust, ponderosa pine, Scotch pine	Siberian elm	---
5985:					
Ovina	American plum, redosier dogwood	Common chokecherry	Common hackberry, eastern redcedar	Austrian pine, green ash, golden willow, northern red oak, honeylocust, silver maple	Eastern cottonwood
6136:					
Platte	American plum, redosier dogwood	Common chokecherry	Common hackberry, eastern redcedar	Austrian pine, green ash, golden willow, northern red oak, honeylocust, silver maple	Eastern cottonwood
Alda	American plum, redosier dogwood	Common chokecherry	Common hackberry, eastern redcedar	Austrian pine, green ash, golden willow, northern red oak, honeylocust, silver maple	Eastern cottonwood
6139:					
Platte	American plum, redosier dogwood	Common chokecherry	Common hackberry, eastern redcedar	Austrian pine, green ash, golden willow, northern red oak, honeylocust, silver maple	Eastern cottonwood

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
6139: Bolent.					
6143: Platte----------	American plum, redosier dogwood	Common chokecherry	Common hackberry, eastern redcedar	Austrian pine, green ash, golden willow, northern red oak, honeylocust, silver maple	Eastern cottonwood
Inavale---------	American plum, common lilac	Common chokecherry	Eastern redcedar, Russian mulberry, common hackberry, ponderosa pine, Austrian pine, green ash, honeylocust, Scotch pine	Siberian elm	---
6800: Scott.					
6956: Silver Creek----	Common lilac, silver buffaloberry	Siberian peashrub	Eastern redcedar, Russian olive, green ash	Siberian elm	---
6957: Silver Creek, alkali---------	Common lilac, silver buffaloberry	Siberian peashrub	Eastern redcedar, Russian olive, green ash	Siberian elm	---
Silver Creek, saline, alkali-	Common lilac, silver buffaloberry, eastern redcedar, Rocky Mountain juniper, Siberian peashrub	Green ash, ponderosa pine, Russian olive, Siberian elm	---	---	---
6978: Simeon.					
7225: Thurman---------	Common lilac, Siberian peashrub, skunkbush sumac	Manchurian crabapple	Eastern redcedar, Russian olive, common hackberry, green ash, ponderosa pine, honeylocust	Siberian elm	---
7249: Thurman---------	---	Rocky Mountain juniper	Austrian pine, eastern redcedar, jack pine, ponderosa pine	---	---
7250: Thurman---------	---	Rocky Mountain juniper	Austrian pine, eastern redcedar, jack pine, ponderosa pine	---	---

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
7429:					
Uly	Amur honeysuckle, common lilac	Common chokecherry, Russian mulberry	Austrian pine, common hackberry, eastern redcedar, Russian olive, bur oak, green ash	Honeylocust, Siberian elm	---
7436:					
Uly	Amur honeysuckle, common lilac	Common chokecherry, Russian mulberry	Austrian pine, common hackberry, eastern redcedar, Russian olive, bur oak, green ash	Honeylocust, Siberian elm	---
Coly	Siberian peashrub, silver buffaloberry	Rocky Mountain juniper, Russian olive	Bur oak, eastern redcedar, green ash, honeylocust, ponderosa pine	Siberian elm	---
7438:					
Uly	Amur honeysuckle, common lilac	Common chokecherry, Russian mulberry	Austrian pine, common hackberry, eastern redcedar, Russian olive, bur oak, green ash	Honeylocust, Siberian elm	---
7439:					
Uly	Amur honeysuckle, common lilac	Common chokecherry, Russian mulberry	Austrian pine, common hackberry, eastern redcedar, Russian olive, bur oak, green ash	Honeylocust, Siberian elm	---
Coly.					
7440:					
Uly	Amur honeysuckle, common lilac	Common chokecherry, Russian mulberry	Austrian pine, common hackberry, eastern redcedar, Russian olive, bur oak, green ash	Honeylocust, Siberian elm	---
Hobbs	American plum, common lilac	Amur honeysuckle, Siberian peashrub	Austrian pine, eastern redcedar, ponderosa pine, Russian mulberry	Common hackberry, green ash, honeylocust	Eastern cottonwood
7652:					
Valentine	---	Rocky Mountain juniper	Austrian pine, eastern redcedar, jack pine, ponderosa pine	---	---
7656:					
Valentine	---	Rocky Mountain juniper	Austrian pine, eastern redcedar, jack pine, ponderosa pine	---	---

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
7659:					
Valentine, rolling	---	Rocky Mountain juniper	Austrian pine, eastern redcedar, jack pine, ponderosa pine	---	---
Valentine, hilly	---	Rocky Mountain juniper	Austrian pine, eastern redcedar, jack pine, ponderosa pine	---	---
7662:					
Valentine	---	Rocky Mountain juniper	Austrian pine, eastern redcedar, jack pine, ponderosa pine	---	---
7664:					
Valentine	---	Rocky Mountain juniper	Austrian pine, eastern redcedar, jack pine, ponderosa pine	---	---
7669:					
Valentine	---	Rocky Mountain juniper	Austrian pine, eastern redcedar, jack pine, ponderosa pine	---	---
7721:					
Valentine	---	Rocky Mountain juniper	Austrian pine, eastern redcedar, jack pine, ponderosa pine	---	---
Libory	Common lilac, Siberian peashrub, skunkbush sumac	Manchurian crabapple	Eastern redcedar, Russian olive, common hackberry, green ash, ponderosa pine, honeylocust	Siberian elm	---
7748:					
Valentine	---	Rocky Mountain juniper	Austrian pine, eastern redcedar, jack pine, ponderosa pine	---	---
Tryon	American plum, common lilac, Siberian peashrub	---	Common hackberry, eastern redcedar, Manchurian crabapple, ponderosa pine, blue spruce, green ash	Golden willow	Eastern cottonwood
7924:					
Wann	Siberian peashrub	Common lilac	Eastern redcedar, blue spruce, common hackberry, ponderosa pine	Golden willow, green ash, honeylocust, silver maple	Eastern cottonwood

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
7927:					
Wann------------	Siberian peashrub	Common lilac	Eastern redcedar, blue spruce, common hackberry, ponderosa pine	Golden willow, green ash, honeylocust, silver maple	Eastern cottonwood
8020:					
Wood River------	Common lilac, Siberian peashrub, silver buffaloberry, skunkbush sumac	Eastern redcedar, Rocky Mountain juniper, ponderosa pine, Russian olive	Green ash, Siberian elm	---	---
8022:					
Wood River------	Common lilac, Siberian peashrub, silver buffaloberry, skunkbush sumac	Eastern redcedar, Rocky Mountain juniper, ponderosa pine, Russian olive	Green ash, Siberian elm	---	---
Silver Creek----	Common lilac, silver buffaloberry	Siberian peashrub	Eastern redcedar, Russian olive, green ash	Siberian elm	---
8023:					
Wood River------	Common lilac, Siberian peashrub, silver buffaloberry, skunkbush sumac	Eastern redcedar, Rocky Mountain juniper, ponderosa pine, Russian olive	Green ash, Siberian elm	---	---
Silver Creek----	Common lilac, silver buffaloberry	Siberian peashrub	Eastern redcedar, Russian olive, green ash	Siberian elm	---

Table 9.--Recreation

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table.)

Map symbol and soil name	Pct. of map unit	Camp areas	Picnic areas	Playgrounds	Paths and trails	Off-road motorcycle trails	Golf fairways
1102:							
Alda, rarely flooded-----	90	Very limited Flooding	Not limited	Not limited	Not limited	Not limited	Not limited
1104:							
Alda, rarely flooded-----	95	Very limited Flooding	Not limited	Not limited	Not limited	Not limited	Not limited
1166:							
Almeria------	90	Very limited Depth to saturated zone Flooding Too sandy	Very limited Depth to saturated zone Too sandy Flooding	Very limited Depth to saturated zone Flooding Too sandy	Very limited Depth to saturated zone Too sandy Flooding	Very limited Depth to saturated zone Too sandy Flooding	Very limited Flooding Depth to saturated zone Droughty
1348:							
Barney, frequently flooded-----	55	Very limited Depth to saturated zone Flooding Restricted permeability	Very limited Depth to saturated zone Flooding Restricted permeability	Very limited Depth to saturated zone Flooding Restricted permeability	Very limited Depth to saturated zone Flooding	Very limited Depth to saturated zone Flooding	Very limited Flooding Depth to saturated zone Droughty
Barney, wet, channeled---	40	Very limited Depth to saturated zone Flooding Restricted permeability	Very limited Depth to saturated zone Flooding Restricted permeability	Very limited Depth to saturated zone Flooding Restricted permeability	Very limited Depth to saturated zone Flooding	Very limited Depth to saturated zone Flooding	Very limited Flooding Depth to saturated zone
1354:							
Barney, frequently flooded-----	60	Very limited Depth to saturated zone Flooding Restricted permeability	Very limited Depth to saturated zone Flooding Restricted permeability	Very limited Depth to saturated zone Flooding Restricted permeability	Very limited Depth to saturated zone Flooding	Very limited Depth to saturated zone Flooding	Very limited Flooding Depth to saturated zone Droughty
Bolent, occasionally flooded-----	35	Very limited Flooding Depth to saturated zone	Somewhat limited Depth to saturated zone	Somewhat limited Flooding Depth to saturated zone	Not limited	Not limited	Somewhat limited Flooding Depth to saturated zone

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas	Picnic areas	Playgrounds	Paths and trails	Off-road motorcycle trails	Golf fairways
1547:							
Blendon------	85	Not limited	Not limited	Not limited	Not limited	Not limited	Not limited
1669:							
Boelus, sandy substratum--	35	Somewhat limited Too sandy	Somewhat limited Too sandy	Somewhat limited Too sandy	Somewhat limited Too sandy	Somewhat limited Too sandy	Not limited
O'Neill------	35	Not limited	Not limited	Not limited	Not limited	Not limited	Not limited
Pivot, loamy surface-----	15	Not limited	Not limited	Not limited	Not limited	Not limited	Not limited
1678:							
Bolent, occasionally flooded-----	85	Very limited Flooding Depth to saturated zone	Somewhat limited Depth to saturated zone	Somewhat limited Flooding Depth to saturated zone	Not limited	Not limited	Somewhat limited Flooding Depth to saturated zone
1680:							
Bolent, occasionally flooded-----	85	Very limited Flooding Depth to saturated zone	Somewhat limited Depth to saturated zone	Somewhat limited Flooding Depth to saturated zone	Not limited	Not limited	Somewhat limited Flooding Depth to saturated zone
1688:							
Bolent, occasionally flooded-----	90	Very limited Flooding Too sandy Depth to saturated zone	Somewhat limited Too sandy Depth to saturated zone	Somewhat limited Flooding Too sandy Depth to saturated zone	Somewhat limited Too sandy	Somewhat limited Too sandy	Somewhat limited Flooding Droughty Depth to saturated zone
1704:							
Bolent, occasionally flooded-----	65	Very limited Flooding Depth to saturated zone	Somewhat limited Depth to saturated zone	Somewhat limited Flooding Depth to saturated zone	Not limited	Not limited	Somewhat limited Flooding Depth to saturated zone
Calamus, rarely flooded-----	30	Very limited Flooding Too sandy	Somewhat limited Too sandy	Somewhat limited Too sandy	Somewhat limited Too sandy	Somewhat limited Too sandy	Not limited
1796:							
Brocksburg---	85	Not limited	Not limited	Not limited	Not limited	Not limited	Not limited

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas	Picnic areas	Playgrounds	Paths and trails	Off-road motorcycle trails	Golf fairways
1930:							
Butler-------	94	Very limited Depth to saturated zone Restricted permeability	Very limited Depth to saturated zone Restricted permeability	Very limited Depth to saturated zone Restricted permeability	Very limited Depth to saturated zone	Very limited Depth to saturated zone	Very limited Depth to saturated zone
1942:							
Calamus, rarely flooded-----	95	Very limited Flooding Too sandy	Somewhat limited Too sandy	Somewhat limited Too sandy	Somewhat limited Too sandy	Somewhat limited Too sandy	Not limited
2020:							
Caruso, rarely flooded-----	85	Very limited Flooding	Not limited	Not limited	Not limited	Not limited	Not limited
2168:							
Coly---------	90	Very limited Slope	Very limited Slope	Very limited Slope	Somewhat limited Slope	Not limited	Very limited Slope
2223:							
Cozad--------	95	Not limited	Not limited	Not limited	Not limited	Not limited	Not limited
2238:							
Cozad, sandy substratum--	80	Not limited	Not limited	Not limited	Not limited	Not limited	Not limited
2240:							
Cozad, sandy substratum--	60	Not limited	Not limited	Not limited	Not limited	Not limited	Not limited
Hobbs, occasionally flooded-----	30	Very limited Flooding	Not limited	Somewhat limited Flooding	Not limited	Not limited	Somewhat limited Flooding
2371:							
Cullison-----	85	Very limited Depth to saturated zone	Very limited Depth to saturated zone	Very limited Depth to saturated zone	Very limited Depth to saturated zone	Very limited Depth to saturated zone	Very limited Depth to saturated zone
2415:							
Darr, very rarely flooded-----	95	Very limited Flooding	Not limited	Not limited	Not limited	Not limited	Not limited
2430:							
Detroit------	95	Somewhat limited Restricted permeability	Somewhat limited Restricted permeability	Somewhat limited Restricted permeability	Not limited	Not limited	Not limited
2731:							
Els----------	50	Somewhat limited Too sandy Depth to saturated zone	Somewhat limited Too sandy Depth to saturated zone	Somewhat limited Too sandy Depth to saturated zone	Somewhat limited Too sandy	Somewhat limited Too sandy	Somewhat limited Droughty Depth to saturated zone

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas	Picnic areas	Playgrounds	Paths and trails	Off-road motorcycle trails	Golf fairways
2731: Tryon--------	40	Very limited Depth to saturated zone	Very limited Depth to saturated zone	Very limited Depth to saturated zone	Very limited Depth to saturated zone	Very limited Depth to saturated zone	Very limited Depth to saturated zone
2846: Fillmore-----	80	Very limited Depth to saturated zone Ponding Restricted permeability	Very limited Ponding Depth to saturated zone Restricted permeability	Very limited Depth to saturated zone Ponding Restricted permeability	Very limited Depth to saturated zone Ponding	Very limited Depth to saturated zone Ponding	Very limited Ponding Depth to saturated zone
2918: Gates--------	80	Not limited	Not limited	Not limited	Not limited	Not limited	Not limited
2920: Gates--------	75	Not limited	Not limited	Not limited	Not limited	Not limited	Not limited
2924: Gates--------	85	Not limited	Not limited	Somewhat limited Slope	Not limited	Not limited	Not limited
2925: Gates, eroded------	95	Not limited	Not limited	Somewhat limited Slope	Not limited	Not limited	Not limited
2927: Gates--------	75	Somewhat limited Slope	Somewhat limited Slope	Very limited Slope	Very limited Water erosion	Very limited Water erosion	Somewhat limited Slope
2940: Gates, overblown---	85	Not limited	Not limited	Not limited	Not limited	Not limited	Not limited
2972: Gayville-----	85	Very limited Sodium content	Very limited Sodium content	Very limited Sodium content	Not limited	Not limited	Very limited Sodium content
3023: Gibbon, rarely flooded-----	90	Very limited Flooding Restricted permeability Depth to saturated zone	Somewhat limited Restricted permeability Depth to saturated zone	Somewhat limited Restricted permeability Depth to saturated zone	Not limited	Not limited	Somewhat limited Depth to saturated zone
3045: Gibbon, saline, rarely flooded-----	80	Very limited Flooding Restricted permeability Depth to saturated zone	Somewhat limited Restricted permeability Depth to saturated zone	Somewhat limited Restricted permeability Depth to saturated zone	Not limited	Not limited	Somewhat limited Depth to saturated zone

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas	Picnic areas	Playgrounds	Paths and trails	Off-road motorcycle trails	Golf fairways
3140:							
Gothenburg, frequently flooded-----	80	Very limited Depth to saturated zone Flooding	Very limited Depth to saturated zone Flooding	Very limited Depth to saturated zone Flooding	Very limited Depth to saturated zone Flooding	Very limited Depth to saturated zone Flooding	Very limited Flooding Depth to saturated zone Droughty
3290:							
Hall---------	90	Not limited	Not limited	Not limited	Not limited	Not limited	Not limited
3293:							
Hall, eroded-	95	Not limited	Not limited	Not limited	Not limited	Not limited	Not limited
3294:							
Hall, eroded-	80	Not limited	Not limited	Somewhat limited Slope	Not limited	Not limited	Not limited
3300:							
Hall, sandy substratum--	95	Not limited	Not limited	Not limited	Not limited	Not limited	Not limited
3301:							
Hall, eroded-	70	Very limited Flooding	Not limited	Not limited	Not limited	Not limited	Not limited
Hobbs, occasionally flooded-----	25	Very limited Flooding	Not limited	Somewhat limited Flooding	Not limited	Not limited	Somewhat limited Flooding
3330:							
Hastings-----	95	Somewhat limited Restricted permeability	Somewhat limited Restricted permeability	Somewhat limited Restricted permeability	Not limited	Not limited	Not limited
3331:							
Hastings-----	95	Somewhat limited Restricted permeability	Somewhat limited Restricted permeability	Somewhat limited Restricted permeability	Not limited	Not limited	Not limited
3478:							
Hersh--------	90	Not limited	Not limited	Somewhat limited Slope	Not limited	Not limited	Not limited
3532:							
Hobbs, occasionally flooded-----	90	Very limited Flooding	Not limited	Somewhat limited Flooding	Not limited	Not limited	Somewhat limited Flooding
3537:							
Hobbs, frequently flooded-----	75	Very limited Flooding	Somewhat limited Flooding	Very limited Flooding	Somewhat limited Flooding	Somewhat limited Flooding	Very limited Flooding
3568:							
Holder, overblown---	80	Not limited	Not limited	Not limited	Not limited	Not limited	Not limited

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas	Picnic areas	Playgrounds	Paths and trails	Off-road motorcycle trails	Golf fairways
3570:							
Holder-------	85	Not limited	Not limited	Not limited	Not limited	Not limited	Not limited
3571:							
Holder-------	95	Not limited	Not limited	Not limited	Not limited	Not limited	Not limited
3578:							
Holder, severely eroded------	80	Not limited	Not limited	Very limited Slope	Not limited	Not limited	Not limited
3580:							
Holder, eroded------	80	Not limited	Not limited	Somewhat limited Slope	Not limited	Not limited	Not limited
3598:							
Holdrege, eroded------	75	Not limited	Not limited	Somewhat limited Slope	Not limited	Not limited	Not limited
3616:							
Holdrege, overblown---	93	Not limited	Not limited	Not limited	Not limited	Not limited	Not limited
3770:							
Hord---------	90	Not limited	Not limited	Not limited	Not limited	Not limited	Not limited
3771:							
Hord---------	90	Not limited	Not limited	Not limited	Not limited	Not limited	Not limited
3772:							
Hord---------	90	Not limited	Not limited	Somewhat limited Slope	Not limited	Not limited	Not limited
3782:							
Hord, sandy substratum--	90	Somewhat limited Restricted permeability	Somewhat limited Restricted permeability	Somewhat limited Restricted permeability	Not limited	Not limited	Not limited
3869:							
Inavale, very rarely flooded-----	95	Very limited Flooding Too sandy	Somewhat limited Too sandy	Somewhat limited Too sandy	Somewhat limited Too sandy	Somewhat limited Too sandy	Not limited
3875:							
Inavale, very rarely flooded-----	95	Very limited Flooding Too sandy	Somewhat limited Too sandy	Somewhat limited Slope Too sandy	Somewhat limited Too sandy	Somewhat limited Too sandy	Somewhat limited Droughty
3927:							
Ipage--------	85	Somewhat limited Too sandy	Somewhat limited Too sandy	Somewhat limited Too sandy	Somewhat limited Too sandy	Somewhat limited Too sandy	Somewhat limited Droughty

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas	Picnic areas	Playgrounds	Paths and trails	Off-road motorcycle trails	Golf fairways
3948:							
Ipage, silty substratum--	70	Very limited Too sandy	Very limited Too sandy	Very limited Too sandy	Very limited Too sandy	Very limited Too sandy	Somewhat limited Droughty
Tryon, silty substratum, wet---------	25	Very limited Depth to saturated zone Ponding Too sandy	Very limited Ponding Depth to saturated zone Too sandy	Very limited Depth to saturated zone Ponding Too sandy	Very limited Depth to saturated zone Ponding Too sandy	Very limited Depth to saturated zone Ponding Too sandy	Very limited Ponding Depth to saturated zone Droughty
3993:							
Jansen, overblown---	80	Not limited	Not limited	Not limited	Not limited	Not limited	Not limited
4019:							
Janude, sandy substratum, very rarely flooded-----	80	Very limited Flooding	Not limited	Not limited	Not limited	Not limited	Not limited
4020:							
Janude, calcareous, very rarely flooded-----	90	Very limited Flooding	Not limited	Not limited	Not limited	Not limited	Not limited
4417:							
Lamo, sand substratum, rarely flooded-----	85	Very limited Flooding Depth to saturated zone Restricted permeability	Somewhat limited Depth to saturated zone Restricted permeability	Somewhat limited Depth to saturated zone Restricted permeability	Not limited	Not limited	Somewhat limited Depth to saturated zone
4586:							
Lex, rarely flooded-----	85	Very limited Flooding Depth to saturated zone	Somewhat limited Depth to saturated zone	Somewhat limited Depth to saturated zone	Not limited	Not limited	Somewhat limited Depth to saturated zone
4613:							
Libory-------	85	Very limited Too sandy Depth to saturated zone	Very limited Too sandy Depth to saturated zone	Very limited Too sandy Depth to saturated zone	Very limited Too sandy Depth to saturated zone	Very limited Too sandy Depth to saturated zone	Somewhat limited Depth to saturated zone
4650:							
Lockton------	90	Not limited	Not limited	Not limited	Not limited	Not limited	Not limited

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas	Picnic areas	Playgrounds	Paths and trails	Off-road motorcycle trails	Golf fairways
4744:							
Loup, loamy substratum--	90	Very limited Depth to saturated zone	Very limited Depth to saturated zone	Very limited Depth to saturated zone	Very limited Depth to saturated zone	Very limited Depth to saturated zone	Very limited Depth to saturated zone
4932:							
Marlake------	80	Very limited Depth to saturated zone Ponding Too sandy	Very limited Ponding Depth to saturated zone Too sandy	Very limited Depth to saturated zone Ponding Too sandy	Very limited Depth to saturated zone Ponding Too sandy	Very limited Depth to saturated zone Ponding Too sandy	Very limited Ponding Depth to saturated zone Droughty
5705:							
O'Neill------	50	Not limited	Not limited	Not limited	Not limited	Not limited	Not limited
Pivot, loamy surface-----	35	Not limited	Not limited	Not limited	Not limited	Not limited	Somewhat limited Droughty
5713:							
O'Neill------	90	Not limited	Not limited	Somewhat limited Slope	Not limited	Not limited	Not limited
5905:							
Ortello, silty substratum--	85	Not limited	Not limited	Not limited	Not limited	Not limited	Not limited
5909:							
Ortello, silty substratum--	70	Not limited	Not limited	Not limited	Not limited	Not limited	Not limited
Holder, loamy overblown---	25	Not limited	Not limited	Not limited	Not limited	Not limited	Not limited
5914:							
Ortello------	85	Not limited	Not limited	Not limited	Not limited	Not limited	Not limited
5985:							
Ovina--------	85	Very limited Depth to saturated zone Too sandy	Very limited Depth to saturated zone Too sandy	Very limited Depth to saturated zone Too sandy	Somewhat limited Depth to saturated zone Too sandy	Somewhat limited Depth to saturated zone Too sandy	Very limited Depth to saturated zone
6136:							
Platte, frequently flooded-----	60	Very limited Flooding Depth to saturated zone	Somewhat limited Flooding Depth to saturated zone	Very limited Flooding Depth to saturated zone	Somewhat limited Flooding	Somewhat limited Flooding	Very limited Flooding Depth to saturated zone

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas	Picnic areas	Playgrounds	Paths and trails	Off-road motorcycle trails	Golf fairways
6136:							
Alda, frequently flooded-----	35	Very limited Flooding Depth to saturated zone	Somewhat limited Flooding Depth to saturated zone	Very limited Flooding Depth to saturated zone	Somewhat limited Flooding	Somewhat limited Flooding	Very limited Flooding Depth to saturated zone
6139:							
Platte, occasionally flooded-----	50	Very limited Flooding Depth to saturated zone	Somewhat limited Depth to saturated zone	Somewhat limited Flooding Depth to saturated zone	Not limited	Not limited	Somewhat limited Flooding Depth to saturated zone
Bolent, occasionally flooded-----	45	Very limited Flooding Depth to saturated zone	Somewhat limited Depth to saturated zone	Somewhat limited Flooding Depth to saturated zone	Not limited	Not limited	Somewhat limited Flooding Depth to saturated zone
6143:							
Platte, occasionally flooded-----	55	Very limited Flooding Depth to saturated zone	Somewhat limited Depth to saturated zone	Somewhat limited Flooding Depth to saturated zone	Not limited	Not limited	Somewhat limited Droughty Flooding Depth to saturated zone
Inavale, very rarely flooded-----	44	Very limited Flooding Too sandy	Somewhat limited Too sandy	Somewhat limited Too sandy Slope	Somewhat limited Too sandy	Somewhat limited Too sandy	Somewhat limited Droughty
6800:							
Scott--------	90	Very limited Depth to saturated zone Ponding Restricted permeability	Very limited Ponding Depth to saturated zone Restricted permeability	Very limited Depth to saturated zone Ponding Restricted permeability	Very limited Depth to saturated zone Ponding	Very limited Depth to saturated zone Ponding	Very limited Ponding Depth to saturated zone
6956:							
Silver Creek, overblown, ponded------	85	Very limited Depth to saturated zone Ponding Restricted permeability Sodium content Too sandy	Very limited Ponding Depth to saturated zone Restricted permeability Sodium content Too sandy	Very limited Depth to saturated zone Ponding Restricted permeability Sodium content Too sandy	Very limited Depth to saturated zone Ponding Too sandy	Very limited Depth to saturated zone Ponding Too sandy	Very limited Ponding Depth to saturated zone Sodium content

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas	Picnic areas	Playgrounds	Paths and trails	Off-road motorcycle trails	Golf fairways
6957:							
Silver Creek, alkali------	55	Very limited Flooding Sodium content Restricted permeability	Very limited Sodium content Restricted permeability	Very limited Sodium content Restricted permeability	Not limited	Not limited	Very limited Sodium content
Silver Creek, saline, alkali------	35	Very limited Sodium content Restricted permeability	Very limited Sodium content Restricted permeability	Very limited Sodium content Restricted permeability	Not limited	Not limited	Very limited Sodium content
6978:							
Simeon-------	70	Not limited	Not limited	Not limited	Not limited	Not limited	Somewhat limited Droughty
7225:							
Thurman------	85	Not limited	Not limited	Not limited	Not limited	Not limited	Not limited
7249:							
Thurman, loamy substratum--	90	Somewhat limited Too sandy	Somewhat limited Too sandy	Somewhat limited Slope Too sandy	Somewhat limited Too sandy	Somewhat limited Too sandy	Somewhat limited Droughty
7250:							
Thurman, loamy substratum--	90	Somewhat limited Too sandy	Somewhat limited Too sandy	Somewhat limited Too sandy	Somewhat limited Too sandy	Somewhat limited Too sandy	Not limited
7429:							
Uly, eroded--	85	Not limited	Not limited	Not limited	Not limited	Not limited	Not limited
7436:							
Uly, eroded--	75	Somewhat limited Slope	Somewhat limited Slope	Very limited Slope	Not limited	Not limited	Somewhat limited Slope
Coly---------	20	Not limited	Not limited	Very limited Slope	Not limited	Not limited	Not limited
7438:							
Uly, eroded--	90	Not limited	Not limited	Somewhat limited Slope	Not limited	Not limited	Not limited
7439:							
Uly, eroded--	70	Somewhat limited Slope	Somewhat limited Slope	Very limited Slope	Not limited	Not limited	Somewhat limited Slope
Coly---------	25	Very limited Slope	Very limited Slope	Very limited Slope	Somewhat limited Slope	Not limited	Very limited Slope
7440:							
Uly----------	65	Somewhat limited Slope	Somewhat limited Slope	Very limited Slope	Not limited	Not limited	Somewhat limited Slope

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas	Picnic areas	Playgrounds	Paths and trails	Off-road motorcycle trails	Golf fairways
7440:							
Hobbs, occasionally flooded-----	20	Very limited Flooding	Not limited	Somewhat limited Flooding	Not limited	Not limited	Somewhat limited Flooding
7652:							
Valentine----	95	Very limited Too sandy	Very limited Too sandy	Very limited Too sandy Slope	Very limited Too sandy	Very limited Too sandy	Somewhat limited Droughty
7656:							
Valentine, rolling-----	95	Very limited Too sandy Slope	Very limited Too sandy Slope	Very limited Slope Too sandy	Very limited Too sandy Slope	Very limited Too sandy	Very limited Slope Droughty
7659:							
Valentine, rolling-----	60	Very limited Too sandy Slope	Very limited Too sandy Slope	Very limited Slope Too sandy	Very limited Too sandy Slope	Very limited Too sandy	Very limited Slope Droughty
Valentine, hilly-------	38	Very limited Slope Too sandy	Very limited Too sandy Slope	Very limited Slope Too sandy	Very limited Too sandy Slope	Very limited Too sandy Slope	Very limited Slope Droughty
7662:							
Valentine----	90	Very limited Too sandy	Very limited Too sandy	Very limited Too sandy Slope	Very limited Too sandy	Very limited Too sandy	Somewhat limited Droughty
7664:							
Valentine----	90	Very limited Too sandy Slope	Very limited Too sandy Slope	Very limited Slope Too sandy	Very limited Too sandy Slope	Very limited Too sandy	Very limited Slope Droughty
7669:							
Valentine, loamy substratum--	80	Somewhat limited Too sandy	Somewhat limited Too sandy	Somewhat limited Too sandy	Somewhat limited Too sandy	Somewhat limited Too sandy	Somewhat limited Droughty
7721:							
Valentine----	60	Very limited Too sandy	Very limited Too sandy	Very limited Too sandy Slope	Very limited Too sandy	Very limited Too sandy	Somewhat limited Droughty
Libory-------	35	Somewhat limited Too sandy Depth to saturated zone	Somewhat limited Too sandy Depth to saturated zone	Somewhat limited Too sandy Depth to saturated zone	Somewhat limited Too sandy	Somewhat limited Too sandy	Somewhat limited Depth to saturated zone
7748:							
Valentine----	65	Very limited Too sandy	Very limited Too sandy	Very limited Too sandy Slope	Very limited Too sandy	Very limited Too sandy	Somewhat limited Droughty

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas	Picnic areas	Playgrounds	Paths and trails	Off-road motorcycle trails	Golf fairways
7748:							
Tryon, silty substratum, wet---------	25	Very limited Depth to saturated zone Ponding Too sandy	Very limited Ponding Depth to saturated zone Too sandy	Very limited Depth to saturated zone Ponding Too sandy	Very limited Depth to saturated zone Ponding Too sandy	Very limited Depth to saturated zone Ponding Too sandy	Very limited Ponding Depth to saturated zone Droughty
7924:							
Wann, rarely flooded-----	90	Very limited Flooding	Not limited	Not limited	Not limited	Not limited	Not limited
7927:							
Wann, rarely flooded-----	90	Very limited Flooding	Not limited	Not limited	Not limited	Not limited	Not limited
8020:							
Wood River---	85	Very limited Sodium content Restricted permeability	Very limited Sodium content Restricted permeability	Very limited Sodium content Restricted permeability	Not limited	Not limited	Very limited Sodium content
8022:							
Wood River, overblown---	65	Very limited Sodium content Restricted permeability	Very limited Sodium content Restricted permeability	Very limited Sodium content Restricted permeability	Not limited	Not limited	Very limited Sodium content
Silver Creek, overblown, alkali------	20	Very limited Depth to saturated zone Sodium content Flooding Ponding Restricted permeability	Very limited Ponding Depth to saturated zone Sodium content Restricted permeability Too sandy	Very limited Depth to saturated zone Sodium content Ponding Restricted permeability Too sandy	Very limited Depth to saturated zone Ponding Too sandy	Very limited Depth to saturated zone Ponding Too sandy	Very limited Ponding Sodium content Depth to saturated zone
8023:							
Wood River---	55	Very limited Sodium content Restricted permeability	Very limited Sodium content Restricted permeability	Very limited Sodium content Restricted permeability	Not limited	Not limited	Very limited Sodium content
Silver Creek, alkali------	40	Very limited Flooding Sodium content Restricted permeability	Very limited Sodium content Restricted permeability	Very limited Sodium content Restricted permeability	Not limited	Not limited	Very limited Sodium content

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas	Picnic areas	Playgrounds	Paths and trails	Off-road motorcycle trails	Golf fairways
9975: Sanitary landfill----	100	Not rated	Not rated	Not rated	Not rated	Not rated	Not rated
9985: Gravel pits--	100	Not rated	Not rated	Not rated	Not rated	Not rated	Not rated
9995: Miscellaneous water, sewage lagoons-----	100	Not rated	Not rated	Not rated	Not rated	Not rated	Not rated
9998: Water--------	100	Not rated	Not rated	Not rated	Not rated	Not rated	Not rated

Table 10.--Wildlife Habitat

(See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Potential for habitat elements								Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life	Range- land wild- life
1102:												
Alda, rarely flooded	Fair	Fair	Fair	Good	Good	Good	Fair	Fair	Fair	Good	Fair	Good
1104:												
Alda, rarely flooded	Fair	Fair	Fair	Good	Good	Good	Fair	Fair	Fair	Good	Fair	Good
1166:												
Almeria	Poor	Fair	Fair	Poor	Poor	Fair	Good	Good	Poor	Poor	Good	Fair
1348:												
Barney, frequently flooded	Very poor	Poor	Fair	Poor	Poor	Fair	Good	Good	Poor	Poor	Good	Fair
Barney, wet, channeled	Very poor	Poor	Fair	Poor	Poor	Fair	Good	Good	Poor	Poor	Good	Fair
1354:												
Barney, frequently flooded	Very poor	Poor	Fair	Poor	Poor	Fair	Good	Good	Poor	Poor	Good	Fair
Bolent, occasionally flooded	Poor	Fair	Good	Good	Good	Good	Fair	Very poor	Fair	Good	Poor	Good
1547:												
Blendon	Fair	Fair	Good	Fair	Very poor	---	Very poor	Very poor	Fair	Very poor	Very poor	Good
1669:												
Boelus, sandy substratum	Fair	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor	Good
O'Neill	Good	Good	Good	Fair	Fair	Fair	Very poor	Very poor	Good	Fair	Very poor	Fair
Pivot, loamy surface	Fair	Fair	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Poor	Very poor	Fair
1678:												
Bolent, occasionally flooded	Poor	Fair	Good	Good	Good	Good	Fair	Very poor	Fair	Good	Poor	Good
1680:												
Bolent, occasionally flooded	Poor	Fair	Good	Good	Good	Good	Fair	Very poor	Fair	Good	Poor	Good
1688:												
Bolent, occasionally flooded	Poor	Fair	Good	Good	Good	Good	Fair	Very poor	Fair	Good	Poor	Good
1704:												
Bolent, occasionally flooded	Poor	Fair	Good	Good	Good	Good	Fair	Very poor	Fair	Good	Poor	Good

Table 10.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife	Rangeland wildlife
1704:												
Calamus, rarely flooded-	Poor	Fair	Good	Fair	Fair	Good	Poor	Very poor	Fair	Poor	Very poor	Good
1796:												
Brocksburg-------------	Good	Good	Good	Fair	Fair	Fair	Very poor	Very poor	Good	Fair	Very poor	Fair
1930:												
Butler.												
1942:												
Calamus, rarely flooded-	Poor	Fair	Good	Fair	Fair	Good	Poor	Very poor	Fair	Poor	Very poor	Good
2020:												
Caruso, rarely flooded--	Fair	Fair	Good	Poor	Poor	Fair	Fair	Fair	Fair	Poor	Fair	Fair
2168:												
Coly-------------------	Poor	Fair	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Fair
2223:												
Cozad------------------	Good	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor	Good
2238:												
Cozad, sandy substratum-	Good	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor	Good
2240:												
Cozad, sandy substratum-	Good	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor	Good
Hobbs, occasionally flooded----------------	Good	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor	Good
2371:												
Cullison---------------	Very poor	Poor	Fair	Poor	Poor	Fair	Good	Good	Poor	Poor	Good	Fair
2415:												
Darr, very rarely flooded---------------	Fair	Fair	Good	---	Fair	Good	Very poor	Very poor	Fair	---	Very poor	Good
2430:												
Detroit----------------	Good	Good	Good	---	---	Good	Good	Good	Good	---	Good	Good
2731:												
ELS--------------------	Poor	Poor	Fair	Fair	Fair	Fair	Fair	Fair	Poor	Fair	Fair	Fair
Tryon------------------	Very poor	Poor	Fair	Poor	Poor	Fair	Good	Good	Poor	Poor	Good	Fair
2846:												
Fillmore---------------	Fair	Good	Fair	Fair	Fair	Fair	Good	Fair	Fair	Fair	Good	Fair
2918:												
Gates------------------	Good	Good	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Fair

Table 10.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife	Rangeland wildlife
2920: Gates	Good	Good	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Fair
2924: Gates	Fair	Good	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Fair
2925: Gates, eroded	Fair	Good	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Fair
2927: Gates	Fair	Good	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Fair
2940: Gates, overblown	Good	Good	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Fair
2972: Gayville	Poor	Poor	Fair	Fair	Fair	Fair	Poor	Fair	Poor	Fair	Poor	Fair
3023: Gibbon, rarely flooded	Good	Good	Good	Good	Fair	Good	Fair	Good	Good	Good	Fair	Good
3045: Gibbon, saline, rarely flooded	Good	Good	Good	Good	Fair	Good	Fair	Good	Good	Good	Fair	Good
3140: Gothenburg, frequently flooded	Very poor	Very poor	Fair	Poor	Fair	Fair	Fair	Good	Poor	Poor	Fair	Fair
3290: Hall	Good	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor	Good
3293: Hall, eroded	Good	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor	Good
3294: Hall, eroded	Fair	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor	Good
3300: Hall, sandy substratum	Good	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor	Good
3301: Hall, eroded	Fair	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor	Good
Hobbs, occasionally flooded	Good	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor	Good
3330: Hastings	Good	Good	Good	Good	Good	Good	Very poor	Poor	Good	Good	Very poor	Good

Table 10.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife	Rangeland wildlife
3331: Hastings	Good	Good	Good	Good	Good	Good	Very poor	Poor	Good	Good	Very poor	Good
3478: Hersh	Fair	Good	Good	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor	Good
3532: Hobbs, occasionally flooded	Good	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor	Good
3537: Hobbs, frequently flooded	Poor	Fair	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Fair
3568: Holder, overblown	Good	Good	Good	Good	Fair	Fair	Very poor	Very poor	Good	Good	Very poor	Good
3570: Holder	Good	Good	Good	Good	Fair	Fair	Very poor	Very poor	Good	Good	Very poor	Good
3571: Holder	Good	Good	Good	Good	Fair	Fair	Very poor	Very poor	Good	Good	Very poor	Good
3578: Holder, severely eroded	Fair	Fair	Good	Good	Fair	Fair	Very poor	Very poor	Fair	Good	Very poor	Fair
3580: Holder, eroded	Good	Good	Good	Good	Fair	Fair	Very poor	Very poor	Good	Good	Very poor	Good
3598: Holdrege, eroded	Fair	Good	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Good	Very poor	Fair
3616: Holdrege, overblown	Good	Good	Fair	Good	Fair	Fair	Very poor	Very poor	Good	Good	Very poor	Fair
3770: Hord	Good	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor	Good
3771: Hord	Good	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor	Good
3772: Hord	Good	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor	Good
3782: Hord, sandy substratum	Good	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor	Good

Table 10.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements								Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife	Rangeland wildlife
3869:												
Inavale, very rarely flooded	Fair	Fair	Good	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Good
3875:												
Inavale, very rarely flooded	Fair	Fair	Good	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Good
3927:												
Ipage	Poor	Good	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair
3948:												
Ipage, silty substratum	Poor	Good	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair
Tryon, silty substratum, wet	Poor	Fair	Good	Good	Good	Good	Fair	Fair	Fair	Good	Fair	Good
3993:												
Jansen, overblown	Fair	Good	Good	Fair	Fair	Fair	Very poor	Very poor	Good	Fair	Very poor	Fair
4019:												
Janude, sandy substratum, very rarely flooded	Good	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor	Good
4020:												
Janude, calcareous, very rarely flooded	Good	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor	Good
4417:												
Lamo, sand substratum, rarely flooded	Very poor	Poor	Fair	Fair	Fair	Fair	Good	Good	Poor	Fair	Good	Fair
4586:												
Lex, rarely flooded	Fair	Fair	Good	Fair	Good	Good	Fair	Fair	Fair	Fair	Fair	Good
4613:												
Libory	Fair	Fair	Good	Good	Good	Good	Poor	Very poor	Fair	Good	Very poor	Good
4650:												
Lockton	Fair	Fair	Good	Good	Good	Good	Poor	Poor	Fair	Good	Poor	Good
4744:												
Loup, loamy substratum	Poor	Fair	Good	Good	Good	Good	Fair	Fair	Fair	Good	Fair	Good
4932:												
Marlake	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Good	Good	Very poor	Very poor	Good	Very poor
5705:												
O'Neill	Good	Good	Good	Fair	Fair	Fair	Very poor	Very poor	Good	Fair	Very poor	Fair
Pivot, loamy surface	Fair	Fair	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Poor	Very poor	Fair

Table 10.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife	Rangeland wildlife
5713:												
O'Neill	Fair	Good	Good	Fair	Fair	Fair	Very poor	Very poor	Good	Fair	Very poor	Fair
5905:												
Ortello, silty substratum	Good	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor	Good
5909:												
Ortello, silty substratum	Good	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor	Good
Holder, loamy overblown	Good	Good	Good	Good	Fair	Fair	Very poor	Very poor	Good	Good	Very poor	Good
5914:												
Ortello	Good	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor	Good
5985:												
Ovina	Fair	Good	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair	Good
6136:												
Platte, frequently flooded	Fair	Good	Fair	Poor	Fair	Good	Fair	Good	Fair	Poor	Good	Fair
Alda, frequently flooded	Fair	Fair	Fair	Good	Good	Good	Fair	Fair	Fair	Good	Fair	Good
6139:												
Platte, occasionally flooded	Fair	Good	Fair	Poor	Fair	Good	Fair	Good	Fair	Poor	Good	Fair
Bolent, occasionally flooded	Poor	Fair	Good	Good	Good	Good	Fair	Very poor	Fair	Good	Poor	Good
6143:												
Platte, occasionally flooded	Fair	Good	Fair	Poor	Fair	Good	Fair	Good	Fair	Poor	Good	Fair
Inavale, very rarely flooded	Fair	Fair	Good	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Good
6800:												
Scott	Very poor	Poor	Poor	Poor	Very poor	Poor	Good	Good	Poor	Poor	Good	Poor
6956:												
Silver Creek, overblown, ponded	Very poor	Very poor	Fair	Poor	Very poor	---	Poor	Poor	Very poor	Very poor	Poor	Fair
6957:												
Silver Creek, alkali	Very poor	Very poor	Fair	Poor	Very poor	---	Poor	Poor	Very poor	Very poor	Poor	Fair
Silver Creek, saline, alkali	Poor	Poor	Poor	Poor	Poor	Poor	Poor	Poor	Poor	Poor	Poor	Poor

Table 10.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife	Rangeland wildlife
6978:												
Simeon	Poor	Poor	Fair	Poor	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor	Fair
7225:												
Thurman	Fair	Good	Good	Fair	Fair	Fair	Very poor	Very poor	Good	Fair	Very poor	Good
7249:												
Thurman, loamy substratum	Poor	Good	Fair	Poor	Fair	Fair	Very poor	Very poor	Fair	Poor	Very poor	Fair
7250:												
Thurman, loamy substratum	Poor	Good	Fair	Poor	Fair	Fair	Very poor	Very poor	Fair	Poor	Very poor	Fair
7429:												
Uly, eroded	Fair	Good	Good	Good	Fair	Fair	Very poor	Very poor	Fair	Good	Very poor	Good
7436:												
Uly, eroded	Fair	Good	Good	Good	Fair	Fair	Very poor	Very poor	Fair	Good	Very poor	Good
Coly	Fair	Good	Good	Good	Fair	Fair	Very poor	Very poor	Fair	Good	Very poor	Fair
7438:												
Uly, eroded	Fair	Good	Good	Good	Fair	Fair	Very poor	Very poor	Fair	Good	Very poor	Good
7439:												
Uly, eroded	Fair	Good	Good	Good	Fair	Fair	Very poor	Very poor	Fair	Good	Very poor	Good
Coly	Poor	Fair	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Fair
7440:												
Uly	Fair	Good	Good	Good	Fair	Fair	Very poor	Very poor	Fair	Good	Very poor	Good
Hobbs, occasionally flooded	Poor	Fair	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Fair
7652:												
Valentine	Poor	Good	Fair	Poor	Fair	Fair	Very poor	Very poor	Fair	Poor	Very poor	Fair
7656:												
Valentine, rolling	Poor	Good	Fair	Poor	Fair	Fair	Very poor	Very poor	Fair	Poor	Very poor	Fair
7659:												
Valentine, rolling	Poor	Good	Fair	Poor	Fair	Fair	Very poor	Very poor	Fair	Poor	Very poor	Fair
Valentine, hilly	Poor	Good	Fair	Poor	Fair	Fair	Very poor	Very poor	Fair	Poor	Very poor	Fair

Table 10.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements								Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life	Range- land wild- life
7662:												
Valentine---------------	Poor	Good	Fair	Poor	Fair	Fair	Very poor	Very poor	Fair	Poor	Very poor	Fair
7664:												
Valentine---------------	Poor	Good	Fair	Poor	Fair	Fair	Very poor	Very poor	Fair	Poor	Very poor	Fair
7669:												
Valentine, loamy substratum-------------	Poor	Good	Fair	Poor	Fair	Fair	Very poor	Very poor	Fair	Poor	Very poor	Fair
7721:												
Valentine---------------	Poor	Good	Fair	Poor	Fair	Fair	Very poor	Very poor	Fair	Poor	Very poor	Fair
Libory------------------	Fair	Fair	Good	Good	Good	Good	Poor	Very poor	Fair	Good	Very poor	Good
7748:												
Valentine---------------	Poor	Good	Fair	Poor	Fair	Fair	Very poor	Very poor	Fair	Poor	Very poor	Fair
Tryon, silty substratum, wet--------------------	Poor	Fair	Good	Good	Good	Good	Fair	Fair	Fair	Good	Fair	Good
7924:												
Wann, rarely flooded----	Good	Good	Good	Good	Fair	Good	Poor	Fair	Good	Good	Fair	Good
7927:												
Wann, rarely flooded----	Good	Good	Good	Good	Fair	Good	Poor	Fair	Good	Good	Fair	Good
8020:												
Wood River--------------	Good	Good	Poor	Fair	Good	Poor	Very poor	Very poor	Fair	Good	Very poor	Poor
8022:												
Wood River, overblown---	Good	Good	Poor	Fair	Good	Poor	Very poor	Very poor	Fair	Good	Very poor	Poor
Silver Creek, overblown, alkali-----------------	Very poor	Very poor	Fair	Poor	Very poor	---	Poor	Poor	Very poor	Very poor	Poor	Fair
8023:												
Wood River--------------	Good	Good	Poor	Fair	Good	Poor	Very poor	Very poor	Fair	Good	Very poor	Poor
Silver Creek, alkali----	Very poor	Very poor	Fair	Poor	Very poor	---	Poor	Poor	Very poor	Very poor	Poor	Fair
9985:												
Gravel pits-------------	Very poor	Very poor	Poor	Poor	Poor	Poor	Very poor	Fair	Very poor	Very poor	Poor	Poor

Table 11.--Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table.)

Map symbol and soil name	Pct. of map unit	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Shallow excavations	Lawns and landscaping
1102:							
Alda, rarely flooded-----	90	Very limited Flooding	Very limited Flooding Depth to saturated zone	Very limited Flooding	Very limited Frost action Flooding	Very limited Cutbanks cave Depth to saturated zone	Not limited
1104:							
Alda, rarely flooded-----	95	Very limited Flooding	Very limited Flooding Depth to saturated zone	Very limited Flooding	Very limited Frost action Flooding	Very limited Cutbanks cave Depth to saturated zone	Not limited
1166:							
Almeria------	90	Very limited Flooding Depth to saturated zone	Very limited Flooding Depth to saturated zone	Very limited Flooding Depth to saturated zone	Very limited Depth to saturated zone Flooding Frost action	Very limited Depth to saturated zone Cutbanks cave Flooding	Very limited Flooding Depth to saturated zone Droughty
1348:							
Barney, frequently flooded-----	55	Very limited Flooding Depth to saturated zone	Very limited Flooding Depth to saturated zone	Very limited Flooding Depth to saturated zone	Very limited Depth to saturated zone Flooding Frost action	Very limited Depth to saturated zone Cutbanks cave Flooding Depth to dense layer	Very limited Flooding Depth to saturated zone Droughty
Barney, wet, channeled---	40	Very limited Flooding Depth to saturated zone	Very limited Flooding Depth to saturated zone	Very limited Flooding Depth to saturated zone	Very limited Depth to saturated zone Flooding Frost action	Very limited Depth to saturated zone Cutbanks cave Flooding Depth to dense layer	Very limited Flooding Depth to saturated zone
1354:							
Barney, frequently flooded-----	60	Very limited Flooding Depth to saturated zone	Very limited Flooding Depth to saturated zone	Very limited Flooding Depth to saturated zone	Very limited Depth to saturated zone Flooding Frost action	Very limited Depth to saturated zone Cutbanks cave Flooding Depth to dense layer	Very limited Flooding Depth to saturated zone Droughty

Table 11.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Shallow excavations	Lawns and landscaping
1354:							
Bolent, occasionally flooded-----	35	Very limited Flooding Depth to saturated zone	Very limited Flooding Depth to saturated zone	Very limited Flooding Depth to saturated zone	Very limited Flooding Frost action Depth to saturated zone	Very limited Depth to saturated zone Cutbanks cave Flooding	Somewhat limited Flooding Depth to saturated zone
1547:							
Blendon------	85	Not limited	Not limited	Not limited	Somewhat limited Frost action	Very limited Cutbanks cave	Not limited
1669:							
Boelus, sandy substratum--	35	Not limited	Not limited	Not limited	Somewhat limited Frost action	Very limited Cutbanks cave	Not limited
O'Neill------	35	Not limited	Not limited	Not limited	Somewhat limited Frost action	Very limited Cutbanks cave	Not limited
Pivot, loamy surface-----	15	Not limited	Not limited	Not limited	Not limited	Very limited Cutbanks cave	Not limited
1678:							
Bolent, occasionally flooded-----	85	Very limited Flooding Depth to saturated zone	Very limited Flooding Depth to saturated zone	Very limited Flooding Depth to saturated zone	Very limited Flooding Frost action Depth to saturated zone	Very limited Depth to saturated zone Cutbanks cave Flooding	Somewhat limited Flooding Depth to saturated zone
1680:							
Bolent, occasionally flooded-----	85	Very limited Flooding Depth to saturated zone	Very limited Flooding Depth to saturated zone	Very limited Flooding Depth to saturated zone	Very limited Flooding Frost action Depth to saturated zone	Very limited Depth to saturated zone Cutbanks cave Flooding	Somewhat limited Flooding Depth to saturated zone
1688:							
Bolent, occasionally flooded-----	90	Very limited Flooding Depth to saturated zone	Very limited Flooding Depth to saturated zone	Very limited Flooding Depth to saturated zone	Very limited Flooding Frost action Depth to saturated zone	Very limited Depth to saturated zone Cutbanks cave Flooding	Somewhat limited Flooding Droughty Depth to saturated zone
1704:							
Bolent, occasionally flooded-----	65	Very limited Flooding Depth to saturated zone	Very limited Flooding Depth to saturated zone	Very limited Flooding Depth to saturated zone	Very limited Flooding Frost action Depth to saturated zone	Very limited Depth to saturated zone Cutbanks cave Flooding	Somewhat limited Flooding Depth to saturated zone

Table 11.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Shallow excavations	Lawns and landscaping
1704:							
Calamus, rarely flooded-----	30	Very limited Flooding	Very limited Flooding Depth to saturated zone	Very limited Flooding	Somewhat limited Frost action Flooding	Very limited Cutbanks cave Depth to saturated zone	Not limited
1796:							
Brocksburg---	85	Not limited	Not limited	Not limited	Somewhat limited Frost action Low strength	Very limited Cutbanks cave	Not limited
1930:							
Butler-------	94	Very limited Depth to saturated zone Shrink-swell	Very limited Depth to saturated zone Shrink-swell	Very limited Depth to saturated zone Shrink-swell	Very limited Shrink-swell Depth to saturated zone Frost action Low strength	Very limited Depth to saturated zone Too clayey Cutbanks cave	Very limited Depth to saturated zone
1942:							
Calamus, rarely flooded-----	95	Very limited Flooding	Very limited Flooding Depth to saturated zone	Very limited Flooding	Somewhat limited Frost action Flooding	Very limited Cutbanks cave Depth to saturated zone	Not limited
2020:							
Caruso, rarely flooded-----	85	Very limited Flooding Shrink-swell	Very limited Flooding Depth to saturated zone	Very limited Flooding Shrink-swell	Very limited Low strength Shrink-swell Frost action Flooding	Very limited Depth to saturated zone Cutbanks cave	Not limited
2168:							
Coly---------	90	Very limited Slope	Very limited Slope	Very limited Slope	Very limited Slope Low strength Frost action	Very limited Slope Cutbanks cave	Very limited Slope
2223:							
Cozad--------	95	Not limited	Not limited	Not limited	Somewhat limited Frost action	Somewhat limited Cutbanks cave	Not limited
2238:							
Cozad, sandy substratum--	80	Not limited	Not limited	Not limited	Somewhat limited Frost action Low strength	Very limited Cutbanks cave	Not limited
2240:							
Cozad, sandy substratum--	60	Not limited	Not limited	Not limited	Somewhat limited Frost action Low strength	Very limited Cutbanks cave	Not limited

Table 11.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Shallow excavations	Lawns and landscaping
2240:							
Hobbs, occasionally flooded-----	30	Very limited Flooding	Very limited Flooding	Very limited Flooding	Very limited Flooding Low strength Frost action	Very limited Cutbanks cave Flooding	Somewhat limited Flooding
2371:							
Cullison-----	85	Very limited Depth to saturated zone	Very limited Depth to saturated zone	Very limited Depth to saturated zone	Very limited Depth to saturated zone Frost action	Very limited Depth to saturated zone Cutbanks cave	Very limited Depth to saturated zone
2415:							
Darr, very rarely flooded-----	95	Very limited Flooding	Very limited Flooding	Very limited Flooding	Somewhat limited Frost action Flooding	Very limited Cutbanks cave	Not limited
2430:							
Detroit------	95	Very limited Shrink-swell	Somewhat limited Shrink-swell	Very limited Shrink-swell	Very limited Low strength Shrink-swell	Somewhat limited Cutbanks cave	Not limited
2731:							
Els----------	50	Somewhat limited Depth to saturated zone	Very limited Depth to saturated zone	Somewhat limited Depth to saturated zone	Somewhat limited Frost action Depth to saturated zone	Very limited Depth to saturated zone Cutbanks cave	Somewhat limited Droughty Depth to saturated zone
Tryon--------	40	Very limited Depth to saturated zone	Very limited Depth to saturated zone	Very limited Depth to saturated zone	Very limited Depth to saturated zone Frost action	Very limited Depth to saturated zone Cutbanks cave	Very limited Depth to saturated zone
2846:							
Fillmore-----	80	Very limited Ponding Depth to saturated zone Shrink-swell	Very limited Ponding Depth to saturated zone Shrink-swell	Very limited Ponding Depth to saturated zone Shrink-swell	Very limited Shrink-swell Ponding Depth to saturated zone Frost action Low strength	Very limited Ponding Depth to saturated zone Too clayey Cutbanks cave	Very limited Ponding Depth to saturated zone
2918:							
Gates--------	80	Not limited	Not limited	Not limited	Somewhat limited Frost action	Somewhat limited Cutbanks cave	Not limited
2920:							
Gates--------	75	Not limited	Not limited	Not limited	Somewhat limited Frost action	Somewhat limited Cutbanks cave	Not limited
2924:							
Gates--------	85	Not limited	Not limited	Somewhat limited Slope	Somewhat limited Frost action	Somewhat limited Cutbanks cave	Not limited

Table 11.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Shallow excavations	Lawns and landscaping
2925:							
Gates, eroded------	95	Not limited	Not limited	Somewhat limited Slope	Somewhat limited Frost action	Somewhat limited Cutbanks cave	Not limited
2927:							
Gates--------	75	Somewhat limited Slope	Somewhat limited Slope	Very limited Slope	Somewhat limited Frost action Slope	Somewhat limited Cutbanks cave Slope	Somewhat limited Slope
2940:							
Gates, overblown---	85	Not limited	Not limited	Not limited	Somewhat limited Frost action	Somewhat limited Cutbanks cave	Not limited
2972:							
Gayville-----	85	Somewhat limited Shrink-swell	Somewhat limited Depth to saturated zone	Somewhat limited Shrink-swell	Very limited Low strength Shrink-swell Frost action	Very limited Cutbanks cave Depth to saturated zone	Very limited Sodium content
3023:							
Gibbon, rarely flooded-----	90	Very limited Flooding Shrink-swell Depth to saturated zone	Very limited Flooding Depth to saturated zone	Very limited Flooding Shrink-swell Depth to saturated zone	Very limited Frost action Low strength Shrink-swell Flooding Depth to saturated zone	Very limited Depth to saturated zone Cutbanks cave	Somewhat limited Depth to saturated zone
3045:							
Gibbon, saline, rarely flooded-----	80	Very limited Flooding Depth to saturated zone	Very limited Flooding Depth to saturated zone Shrink-swell	Very limited Flooding Depth to saturated zone	Very limited Frost action Low strength Flooding Depth to saturated zone	Very limited Depth to saturated zone Cutbanks cave	Somewhat limited Depth to saturated zone
3140:							
Gothenburg, frequently flooded-----	80	Very limited Flooding Depth to saturated zone	Very limited Flooding Depth to saturated zone	Very limited Flooding Depth to saturated zone	Very limited Depth to saturated zone Flooding Frost action	Very limited Depth to saturated zone Cutbanks cave Flooding	Very limited Flooding Depth to saturated zone Droughty
3290:							
Hall---------	90	Somewhat limited Shrink-swell	Not limited	Somewhat limited Shrink-swell	Somewhat limited Shrink-swell Frost action	Somewhat limited Cutbanks cave	Not limited

Table 11.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Shallow excavations	Lawns and landscaping
3293:							
Hall, eroded-	95	Not limited	Not limited	Not limited	Somewhat limited Frost action	Somewhat limited Cutbanks cave	Not limited
3294:							
Hall, eroded-	80	Not limited	Not limited	Not limited	Somewhat limited Frost action	Somewhat limited Cutbanks cave	Not limited
3300:							
Hall, sandy substratum--	95	Somewhat limited Shrink-swell	Somewhat limited Shrink-swell	Somewhat limited Shrink-swell	Somewhat limited Shrink-swell Frost action	Very limited Cutbanks cave	Not limited
3301:							
Hall, eroded-	70	Very limited Flooding Shrink-swell	Very limited Flooding	Very limited Flooding Shrink-swell	Somewhat limited Shrink-swell Frost action Flooding	Somewhat limited Cutbanks cave	Not limited
Hobbs, occasionally flooded-----	25	Very limited Flooding	Very limited Flooding	Very limited Flooding	Very limited Flooding Low strength Frost action	Somewhat limited Flooding Cutbanks cave	Somewhat limited Flooding
3330:							
Hastings-----	95	Very limited Shrink-swell	Somewhat limited Shrink-swell	Very limited Shrink-swell	Very limited Low strength Shrink-swell Frost action	Somewhat limited Too clayey Cutbanks cave	Not limited
3331:							
Hastings-----	95	Very limited Shrink-swell	Somewhat limited Shrink-swell	Very limited Shrink-swell	Very limited Shrink-swell Low strength Frost action	Somewhat limited Too clayey Cutbanks cave	Not limited
3478:							
Hersh--------	90	Not limited	Not limited	Somewhat limited Slope	Somewhat limited Frost action	Somewhat limited Cutbanks cave	Not limited
3532:							
Hobbs, occasionally flooded-----	90	Very limited Flooding	Very limited Flooding	Very limited Flooding	Very limited Flooding Low strength Frost action	Somewhat limited Flooding Cutbanks cave	Somewhat limited Flooding
3537:							
Hobbs, frequently flooded-----	75	Very limited Flooding	Very limited Flooding	Very limited Flooding	Very limited Flooding Low strength Frost action	Somewhat limited Flooding Cutbanks cave	Very limited Flooding

Table 11.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Shallow excavations	Lawns and landscaping
3568: Holder, overblown---	80	Not limited	Not limited	Not limited	Very limited Frost action Low strength	Somewhat limited Cutbanks cave	Not limited
3570: Holder-------	85	Somewhat limited Shrink-swell	Not limited	Somewhat limited Shrink-swell	Very limited Frost action Low strength Shrink-swell	Somewhat limited Cutbanks cave	Not limited
3571: Holder-------	95	Somewhat limited Shrink-swell	Not limited	Somewhat limited Shrink-swell	Very limited Frost action Low strength Shrink-swell	Somewhat limited Cutbanks cave	Not limited
3578: Holder, severely eroded------	80	Not limited	Not limited	Somewhat limited Slope	Very limited Frost action	Somewhat limited Cutbanks cave	Not limited
3580: Holder, eroded------	80	Somewhat limited Shrink-swell	Somewhat limited Shrink-swell	Somewhat limited Shrink-swell	Very limited Frost action Low strength Shrink-swell	Somewhat limited Cutbanks cave	Not limited
3598: Holdrege, eroded------	75	Not limited	Not limited	Somewhat limited Slope	Very limited Low strength Frost action	Somewhat limited Cutbanks cave	Not limited
3616: Holdrege, overblown---	93	Somewhat limited Shrink-swell	Somewhat limited Shrink-swell	Somewhat limited Shrink-swell	Very limited Low strength Shrink-swell Frost action	Somewhat limited Cutbanks cave	Not limited
3770: Hord---------	90	Not limited	Not limited	Not limited	Very limited Low strength Frost action	Somewhat limited Cutbanks cave	Not limited
3771: Hord---------	90	Not limited	Not limited	Not limited	Very limited Low strength Frost action	Somewhat limited Cutbanks cave	Not limited
3772: Hord---------	90	Not limited	Not limited	Somewhat limited Slope	Very limited Low strength Frost action	Somewhat limited Cutbanks cave	Not limited
3782: Hord, sandy substratum--	90	Not limited	Not limited	Not limited	Very limited Low strength Frost action	Very limited Cutbanks cave	Not limited

Table 11.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Shallow excavations	Lawns and landscaping
3869:							
Inavale, very rarely flooded-----	95	Very limited Flooding	Very limited Flooding	Very limited Flooding	Somewhat limited Flooding	Very limited Cutbanks cave	Not limited
3875:							
Inavale, very rarely flooded-----	95	Very limited Flooding	Very limited Flooding	Very limited Flooding Slope	Somewhat limited Flooding	Very limited Cutbanks cave	Somewhat limited Droughty
3927:							
Ipage--------	85	Not limited	Somewhat limited Depth to saturated zone	Not limited	Somewhat limited Frost action	Very limited Cutbanks cave Depth to saturated zone	Somewhat limited Droughty
3948:							
Ipage, silty substratum--	70	Not limited	Somewhat limited Depth to saturated zone	Not limited	Somewhat limited Frost action	Very limited Cutbanks cave Depth to saturated zone	Somewhat limited Droughty
Tryon, silty substratum, wet---------	25	Very limited Ponding Depth to saturated zone	Very limited Ponding Depth to saturated zone	Very limited Ponding Depth to saturated zone	Very limited Ponding Depth to saturated zone Frost action	Very limited Ponding Depth to saturated zone Cutbanks cave	Very limited Ponding Depth to saturated zone Droughty
3993:							
Jansen, overblown---	80	Somewhat limited Shrink-swell	Not limited	Somewhat limited Shrink-swell	Somewhat limited Shrink-swell Frost action	Very limited Cutbanks cave	Not limited
4019:							
Janude, sandy substratum, very rarely flooded-----	80	Very limited Flooding	Very limited Flooding Depth to saturated zone	Very limited Flooding	Somewhat limited Frost action Flooding	Very limited Cutbanks cave Depth to saturated zone	Not limited
4020:							
Janude, calcareous, very rarely flooded-----	90	Very limited Flooding	Very limited Flooding Depth to saturated zone	Very limited Flooding	Somewhat limited Frost action Flooding	Very limited Cutbanks cave Depth to saturated zone	Not limited

Table 11.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Shallow excavations	Lawns and landscaping
4417:							
Lamo, sand substratum, rarely flooded-----	85	Very limited Flooding Shrink-swell Depth to saturated zone	Very limited Flooding Depth to saturated zone	Very limited Flooding Shrink-swell Depth to saturated zone	Very limited Frost action Low strength Shrink-swell Flooding Depth to saturated zone	Very limited Depth to saturated zone Cutbanks cave	Somewhat limited Depth to saturated zone
4586:							
Lex, rarely flooded-----	85	Very limited Flooding Depth to saturated zone	Very limited Flooding Depth to saturated zone	Very limited Flooding Depth to saturated zone	Very limited Frost action Flooding Depth to saturated zone	Very limited Depth to saturated zone Cutbanks cave	Somewhat limited Depth to saturated zone
4613:							
Libory-------	85	Somewhat limited Depth to saturated zone	Very limited Depth to saturated zone	Somewhat limited Depth to saturated zone	Somewhat limited Depth to saturated zone	Very limited Depth to saturated zone Cutbanks cave	Somewhat limited Depth to saturated zone
4650:							
Lockton------	90	Not limited	Somewhat limited Depth to saturated zone	Not limited	Very limited Frost action Low strength	Very limited Cutbanks cave Depth to saturated zone	Not limited
4744:							
Loup, loamy substratum--	90	Very limited Depth to saturated zone	Very limited Depth to saturated zone	Very limited Depth to saturated zone	Very limited Depth to saturated zone Frost action	Very limited Depth to saturated zone Cutbanks cave	Very limited Depth to saturated zone
4932:							
Marlake------	80	Very limited Ponding Depth to saturated zone	Very limited Ponding Depth to saturated zone	Very limited Ponding Depth to saturated zone	Very limited Ponding Depth to saturated zone Frost action	Very limited Ponding Depth to saturated zone Cutbanks cave	Very limited Ponding Depth to saturated zone Droughty
5705:							
O'Neill------	50	Not limited	Not limited	Not limited	Somewhat limited Frost action	Very limited Cutbanks cave	Not limited
Pivot, loamy surface-----	35	Not limited	Not limited	Not limited	Not limited	Very limited Cutbanks cave	Somewhat limited Droughty
5713:							
O'Neill------	90	Not limited	Not limited	Not limited	Somewhat limited Frost action	Very limited Cutbanks cave	Not limited

Table 11.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Shallow excavations	Lawns and landscaping
5905:							
Ortello, silty substratum--	85	Not limited	Not limited	Not limited	Somewhat limited Frost action	Very limited Cutbanks cave	Not limited
5909:							
Ortello, silty substratum--	70	Not limited	Not limited	Not limited	Somewhat limited Frost action	Somewhat limited Cutbanks cave	Not limited
Holder, loamy overblown---	25	Not limited	Not limited	Not limited	Very limited Frost action Low strength	Somewhat limited Cutbanks cave	Not limited
5914:							
Ortello------	85	Not limited	Not limited	Not limited	Somewhat limited Frost action	Very limited Cutbanks cave	Not limited
5985:							
Ovina--------	85	Very limited Depth to saturated zone	Very limited Depth to saturated zone	Very limited Depth to saturated zone	Very limited Frost action Depth to saturated zone	Very limited Depth to saturated zone Cutbanks cave	Very limited Depth to saturated zone
6136:							
Platte, frequently flooded-----	60	Very limited Flooding Depth to saturated zone	Very limited Flooding Depth to saturated zone	Very limited Flooding Depth to saturated zone	Very limited Flooding Frost action Depth to saturated zone	Very limited Depth to saturated zone Cutbanks cave Flooding	Very limited Flooding Depth to saturated zone
Alda, frequently flooded-----	35	Very limited Flooding Depth to saturated zone	Very limited Flooding Depth to saturated zone	Very limited Flooding Depth to saturated zone	Very limited Frost action Flooding Depth to saturated zone	Very limited Depth to saturated zone Cutbanks cave Flooding	Very limited Flooding Depth to saturated zone
6139:							
Platte, occasionally flooded-----	50	Very limited Flooding Depth to saturated zone	Very limited Flooding Depth to saturated zone	Very limited Flooding Depth to saturated zone	Very limited Flooding Frost action Depth to saturated zone	Very limited Depth to saturated zone Cutbanks cave Flooding	Somewhat limited Flooding Depth to saturated zone

Table 11.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Shallow excavations	Lawns and landscaping
6139:							
Bolent, occasionally flooded-----	45	Very limited Flooding Depth to saturated zone	Very limited Flooding Depth to saturated zone	Very limited Flooding Depth to saturated zone	Very limited Flooding Frost action Depth to saturated zone	Very limited Depth to saturated zone Cutbanks cave Flooding	Somewhat limited Flooding Depth to saturated zone
6143:							
Platte, occasionally flooded-----	55	Very limited Flooding Depth to saturated zone	Very limited Flooding Depth to saturated zone	Very limited Flooding Depth to saturated zone	Very limited Flooding Frost action Depth to saturated zone	Very limited Depth to saturated zone Cutbanks cave Flooding	Somewhat limited Droughty Flooding Depth to saturated zone
Inavale, very rarely flooded-----	44	Very limited Flooding	Very limited Flooding	Very limited Flooding Slope	Somewhat limited Flooding	Very limited Cutbanks cave	Somewhat limited Droughty
6800:							
Scott--------	90	Very limited Ponding Depth to saturated zone Shrink-swell	Very limited Ponding Depth to saturated zone Shrink-swell	Very limited Ponding Depth to saturated zone Shrink-swell	Very limited Shrink-swell Ponding Depth to saturated zone Frost action Low strength	Very limited Ponding Depth to saturated zone Too clayey Cutbanks cave	Very limited Ponding Depth to saturated zone
6956:							
Silver Creek, overblown, ponded------	85	Very limited Ponding Depth to saturated zone Shrink-swell	Very limited Ponding Depth to saturated zone Shrink-swell	Very limited Ponding Depth to saturated zone Shrink-swell	Very limited Ponding Depth to saturated zone Low strength Shrink-swell Frost action	Very limited Ponding Depth to saturated zone Cutbanks cave	Very limited Ponding Depth to saturated zone Sodium content
6957:							
Silver Creek, alkali------	55	Very limited Flooding Shrink-swell	Very limited Flooding Depth to saturated zone Shrink-swell	Very limited Flooding Shrink-swell	Very limited Low strength Shrink-swell Frost action Flooding	Very limited Depth to saturated zone Cutbanks cave	Very limited Sodium content

Table 11.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Shallow excavations	Lawns and landscaping
6957:							
Silver Creek, saline, alkali------	35	Somewhat limited Shrink-swell	Somewhat limited Shrink-swell Depth to saturated zone	Somewhat limited Shrink-swell	Very limited Low strength Shrink-swell Frost action	Very limited Cutbanks cave Depth to saturated zone Too clayey	Very limited Sodium content
6978:							
Simeon-------	70	Not limited	Not limited	Not limited	Not limited	Very limited Cutbanks cave	Somewhat limited Droughty
7225:							
Thurman------	85	Not limited	Not limited	Not limited	Not limited	Very limited Cutbanks cave	Not limited
7249:							
Thurman, loamy substratum--	90	Not limited	Not limited	Not limited	Not limited	Very limited Cutbanks cave	Somewhat limited Droughty
7250:							
Thurman, loamy substratum--	90	Not limited	Not limited	Not limited	Not limited	Very limited Cutbanks cave	Not limited
7429:							
Uly, eroded--	85	Not limited	Not limited	Not limited	Very limited Low strength Frost action	Somewhat limited Cutbanks cave	Not limited
7436:							
Uly, eroded--	75	Somewhat limited Slope	Somewhat limited Slope	Very limited Slope	Somewhat limited Frost action Slope	Somewhat limited Cutbanks cave Slope	Somewhat limited Slope
Coly---------	20	Not limited	Not limited	Somewhat limited Slope	Somewhat limited Low strength Frost action	Somewhat limited Cutbanks cave	Not limited
7438:							
Uly, eroded--	90	Not limited	Not limited	Not limited	Very limited Low strength Frost action	Somewhat limited Cutbanks cave	Not limited
7439:							
Uly, eroded--	70	Somewhat limited Slope	Somewhat limited Slope	Very limited Slope	Very limited Low strength Slope Frost action	Somewhat limited Slope Cutbanks cave	Somewhat limited Slope
Coly---------	25	Very limited Slope	Very limited Slope	Very limited Slope	Very limited Slope Low strength Frost action	Very limited Slope Cutbanks cave	Very limited Slope

Table 11.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Shallow excavations	Lawns and landscaping
7440:							
Uly----------	65	Somewhat limited Slope	Somewhat limited Slope	Very limited Slope	Very limited Low strength Slope Frost action	Somewhat limited Slope Cutbanks cave	Somewhat limited Slope
Hobbs, occasionally flooded-----	20	Very limited Flooding	Very limited Flooding	Very limited Flooding	Very limited Flooding Low strength Frost action	Somewhat limited Flooding Cutbanks cave	Somewhat limited Flooding
7652:							
Valentine----	95	Not limited	Not limited	Somewhat limited Slope	Not limited	Very limited Cutbanks cave	Somewhat limited Droughty
7656:							
Valentine, rolling-----	95	Very limited Slope	Very limited Slope	Very limited Slope	Very limited Slope	Very limited Cutbanks cave Slope	Very limited Slope Droughty
7659:							
Valentine, rolling-----	60	Very limited Slope	Very limited Slope	Very limited Slope	Very limited Slope	Very limited Cutbanks cave Slope	Very limited Slope Droughty
Valentine, hilly-------	38	Very limited Slope	Very limited Slope	Very limited Slope	Very limited Slope	Very limited Slope Cutbanks cave	Very limited Slope Droughty
7662:							
Valentine----	90	Not limited	Not limited	Somewhat limited Slope	Not limited	Very limited Cutbanks cave	Somewhat limited Droughty
7664:							
Valentine----	90	Very limited Slope	Very limited Slope	Very limited Slope	Very limited Slope	Very limited Cutbanks cave Slope	Very limited Slope Droughty
7669:							
Valentine, loamy substratum--	80	Not limited	Not limited	Not limited	Not limited	Very limited Cutbanks cave	Somewhat limited Droughty
7721:							
Valentine----	60	Not limited	Not limited	Very limited Slope	Not limited	Very limited Cutbanks cave	Somewhat limited Droughty
Libory-------	35	Somewhat limited Depth to saturated zone	Very limited Depth to saturated zone	Somewhat limited Depth to saturated zone	Somewhat limited Depth to saturated zone	Very limited Depth to saturated zone Cutbanks cave	Somewhat limited Depth to saturated zone
7748:							
Valentine----	65	Not limited	Not limited	Somewhat limited Slope	Not limited	Very limited Cutbanks cave	Somewhat limited Droughty

Table 11.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Shallow excavations	Lawns and landscaping
7748:							
Tryon, silty substratum, wet---------	25	Very limited Ponding Depth to saturated zone	Very limited Ponding Depth to saturated zone	Very limited Ponding Depth to saturated zone	Very limited Ponding Depth to saturated zone Frost action	Very limited Ponding Depth to saturated zone Cutbanks cave	Very limited Ponding Depth to saturated zone Droughty
7924:							
Wann, rarely flooded-----	90	Very limited Flooding	Very limited Flooding Depth to saturated zone	Very limited Flooding	Very limited Frost action Flooding	Very limited Cutbanks cave Depth to saturated zone	Not limited
7927:							
Wann, rarely flooded-----	90	Very limited Flooding	Very limited Flooding Depth to saturated zone	Very limited Flooding	Very limited Frost action Flooding	Very limited Cutbanks cave Depth to saturated zone	Not limited
8020:							
Wood River---	85	Very limited Shrink-swell	Somewhat limited Shrink-swell	Very limited Shrink-swell	Very limited Low strength Shrink-swell	Very limited Cutbanks cave	Very limited Sodium content
8022:							
Wood River, overblown---	65	Very limited Shrink-swell	Somewhat limited Depth to saturated zone	Very limited Shrink-swell	Very limited Low strength Shrink-swell	Somewhat limited Cutbanks cave Depth to saturated zone	Very limited Sodium content
Silver Creek, overblown, alkali------	20	Very limited Ponding Flooding Depth to saturated zone Shrink-swell	Very limited Ponding Flooding Depth to saturated zone	Very limited Ponding Flooding Depth to saturated zone Shrink-swell	Very limited Ponding Depth to saturated zone Low strength Shrink-swell Frost action	Very limited Ponding Depth to saturated zone Cutbanks cave	Very limited Ponding Sodium content Depth to saturated zone
8023:							
Wood River---	55	Very limited Shrink-swell	Very limited Shrink-swell	Very limited Shrink-swell	Very limited Low strength Shrink-swell	Very limited Cutbanks cave	Very limited Sodium content
Silver Creek, alkali------	40	Very limited Flooding Shrink-swell	Very limited Flooding Shrink-swell Depth to saturated zone	Very limited Flooding Shrink-swell	Very limited Low strength Shrink-swell Frost action Flooding	Very limited Cutbanks cave Depth to saturated zone	Very limited Sodium content

Table 11.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Shallow excavations	Lawns and landscaping
9975:							
Sanitary landfill----	100	Not rated	Not rated	Not rated	Not rated	Not rated	Not rated
9985:							
Gravel pits--	100	Not rated	Not rated	Not rated	Not rated	Not rated	Not rated
9995:							
Miscellaneous water, sewage lagoons-----	100	Not rated	Not rated	Not rated	Not rated	Not rated	Not rated
9998:							
Water--------	100	Not rated	Not rated	Not rated	Not rated	Not rated	Not rated

Table 12.--Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table.)

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields	Sewage lagoons	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
1102:						
Alda, rarely flooded-----	90	Very limited Depth to saturated zone Filtering capacity Flooding	Very limited Seepage Depth to saturated zone Flooding	Very limited Depth to saturated zone Seepage Too sandy Flooding	Very limited Depth to saturated zone Seepage Flooding	Very limited Too sandy Seepage Depth to saturated zone
1104:						
Alda, rarely flooded-----	95	Very limited Depth to saturated zone Filtering capacity Flooding	Very limited Seepage Depth to saturated zone Flooding	Very limited Depth to saturated zone Seepage Too sandy Flooding	Very limited Depth to saturated zone Seepage Flooding	Very limited Too sandy Seepage Depth to saturated zone
1166:						
Almeria------	90	Very limited Flooding Depth to saturated zone Filtering capacity	Very limited Flooding Seepage Depth to saturated zone	Very limited Flooding Depth to saturated zone Seepage Too sandy	Very limited Flooding Depth to saturated zone Seepage	Very limited Depth to saturated zone Too sandy Seepage
1348:						
Barney, frequently flooded-----	55	Very limited Flooding Depth to saturated zone Filtering capacity	Very limited Flooding Seepage Depth to saturated zone	Very limited Flooding Depth to saturated zone Seepage Too sandy	Very limited Flooding Depth to saturated zone Seepage	Very limited Depth to saturated zone Too sandy Seepage
Barney, wet, channeled---	40	Very limited Flooding Depth to saturated zone Filtering capacity	Very limited Flooding Seepage Depth to saturated zone	Very limited Flooding Depth to saturated zone Seepage Too sandy	Very limited Flooding Depth to saturated zone Seepage	Very limited Depth to saturated zone Too sandy Seepage
1354:						
Barney, frequently flooded-----	60	Very limited Flooding Depth to saturated zone Filtering capacity	Very limited Flooding Seepage Depth to saturated zone	Very limited Flooding Depth to saturated zone Seepage Too sandy	Very limited Flooding Depth to saturated zone Seepage	Very limited Depth to saturated zone Too sandy Seepage

Table 12.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields	Sewage lagoons	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
1354:						
Bolent, occasionally flooded-----	35	Very limited Flooding Depth to saturated zone Filtering capacity	Very limited Flooding Seepage Depth to saturated zone	Very limited Flooding Depth to saturated zone Seepage Too sandy	Very limited Flooding Depth to saturated zone Seepage	Very limited Too sandy Seepage Depth to saturated zone
1547:						
Blendon------	85	Very limited Filtering capacity	Very limited Seepage	Very limited Seepage Too sandy	Very limited Seepage	Very limited Seepage Too sandy
1669:						
Boelus, sandy substratum--	35	Very limited Filtering capacity Restricted permeability	Very limited Seepage	Very limited Seepage Too sandy	Very limited Seepage	Very limited Seepage Too sandy
O'Neill------	35	Very limited Filtering capacity	Very limited Seepage	Very limited Seepage Too sandy	Very limited Seepage	Very limited Too sandy Seepage
Pivot, loamy surface-----	15	Very limited Filtering capacity	Very limited Seepage	Very limited Seepage Too sandy	Very limited Seepage	Very limited Too sandy Seepage
1678:						
Bolent, occasionally flooded-----	85	Very limited Flooding Depth to saturated zone Filtering capacity	Very limited Flooding Seepage Depth to saturated zone	Very limited Flooding Depth to saturated zone Seepage Too sandy	Very limited Flooding Depth to saturated zone Seepage	Very limited Too sandy Seepage Depth to saturated zone
1680:						
Bolent, occasionally flooded-----	85	Very limited Flooding Depth to saturated zone Filtering capacity	Very limited Flooding Seepage Depth to saturated zone	Very limited Flooding Depth to saturated zone Seepage Too sandy	Very limited Flooding Depth to saturated zone Seepage	Very limited Too sandy Seepage Depth to saturated zone

Table 12.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields	Sewage lagoons	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
1688:						
Bolent, occasionally flooded-----	90	Very limited Flooding Depth to saturated zone Filtering capacity	Very limited Flooding Seepage Depth to saturated zone	Very limited Flooding Depth to saturated zone Seepage Too sandy	Very limited Flooding Depth to saturated zone Seepage	Very limited Too sandy Seepage Depth to saturated zone
1704:						
Bolent, occasionally flooded-----	65	Very limited Flooding Depth to saturated zone Filtering capacity	Very limited Flooding Seepage Depth to saturated zone	Very limited Flooding Depth to saturated zone Seepage Too sandy	Very limited Flooding Depth to saturated zone Seepage	Very limited Too sandy Seepage Depth to saturated zone
Calamus, rarely flooded-----	30	Very limited Filtering capacity Depth to saturated zone Flooding	Very limited Seepage Flooding Depth to saturated zone	Very limited Depth to saturated zone Seepage Too sandy Flooding	Very limited Depth to saturated zone Seepage Flooding	Very limited Too sandy Seepage
1796:						
Brocksburg---	85	Very limited Filtering capacity Restricted permeability	Very limited Seepage	Very limited Seepage Too sandy	Very limited Seepage	Very limited Too sandy Seepage
1930:						
Butler-------	94	Very limited Restricted permeability Depth to saturated zone	Somewhat limited Seepage	Very limited Depth to saturated zone	Very limited Depth to saturated zone	Very limited Depth to saturated zone Hard to compact
1942:						
Calamus, rarely flooded-----	95	Very limited Filtering capacity Depth to saturated zone Flooding	Very limited Seepage Flooding Depth to saturated zone	Very limited Depth to saturated zone Seepage Flooding	Very limited Depth to saturated zone Seepage Flooding	Very limited Seepage

Table 12.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields	Sewage lagoons	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
2020:						
Caruso, rarely flooded-----	85	Very limited Depth to saturated zone Filtering capacity Restricted permeability Flooding	Very limited Seepage Depth to saturated zone Flooding	Very limited Depth to saturated zone Seepage Flooding	Very limited Depth to saturated zone Seepage Flooding	Very limited Hard to compact Too clayey Depth to saturated zone
2168:						
Coly---------	90	Very limited Slope Restricted permeability	Very limited Slope Seepage	Very limited Slope	Very limited Slope	Very limited Slope
2223:						
Cozad--------	95	Very limited Filtering capacity Restricted permeability	Somewhat limited Seepage	Very limited Seepage	Not limited	Not limited
2238:						
Cozad, sandy substratum--	80	Very limited Filtering capacity Restricted permeability	Very limited Seepage	Very limited Seepage	Not limited	Very limited Seepage
2240:						
Cozad, sandy substratum--	60	Very limited Filtering capacity Restricted permeability	Very limited Seepage	Very limited Seepage Too sandy	Not limited	Very limited Seepage Too sandy
Hobbs, occasionally flooded-----	30	Very limited Flooding Filtering capacity Restricted permeability	Very limited Flooding Seepage	Very limited Flooding Seepage	Very limited Flooding	Not limited
2371:						
Cullison-----	85	Very limited Depth to saturated zone Restricted permeability	Very limited Seepage Depth to saturated zone	Very limited Depth to saturated zone	Very limited Depth to saturated zone Seepage	Very limited Depth to saturated zone

Table 12.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields	Sewage lagoons	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
2415:						
Darr, very rarely flooded	95	Very limited Filtering capacity Flooding	Very limited Seepage Flooding	Very limited Seepage Flooding	Very limited Seepage Flooding	Very limited Seepage
2430:						
Detroit	95	Very limited Restricted permeability	Somewhat limited Seepage	Not limited	Not limited	Somewhat limited Too clayey
2731:						
Els	50	Very limited Depth to saturated zone Filtering capacity	Very limited Seepage Depth to saturated zone	Very limited Depth to saturated zone Seepage Too sandy	Very limited Depth to saturated zone Seepage	Very limited Too sandy Seepage Depth to saturated zone
Tryon	40	Very limited Depth to saturated zone Filtering capacity	Very limited Seepage Depth to saturated zone	Very limited Depth to saturated zone Seepage Too sandy	Very limited Depth to saturated zone Seepage	Very limited Depth to saturated zone Seepage Too sandy
2846:						
Fillmore	80	Very limited Restricted permeability Ponding Depth to saturated zone	Very limited Ponding Seepage	Very limited Depth to saturated zone Ponding Too clayey	Very limited Ponding Depth to saturated zone	Very limited Ponding Depth to saturated zone Too clayey Hard to compact
2918:						
Gates	80	Somewhat limited Restricted permeability	Somewhat limited Seepage	Not limited	Not limited	Not limited
2920:						
Gates	75	Somewhat limited Restricted permeability	Somewhat limited Seepage	Not limited	Not limited	Not limited
2924:						
Gates	85	Somewhat limited Restricted permeability	Somewhat limited Slope Seepage	Not limited	Not limited	Not limited
2925:						
Gates, eroded	95	Somewhat limited Restricted permeability	Somewhat limited Slope Seepage	Not limited	Not limited	Not limited

Table 12.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields	Sewage lagoons	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
2927:						
Gates--------	75	Somewhat limited Restricted permeability Slope	Very limited Slope Seepage	Somewhat limited Slope	Somewhat limited Slope	Somewhat limited Slope
2940:						
Gates, overblown---	85	Somewhat limited Restricted permeability	Very limited Seepage	Not limited	Not limited	Not limited
2972:						
Gayville-----	85	Very limited Filtering capacity Restricted permeability Depth to saturated zone	Very limited Seepage Depth to saturated zone	Very limited Depth to saturated zone Seepage	Very limited Depth to saturated zone Seepage	Somewhat limited Seepage
3023:						
Gibbon, rarely flooded-----	90	Very limited Depth to saturated zone Filtering capacity Restricted permeability Flooding	Very limited Seepage Depth to saturated zone Flooding	Very limited Depth to saturated zone Seepage Too sandy Flooding	Very limited Depth to saturated zone Flooding	Somewhat limited Depth to saturated zone Seepage Too sandy Too clayey
3045:						
Gibbon, saline, rarely flooded-----	80	Very limited Depth to saturated zone Filtering capacity Restricted permeability Flooding	Very limited Depth to saturated zone Seepage Flooding	Very limited Depth to saturated zone Seepage Too clayey Flooding	Very limited Depth to saturated zone Flooding	Very limited Seepage Hard to compact Depth to saturated zone Too clayey
3140:						
Gothenburg, frequently flooded-----	80	Very limited Flooding Depth to saturated zone Filtering capacity	Very limited Flooding Seepage Depth to saturated zone	Very limited Flooding Depth to saturated zone Seepage Too sandy	Very limited Flooding Depth to saturated zone Seepage	Very limited Depth to saturated zone Too sandy Seepage
3290:						
Hall---------	90	Very limited Restricted permeability	Very limited Seepage	Not limited	Not limited	Somewhat limited Seepage

Table 12.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields	Sewage lagoons	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
3293:						
Hall, eroded-	95	Somewhat limited Restricted permeability	Somewhat limited Seepage	Not limited	Not limited	Not limited
3294:						
Hall, eroded-	80	Very limited Restricted permeability	Somewhat limited Seepage Slope	Not limited	Not limited	Not limited
3300:						
Hall, sandy substratum--	95	Very limited Filtering capacity Restricted permeability	Somewhat limited Seepage	Very limited Seepage Too clayey	Not limited	Very limited Seepage Too clayay
3301:						
Hall, eroded-	70	Very limited Restricted permeability Flooding	Somewhat limited Seepage Flooding	Somewhat limited Flooding	Somewhat limited Flooding	Not limited
Hobbs, occasionally flooded-----	25	Very limited Flooding Restricted permeability	Very limited Flooding Seepage	Very limited Flooding	Very limited Flooding	Not limited
3330:						
Hastings-----	95	Very limited Restricted permeability	Somewhat limited Seepage	Not limited	Not limited	Not limited
3331:						
Hastings-----	95	Very limited Restricted permeability	Somewhat limited Seepage	Not limited	Not limited	Not limited
3478:						
Hersh--------	90	Somewhat limited Restricted permeability	Very limited Seepage Slope	Not limited	Very limited Seepage	Not limited
3532:						
Hobbs, occasionally flooded-----	90	Very limited Flooding Restricted permeability	Very limited Flooding Seepage	Very limited Flooding	Very limited Flooding	Not limited
3537:						
Hobbs, frequently flooded-----	75	Very limited Flooding Restricted permeability	Very limited Flooding Seepage	Very limited Flooding	Very limited Flooding	Not limited

Table 12.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields	Sewage lagoons	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
3568:						
Holder, overblown---	80	Very limited Restricted permeability	Somewhat limited Seepage	Not limited	Not limited	Not limited
3570:						
Holder-------	85	Very limited Restricted permeability	Somewhat limited Seepage	Not limited	Not limited	Not limited
3571:						
Holder-------	95	Very limited Restricted permeability	Somewhat limited Seepage	Not limited	Not limited	Not limited
3578:						
Holder, severely eroded------	80	Somewhat limited Restricted permeability	Very limited Slope Seepage	Not limited	Not limited	Not limited
3580:						
Holder, eroded------	80	Somewhat limited Restricted permeability	Somewhat limited Seepage Slope	Not limited	Not limited	Not limited
3598:						
Holdrege, eroded------	75	Somewhat limited Restricted permeability	Somewhat limited Slope Seepage	Not limited	Not limited	Not limited
3616:						
Holdrege, overblown---	93	Somewhat limited Restricted permeability	Somewhat limited Seepage	Not limited	Not limited	Not limited
3770:						
Hord---------	90	Somewhat limited Restricted permeability	Very limited Seepage	Very limited Seepage	Not limited	Somewhat limited Seepage
3771:						
Hord---------	90	Somewhat limited Restricted permeability	Somewhat limited Seepage	Not limited	Not limited	Not limited
3772:						
Hord---------	90	Somewhat limited Restricted permeability	Somewhat limited Seepage Slope	Not limited	Not limited	Not limited
3782:						
Hord, sandy substratum--	90	Very limited Restricted permeability Filtering capacity	Very limited Seepage	Very limited Seepage Too clayey	Not limited	Very limited Seepage Too clayey

Table 12.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields	Sewage lagoons	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
3869:						
Inavale, very rarely flooded-----	95	Very limited Filtering capacity Flooding	Very limited Seepage Flooding	Very limited Seepage Too sandy Flooding	Very limited Seepage Flooding	Very limited Seepage Too sandy
3875:						
Inavale, very rarely flooded-----	95	Very limited Filtering capacity Flooding	Very limited Seepage Slope Flooding	Very limited Seepage Too sandy Flooding	Very limited Seepage Flooding	Very limited Too sandy Seepage
3927:						
Ipage--------	85	Very limited Filtering capacity Depth to saturated zone	Very limited Seepage Depth to saturated zone	Very limited Depth to saturated zone Seepage Too sandy	Very limited Depth to saturated zone Seepage	Very limited Too sandy Seepage
3948:						
Ipage, silty substratum--	70	Very limited Restricted permeability Filtering capacity Depth to saturated zone	Very limited Seepage Depth to saturated zone	Very limited Depth to saturated zone Too sandy	Very limited Depth to saturated zone Seepage	Very limited Too sandy Seepage
Tryon, silty substratum, wet---------	25	Very limited Ponding Depth to saturated zone Restricted permeability Filtering capacity	Very limited Ponding Seepage Depth to saturated zone	Very limited Depth to saturated zone Ponding Too sandy	Very limited Ponding Depth to saturated zone Seepage	Very limited Ponding Depth to saturated zone Too sandy
3993:						
Jansen, overblown---	80	Very limited Filtering capacity Restricted permeability	Very limited Seepage	Very limited Seepage Too sandy	Very limited Seepage	Very limited Too sandy Seepage

Table 12.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields	Sewage lagoons	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
4019: Janude, sandy substratum, very rarely flooded-----	80	Very limited Filtering capacity Restricted permeability Depth to saturated zone Flooding	Very limited Seepage Flooding	Very limited Depth to saturated zone Seepage Flooding	Very limited Depth to saturated zone Seepage Flooding	Somewhat limited Seepage
4020: Janude, calcareous, very rarely flooded-----	90	Very limited Filtering capacity Restricted permeability Depth to saturated zone Flooding	Very limited Seepage Flooding	Very limited Depth to saturated zone Seepage Too sandy Flooding	Very limited Depth to saturated zone Seepage Flooding	Very limited Seepage Too sandy
4417: Lamo, sand substratum, rarely flooded-----	85	Very limited Depth to saturated zone Filtering capacity Restricted permeability Flooding	Very limited Seepage Depth to saturated zone Flooding	Very limited Depth to saturated zone Seepage Too sandy Flooding	Very limited Depth to saturated zone Flooding	Very limited Too sandy Seepage Depth to saturated zone Too clayey
4586: Lex, rarely flooded-----	85	Very limited Depth to saturated zone Filtering capacity Restricted permeability Flooding	Very limited Seepage Depth to saturated zone Flooding	Very limited Depth to saturated zone Seepage Too sandy Flooding	Very limited Depth to saturated zone Seepage Flooding	Very limited Too sandy Seepage Depth to saturated zone
4613: Libory-------	85	Very limited Depth to saturated zone Restricted permeability Filtering capacity	Very limited Seepage Depth to saturated zone	Very limited Depth to saturated zone	Very limited Depth to saturated zone Seepage	Very limited Depth to saturated zone

Table 12.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields	Sewage lagoons	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
4650:						
Lockton------	90	Very limited Depth to saturated zone Filtering capacity Restricted permeability	Very limited Seepage Depth to saturated zone	Very limited Depth to saturated zone Seepage Too sandy	Very limited Depth to saturated zone Seepage	Very limited Too sandy Seepage
4744:						
Loup, loamy substratum--	90	Very limited Restricted permeability Depth to saturated zone Filtering capacity	Very limited Seepage Depth to saturated zone	Very limited Depth to saturated zone Too sandy	Very limited Depth to saturated zone Seepage	Very limited Depth to saturated zone Too sandy Seepage
4932:						
Marlake------	80	Very limited Ponding Depth to saturated zone Restricted permeability Filtering capacity	Very limited Ponding Seepage Depth to saturated zone	Very limited Depth to saturated zone Ponding Too sandy	Very limited Ponding Depth to saturated zone Seepage	Very limited Ponding Depth to saturated zone Too sandy Seepage
5705:						
O'Neill------	50	Very limited Filtering capacity	Very limited Seepage	Very limited Seepage Too sandy	Very limited Seepage	Very limited Too sandy Seepage
Pivot, loamy surface-----	35	Very limited Filtering capacity	Very limited Seepage	Very limited Seepage Too sandy	Very limited Seepage	Very limited Too sandy Seepage
5713:						
O'Neill------	90	Very limited Filtering capacity	Very limited Seepage Slope	Very limited Seepage Too sandy	Very limited Seepage	Very limited Too sandy Seepage
5905:						
Ortello, silty substratum--	85	Very limited Restricted permeability Filtering capacity	Very limited Seepage	Not limited	Very limited Seepage	Somewhat limited Seepage
5909:						
Ortello, silty substratum--	70	Somewhat limited Restricted permeability	Very limited Seepage	Not limited	Very limited Seepage	Not limited

Table 12.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields	Sewage lagoons	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
5909:						
Holder, loamy overblown---	25	Very limited Restricted permeability	Somewhat limited Seepage	Not limited	Not limited	Not limited
5914:						
Ortello------	85	Very limited Filtering capacity Restricted permeability	Very limited Seepage	Very limited Seepage Too sandy	Very limited Seepage	Very limited Seepage Too sandy
5985:						
Ovina--------	85	Very limited Depth to saturated zone Restricted permeability	Very limited Seepage Depth to saturated zone	Very limited Depth to saturated zone	Very limited Depth to saturated zone Seepage	Very limited Depth to saturated zone
6136:						
Platte, frequently flooded-----	60	Very limited Flooding Depth to saturated zone Filtering capacity	Very limited Flooding Seepage Depth to saturated zone	Very limited Flooding Depth to saturated zone Seepage Too sandy	Very limited Flooding Depth to saturated zone Seepage	Very limited Too sandy Seepage Depth to saturated zone
Alda, frequently flooded-----	35	Very limited Flooding Depth to saturated zone Filtering capacity	Very limited Flooding Seepage Depth to saturated zone	Very limited Flooding Depth to saturated zone Seepage Too sandy	Very limited Flooding Depth to saturated zone Seepage	Very limited Too sandy Seepage Depth to saturated zone
6139:						
Platte, occasionally flooded-----	50	Very limited Flooding Depth to saturated zone Filtering capacity	Very limited Flooding Seepage Depth to saturated zone	Very limited Flooding Depth to saturated zone Seepage Too sandy	Very limited Flooding Depth to saturated zone Seepage	Very limited Too sandy Seepage Depth to saturated zone
Bolent, occasionally flooded-----	45	Very limited Flooding Depth to saturated zone Filtering capacity	Very limited Flooding Seepage Depth to saturated zone	Very limited Flooding Depth to saturated zone Seepage Too sandy	Very limited Flooding Depth to saturated zone Seepage	Very limited Too sandy Seepage Depth to saturated zone

Table 12.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields	Sewage lagoons	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
6143:						
Platte, occasionally flooded	55	Very limited Flooding Depth to saturated zone Filtering capacity	Very limited Flooding Seepage Depth to saturated zone	Very limited Flooding Depth to saturated zone Seepage Too sandy	Very limited Flooding Depth to saturated zone Seepage	Very limited Too sandy Seepage Depth to saturated zone
Inavale, very rarely flooded	44	Very limited Filtering capacity Flooding	Very limited Seepage Slope Flooding	Very limited Seepage Too sandy Flooding	Very limited Seepage Flooding	Very limited Too sandy Seepage
6800:						
Scott	90	Very limited Restricted permeability Ponding Depth to saturated zone	Very limited Ponding	Very limited Depth to saturated zone Ponding Too clayey	Very limited Ponding Depth to saturated zone	Very limited Ponding Depth to saturated zone Hard to compact Too clayey
6956:						
Silver Creek, overblown, ponded	85	Very limited Restricted permeability Ponding Depth to saturated zone Filtering capacity	Very limited Ponding Depth to saturated zone Seepage	Very limited Depth to saturated zone Ponding Seepage Too clayey	Very limited Ponding Depth to saturated zone	Very limited Ponding Depth to saturated zone Seepage Too clayey
6957:						
Silver Creek, alkali	55	Very limited Restricted permeability Depth to saturated zone Flooding	Very limited Depth to saturated zone Flooding	Very limited Depth to saturated zone Too clayey Flooding	Very limited Depth to saturated zone Flooding	Somewhat limited Too clayey Depth to saturated zone
Silver Creek, saline, alkali	35	Very limited Restricted permeability Depth to saturated zone	Very limited Seepage Depth to saturated zone	Very limited Depth to saturated zone Seepage Sodium content Too clayey	Very limited Depth to saturated zone	Very limited Hard to compact Sodium content Too clayey

Table 12.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields	Sewage lagoons	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
6978:						
Simeon-------	70	Very limited Filtering capacity	Very limited Seepage	Very limited Seepage Too sandy	Very limited Seepage	Very limited Too sandy Seepage Gravel content
7225:						
Thurman------	85	Very limited Filtering capacity	Very limited Seepage	Very limited Seepage Too sandy	Very limited Seepage	Very limited Too sandy Seepage
7249:						
Thurman, loamy substratum--	90	Very limited Filtering capacity	Very limited Seepage Slope	Very limited Too sandy Seepage	Very limited Seepage	Very limited Too sandy Seepage
7250:						
Thurman, loamy substratum--	90	Very limited Filtering capacity	Very limited Seepage	Very limited Seepage Too sandy	Very limited Seepage	Somewhat limited Seepage Too sandy
7429:						
Uly, eroded--	85	Somewhat limited Restricted permeability	Somewhat limited Seepage	Not limited	Not limited	Not limited
7436:						
Uly, eroded--	75	Somewhat limited Restricted permeability Slope	Very limited Slope Seepage	Somewhat limited Slope	Somewhat limited Slope	Somewhat limited Slope
Coly---------	20	Somewhat limited Restricted permeability	Very limited Slope Seepage	Not limited	Not limited	Not limited
7438:						
Uly, eroded--	90	Somewhat limited Restricted permeability	Somewhat limited Seepage Slope	Not limited	Not limited	Not limited
7439:						
Uly, eroded--	70	Somewhat limited Slope Restricted permeability	Very limited Slope Seepage	Somewhat limited Slope	Somewhat limited Slope	Somewhat limited Slope
Coly---------	25	Very limited Slope Restricted permeability	Very limited Slope Seepage	Very limited Slope	Very limited Slope	Very limited Slope
7440:						
Uly----------	65	Somewhat limited Slope Restricted permeability	Very limited Slope Seepage	Somewhat limited Slope	Somewhat limited Slope	Somewhat limited Slope

Table 12.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields	Sewage lagoons	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
7440:						
Hobbs, occasionally flooded-----	20	Very limited Flooding Restricted permeability	Very limited Flooding Seepage	Very limited Flooding	Very limited Flooding	Not limited
7652:						
Valentine----	95	Very limited Filtering capacity	Very limited Seepage Slope	Very limited Seepage Too sandy	Very limited Seepage	Very limited Too sandy Seepage
7656:						
Valentine, rolling-----	95	Very limited Slope Filtering capacity	Very limited Slope Seepage	Very limited Seepage Too sandy Slope	Very limited Seepage Slope	Very limited Too sandy Seepage Slope
7659:						
Valentine, rolling-----	60	Very limited Slope Filtering capacity	Very limited Slope Seepage	Very limited Seepage Too sandy Slope	Very limited Seepage Slope	Very limited Too sandy Seepage Slope
Valentine, hilly-------	38	Very limited Slope Filtering capacity	Very limited Slope Seepage	Very limited Slope Seepage Too sandy	Very limited Slope Seepage	Very limited Slope Too sandy Seepage
7662:						
Valentine----	90	Very limited Filtering capacity	Very limited Seepage Slope	Very limited Seepage Too sandy	Very limited Seepage	Very limited Too sandy Seepage
7664:						
Valentine----	90	Very limited Slope Filtering capacity	Very limited Slope Seepage	Very limited Seepage Too sandy Slope	Very limited Seepage Slope	Very limited Too sandy Seepage Slope
7669:						
Valentine, loamy substratum--	80	Very limited Filtering capacity Restricted permeability	Very limited Seepage	Very limited Seepage Too sandy	Very limited Seepage	Very limited Too sandy Seepage
7721:						
Valentine----	60	Very limited Filtering capacity	Very limited Seepage Slope	Very limited Seepage Too sandy	Very limited Seepage	Very limited Too sandy Seepage

Table 12.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields	Sewage lagoons	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
7721:						
Libory-------	35	Very limited Depth to saturated zone Restricted permeability Filtering capacity	Very limited Seepage Depth to saturated zone	Very limited Too sandy Depth to saturated zone	Very limited Seepage Depth to saturated zone	Somewhat limited Depth to saturated zone Too sandy
7748:						
Valentine----	65	Very limited Filtering capacity	Very limited Seepage Slope	Very limited Seepage Too sandy	Very limited Seepage	Very limited Too sandy Seepage
Tryon, silty substratum, wet---------	25	Very limited Ponding Depth to saturated zone Restricted permeability Filtering capacity	Very limited Ponding Seepage Depth to saturated zone	Very limited Depth to saturated zone Ponding Too sandy	Very limited Ponding Depth to saturated zone Seepage	Very limited Ponding Depth to saturated zone Too sandy
7924:						
Wann, rarely flooded-----	90	Very limited Depth to saturated zone Restricted permeability Flooding	Very limited Seepage Depth to saturated zone Flooding	Very limited Depth to saturated zone Seepage Flooding	Very limited Depth to saturated zone Seepage Flooding	Somewhat limited Seepage Depth to saturated zone
7927:						
Wann, rarely flooded-----	90	Very limited Depth to saturated zone Filtering capacity Flooding	Very limited Seepage Depth to saturated zone Flooding	Very limited Depth to saturated zone Seepage Flooding	Very limited Depth to saturated zone Seepage Flooding	Very limited Seepage Depth to saturated zone
8020:						
Wood River---	85	Very limited Restricted permeability Filtering capacity	Very limited Seepage	Very limited Seepage Sodium content Too clayey	Not limited	Very limited Seepage Hard to compact Sodium content Too clayey

Table 12.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields	Sewage lagoons	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
8022:						
Wood River, overblown	65	Very limited Restricted permeability Filtering capacity Depth to saturated zone	Very limited Seepage	Very limited Depth to saturated zone Seepage Sodium content	Very limited Depth to saturated zone	Very limited Hard to compact Sodium content
Silver Creek, overblown, alkali	20	Very limited Restricted permeability Ponding Depth to saturated zone Filtering capacity Flooding	Very limited Ponding Seepage Flooding	Very limited Depth to saturated zone Ponding Seepage Sodium content Flooding	Very limited Ponding Depth to saturated zone Flooding	Very limited Ponding Depth to saturated zone Hard to compact Sodium content
8023:						
Wood River	55	Very limited Restricted permeability Filtering capacity	Not limited	Very limited Seepage Sodium content Too clayey	Not limited	Very limited Seepage Hard to compact Sodium content Too clayey
Silver Creek, alkali	40	Very limited Restricted permeability Depth to saturated zone Filtering capacity Flooding	Very limited Depth to saturated zone Flooding	Very limited Depth to saturated zone Seepage Too clayey Sodium content Flooding	Very limited Depth to saturated zone Flooding	Very limited Seepage Too clayey Sodium content Depth to saturated zone
9975:						
Sanitary landfill	100	Not rated	Not rated	Not rated	Not rated	Not rated
9985:						
Gravel pits	100	Not rated	Not rated	Not rated	Not rated	Not rated
9995:						
Miscellaneous water, sewage lagoons	100	Not rated	Not rated	Not rated	Not rated	Not rated
9998:						
Water	100	Not rated	Not rated	Not rated	Not rated	Not rated

Table 13.--Agricultural Waste Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table.)

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste	Application of sewage sludge	Disposal of wastewater by irrigation	Overland flow of wastewater	Rapid infiltration of wastewater	Slow rate treatment of wastewater
1102: Alda, rarely flooded-----	90	Very limited Filtering capacity Depth to saturated zone Sodium content	Very limited Filtering capacity Depth to saturated zone Flooding Sodium content	Very limited Filtering capacity Depth to saturated zone Sodium content	Very limited Seepage Depth to saturated zone Flooding Sodium content	Very limited Depth to saturated zone Restricted permeability	Very limited Filtering capacity Depth to saturated zone Sodium content
1104: Alda, rarely flooded-----	95	Very limited Filtering capacity Depth to saturated zone Sodium content	Very limited Filtering capacity Depth to saturated zone Flooding Sodium content	Very limited Filtering capacity Depth to saturated zone Sodium content	Very limited Seepage Depth to saturated zone Too level Flooding Sodium content	Very limited Depth to saturated zone Restricted permeability	Very limited Filtering capacity Depth to saturated zone Sodium content
1166: Almeria------	90	Very limited Depth to saturated zone Flooding Filtering capacity Runoff	Very limited Depth to saturated zone Flooding Filtering capacity	Very limited Depth to saturated zone Flooding Filtering capacity	Very limited Flooding Seepage Depth to saturated zone	Very limited Flooding Depth to saturated zone	Very limited Depth to saturated zone Flooding Filtering capacity
1348: Barney, frequently flooded-----	55	Very limited Filtering capacity Depth to saturated zone Flooding Restricted permeability Droughty	Very limited Filtering capacity Depth to saturated zone Flooding Droughty Restricted permeability	Very limited Filtering capacity Depth to saturated zone Flooding Droughty Restricted permeability	Very limited Flooding Depth to saturated zone Seepage	Very limited Flooding Restricted permeability Depth to saturated zone	Very limited Filtering capacity Depth to saturated zone Flooding Restricted permeability
Barney, wet, channeled---	40	Very limited Filtering capacity Depth to saturated zone Flooding Restricted permeability Runoff	Very limited Filtering capacity Depth to saturated zone Flooding Restricted permeability Droughty	Very limited Filtering capacity Depth to saturated zone Flooding Restricted permeability Droughty	Very limited Flooding Seepage Depth to saturated zone	Very limited Flooding Restricted permeability Depth to saturated zone	Very limited Filtering capacity Depth to saturated zone Flooding Restricted permeability

Table 13.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste	Application of sewage sludge	Disposal of wastewater by irrigation	Overland flow of wastewater	Rapid infiltration of wastewater	Slow rate treatment of wastewater
1354:							
Barney, frequently flooded-----	60	Very limited Filtering capacity Depth to saturated zone Flooding Depth to dense layer Droughty	Very limited Filtering capacity Depth to saturated zone Flooding Droughty Restricted permeability	Very limited Filtering capacity Depth to saturated zone Flooding Droughty Restricted permeability	Very limited Flooding Depth to saturated zone Seepage	Very limited Flooding Restricted permeability Depth to saturated zone	Very limited Filtering capacity Depth to saturated zone Flooding Restricted permeability
Bolent, occasionally flooded-----	35	Very limited Filtering capacity Depth to saturated zone Flooding Leaching	Very limited Filtering capacity Flooding Depth to saturated zone	Very limited Filtering capacity Depth to saturated zone	Very limited Flooding Seepage Depth to saturated zone	Very limited Depth to saturated zone Restricted permeability Flooding	Very limited Filtering capacity Depth to saturated zone Flooding
1547:							
Blendon------	85	Very limited Filtering capacity Too acid	Very limited Filtering capacity Too acid	Very limited Filtering capacity Too acid	Very limited Seepage Too level Too acid	Very limited Restricted permeability	Very limited Filtering capacity Too acid
1669:							
Boelus, sandy substratum--	35	Very limited Filtering capacity Leaching Too acid	Very limited Filtering capacity Too acid	Very limited Filtering capacity Too acid	Very limited Seepage Too acid	Very limited Restricted permeability	Very limited Filtering capacity Too acid
O'Neill------	35	Very limited Filtering capacity Depth to dense layer Too acid	Very limited Filtering capacity Too acid	Very limited Filtering capacity Too acid	Very limited Seepage Too acid Too level	Very limited Restricted permeability	Very limited Filtering capacity Too acid
Pivot, loamy surface-----	15	Very limited Filtering capacity Leaching Too acid Droughty	Very limited Filtering capacity Too acid Droughty	Very limited Filtering capacity Too acid Droughty	Very limited Seepage Too acid	Somewhat limited Restricted permeability	Very limited Filtering capacity Too acid

Table 13.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste	Application of sewage sludge	Disposal of wastewater by irrigation	Overland flow of wastewater	Rapid infiltration of wastewater	Slow rate treatment of wastewater
1678: Bolent, occasionally flooded-----	85	Very limited Filtering capacity Depth to saturated zone Flooding Leaching Droughty	Very limited Filtering capacity Flooding Depth to saturated zone Droughty	Very limited Filtering capacity Depth to saturated zone Flooding Droughty	Very limited Flooding Seepage Depth to saturated zone	Very limited Depth to saturated zone Restricted permeability Flooding	Very limited Filtering capacity Depth to saturated zone Flooding
1680: Bolent, occasionally flooded-----	85	Very limited Filtering capacity Depth to saturated zone Flooding Leaching	Very limited Filtering capacity Flooding Depth to saturated zone	Very limited Filtering capacity Depth to saturated zone Flooding	Very limited Flooding Seepage Depth to saturated zone	Very limited Depth to saturated zone Flooding Restricted permeability	Very limited Filtering capacity Depth to saturated zone Flooding
1688: Bolent, occasionally flooded-----	90	Very limited Filtering capacity Depth to saturated zone Flooding Leaching Droughty	Very limited Filtering capacity Flooding Depth to saturated zone Droughty	Very limited Filtering capacity Depth to saturated zone Flooding Droughty	Very limited Flooding Seepage Depth to saturated zone	Very limited Depth to saturated zone Flooding	Very limited Filtering capacity Depth to saturated zone Flooding
1704: Bolent, occasionally flooded-----	65	Very limited Filtering capacity Depth to saturated zone Flooding Leaching Droughty	Very limited Filtering capacity Flooding Depth to saturated zone Droughty	Very limited Filtering capacity Depth to saturated zone Flooding Droughty	Very limited Flooding Seepage Depth to saturated zone	Very limited Depth to saturated zone Restricted permeability Flooding	Very limited Filtering capacity Depth to saturated zone Flooding
Calamus, rarely flooded-----	30	Very limited Filtering capacity Leaching Too acid	Very limited Filtering capacity Flooding Too acid	Very limited Filtering capacity Too acid	Very limited Seepage Flooding Too acid	Very limited Depth to saturated zone	Very limited Filtering capacity Too acid

Table 13.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste	Application of sewage sludge	Disposal of wastewater by irrigation	Overland flow of wastewater	Rapid infiltration of wastewater	Slow rate treatment of wastewater
1796:							
Brocksburg---	85	Very limited Filtering capacity Restricted permeability Too acid	Very limited Filtering capacity Too acid Restricted permeability	Very limited Filtering capacity Too acid Restricted permeability	Very limited Seepage Too level Too acid	Very limited Restricted permeability	Very limited Filtering capacity Too acid Restricted permeability
1930:							
Butler-------	94	Very limited Restricted permeability Depth to saturated zone Runoff Too acid	Very limited Restricted permeability Depth to saturated zone Too acid	Very limited Restricted permeability Depth to saturated zone Too acid	Very limited Seepage Depth to saturated zone Too level Too acid	Very limited Restricted permeability Depth to saturated zone	Very limited Depth to saturated zone Restricted permeability Too acid
1942: Calamus, rarely flooded-----	95	Very limited Filtering capacity Leaching	Very limited Filtering capacity Flooding	Very limited Filtering capacity	Very limited Seepage Flooding	Very limited Depth to saturated zone	Very limited Filtering capacity
2020: Caruso, rarely flooded-----	85	Somewhat limited Depth to saturated zone Restricted permeability Filtering capacity	Somewhat limited Depth to saturated zone Flooding Restricted permeability Filtering capacity	Somewhat limited Depth to saturated zone Restricted permeability Filtering capacity	Very limited Seepage Depth to saturated zone Too level Flooding	Very limited Restricted permeability Depth to saturated zone	Somewhat limited Depth to saturated zone Restricted permeability Filtering capacity
2168:							
Coly---------	90	Very limited Slope	Very limited Slope	Very limited Too steep for surface application Too steep for sprinkler application	Very limited Seepage Too steep for surface application	Very limited Slope Restricted permeability	Very limited Too steep for surface application Too steep for sprinkler application
2223:							
Cozad--------	95	Not limited	Not limited	Not limited	Very limited Seepage Too level	Very limited Restricted permeability	Not limited
2238: Cozad, sandy substratum--	80	Very limited Filtering capacity Too acid	Very limited Filtering capacity Too acid	Very limited Filtering capacity Too acid	Very limited Seepage Too acid	Very limited Restricted permeability	Very limited Filtering capacity Too acid

Table 13.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste	Application of sewage sludge	Disposal of wastewater by irrigation	Overland flow of wastewater	Rapid infiltration of wastewater	Slow rate treatment of wastewater
2240:							
Cozad, sandy substratum--	60	Very limited Filtering capacity Too acid	Very limited Filtering capacity Too acid	Very limited Filtering capacity Too acid	Very limited Seepage Too acid	Very limited Restricted permeability	Very limited Filtering capacity Too acid
Hobbs, occasionally flooded-----	30	Somewhat limited Flooding	Very limited Flooding	Somewhat limited Flooding	Very limited Flooding Seepage	Very limited Restricted permeability Flooding	Somewhat limited Flooding
2371:							
Cullison-----	85	Very limited Depth to saturated zone Filtering capacity Restricted permeability Runoff	Very limited Depth to saturated zone Filtering capacity Restricted permeability	Very limited Depth to saturated zone Filtering capacity Restricted permeability	Very limited Seepage Depth to saturated zone Too level	Very limited Restricted permeability Depth to saturated zone	Very limited Depth to saturated zone Filtering capacity Restricted permeability
2415:							
Darr, very rarely flooded-----	95	Very limited Filtering capacity Too acid	Very limited Filtering capacity Flooding Too acid	Very limited Filtering capacity Too acid	Very limited Seepage Flooding Too acid	Somewhat limited Restricted permeability	Very limited Filtering capacity Too acid
2430:							
Detroit------	95	Very limited Restricted permeability Too acid	Very limited Restricted permeability Too acid	Very limited Restricted permeability Too acid	Very limited Seepage Too acid	Very limited Restricted permeability	Very limited Restricted permeability Too acid
2731:							
Els----------	50	Very limited Filtering capacity Depth to saturated zone Leaching Too acid	Very limited Filtering capacity Depth to saturated zone Too acid	Very limited Filtering capacity Depth to saturated zone Too acid	Very limited Seepage Depth to saturated zone Too acid	Very limited Depth to saturated zone Restricted permeability	Very limited Filtering capacity Depth to saturated zone Too acid
Tryon--------	40	Very limited Depth to saturated zone Filtering capacity Runoff	Very limited Depth to saturated zone Filtering capacity	Very limited Depth to saturated zone Filtering capacity	Very limited Seepage Depth to saturated zone	Very limited Depth to saturated zone Restricted permeability	Very limited Depth to saturated zone Filtering capacity

Table 13.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste	Application of sewage sludge	Disposal of wastewater by irrigation	Overland flow of wastewater	Rapid infiltration of wastewater	Slow rate treatment of wastewater
2846:							
Fillmore-----	80	Very limited Restricted permeability Ponding Depth to saturated zone Runoff Too acid	Very limited Restricted permeability Ponding Depth to saturated zone Too acid	Very limited Restricted permeability Ponding Depth to saturated zone Too acid	Very limited Ponding Depth to saturated zone Seepage Too acid	Very limited Ponding Restricted permeability Depth to saturated zone	Very limited Ponding Depth to saturated zone Restricted permeability Too acid
2918:							
Gates--------	80	Not limited	Not limited	Not limited	Very limited Seepage Too level	Very limited Restricted permeability	Not limited
2920:							
Gates--------	75	Not limited	Not limited	Not limited	Very limited Seepage	Very limited Restricted permeability	Not limited
2924:							
Gates--------	85	Not limited	Not limited	Somewhat limited Too steep for surface application	Very limited Seepage	Very limited Restricted permeability Slope	Somewhat limited Too steep for surface application
2925:							
Gates, eroded------	95	Not limited	Not limited	Somewhat limited Too steep for surface application	Very limited Seepage	Very limited Restricted permeability Slope	Somewhat limited Too steep for surface application
2927:							
Gates--------	75	Somewhat limited Slope	Somewhat limited Slope	Very limited Too steep for surface application Too steep for sprinkler application	Very limited Seepage Too steep for surface application	Very limited Restricted permeability Slope	Very limited Too steep for surface application Too steep for sprinkler application
2940:							
Gates, overblown---	85	Somewhat limited Too acid Filtering capacity	Somewhat limited Too acid Filtering capacity	Somewhat limited Too acid Filtering capacity	Very limited Seepage Too level Too acid	Very limited Restricted permeability	Somewhat limited Too acid Filtering capacity
2972:							
Gayville-----	85	Very limited Sodium content Restricted permeability Filtering capacity Salinity	Very limited Sodium content Restricted permeability Filtering capacity	Very limited Sodium content Restricted permeability Filtering capacity	Very limited Seepage Sodium content	Very limited Restricted permeability Depth to saturated zone	Very limited Sodium content Restricted permeability Filtering capacity

Table 13.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste	Application of sewage sludge	Disposal of wastewater by irrigation	Overland flow of wastewater	Rapid infiltration of wastewater	Slow rate treatment of wastewater
3023: Gibbon, rarely flooded	90	Somewhat limited Depth to saturated zone Restricted permeability Filtering capacity	Somewhat limited Depth to saturated zone Flooding Restricted permeability Filtering capacity	Somewhat limited Depth to saturated zone Restricted permeability Filtering capacity	Very limited Seepage Depth to saturated zone Too level Flooding	Very limited Restricted permeability Depth to saturated zone	Somewhat limited Depth to saturated zone Restricted permeability Filtering capacity
3045: Gibbon, saline, rarely flooded	80	Somewhat limited Depth to saturated zone Restricted permeability	Somewhat limited Depth to saturated zone Flooding Restricted permeability	Somewhat limited Depth to saturated zone Restricted permeability	Very limited Seepage Depth to saturated zone Too level Flooding	Very limited Restricted permeability Depth to saturated zone	Somewhat limited Depth to saturated zone Restricted permeability
3140: Gothenburg, frequently flooded	80	Very limited Filtering capacity Depth to saturated zone Flooding Droughty Runoff	Very limited Filtering capacity Depth to saturated zone Flooding Droughty	Very limited Filtering capacity Depth to saturated zone Flooding Droughty	Very limited Flooding Seepage Depth to saturated zone	Very limited Flooding Depth to saturated zone Restricted permeability	Very limited Filtering capacity Depth to saturated zone Flooding
3290: Hall	90	Somewhat limited Restricted permeability	Somewhat limited Restricted permeability	Somewhat limited Restricted permeability	Very limited Seepage Too level	Very limited Restricted permeability	Somewhat limited Restricted permeability
3293: Hall, eroded	95	Somewhat limited Restricted permeability	Somewhat limited Restricted permeability	Somewhat limited Restricted permeability	Very limited Seepage	Very limited Restricted permeability	Somewhat limited Restricted permeability
3294: Hall, eroded	80	Somewhat limited Restricted permeability	Somewhat limited Restricted permeability	Somewhat limited Restricted permeability Too steep for surface application	Very limited Seepage	Very limited Restricted permeability	Somewhat limited Restricted permeability Too steep for surface application
3300: Hall, sandy substratum	95	Somewhat limited Restricted permeability	Somewhat limited Restricted permeability	Somewhat limited Restricted permeability	Very limited Seepage Too level	Very limited Restricted permeability	Somewhat limited Restricted permeability

Table 13.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste	Application of sewage sludge	Disposal of wastewater by irrigation	Overland flow of wastewater	Rapid infiltration of wastewater	Slow rate treatment of wastewater
3301:							
Hall, eroded-	70	Somewhat limited Restricted permeability	Somewhat limited Flooding Restricted permeability	Somewhat limited Restricted permeability	Very limited Seepage Flooding	Very limited Restricted permeability	Somewhat limited Restricted permeability
Hobbs, occasionally flooded-----	25	Somewhat limited Flooding	Very limited Flooding	Somewhat limited Flooding	Very limited Flooding Seepage	Very limited Restricted permeability Flooding	Somewhat limited Flooding
3330:							
Hastings-----	95	Very limited Restricted permeability Too acid	Very limited Restricted permeability Too acid	Very limited Restricted permeability Too acid	Very limited Seepage Too acid	Very limited Restricted permeability	Very limited Restricted permeability Too acid
3331:							
Hastings-----	95	Very limited Restricted permeability Too acid	Very limited Restricted permeability Too acid	Very limited Restricted permeability Too acid	Very limited Seepage Too acid	Very limited Restricted permeability	Very limited Restricted permeability Too acid
3478:							
Hersh--------	90	Somewhat limited Filtering capacity	Somewhat limited Filtering capacity	Somewhat limited Too steep for surface application Filtering capacity	Very limited Seepage	Very limited Restricted permeability Slope	Somewhat limited Too steep for surface application Filtering capacity
3532:							
Hobbs, occasionally flooded-----	90	Somewhat limited Flooding	Very limited Flooding	Somewhat limited Flooding	Very limited Flooding Seepage	Very limited Restricted permeability Flooding	Somewhat limited Flooding
3537:							
Hobbs, frequently flooded-----	75	Very limited Flooding Filtering capacity	Very limited Flooding Filtering capacity	Very limited Flooding Filtering capacity	Very limited Flooding Seepage	Very limited Flooding Restricted permeability	Very limited Flooding Filtering capacity
3568:							
Holder, overblown---	80	Somewhat limited Restricted permeability Too acid	Somewhat limited Restricted permeability Too acid	Somewhat limited Restricted permeability Too acid	Very limited Seepage Too acid	Very limited Restricted permeability	Somewhat limited Restricted permeability Too acid
3570:							
Holder-------	85	Somewhat limited Restricted permeability Too acid	Somewhat limited Restricted permeability Too acid	Somewhat limited Restricted permeability Too acid	Very limited Seepage Too level Too acid	Very limited Restricted permeability	Somewhat limited Restricted permeability Too acid

Table 13.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste	Application of sewage sludge	Disposal of wastewater by irrigation	Overland flow of wastewater	Rapid infiltration of wastewater	Slow rate treatment of wastewater
3571:							
Holder-------	95	Somewhat limited Restricted permeability Too acid	Somewhat limited Restricted permeability Too acid	Somewhat limited Restricted permeability Too acid	Very limited Seepage Too acid	Very limited Restricted permeability	Somewhat limited Restricted permeability Too acid
3578:							
Holder, severely eroded------	80	Somewhat limited Restricted permeability Too acid	Somewhat limited Restricted permeability Too acid	Somewhat limited Too steep for surface application Restricted permeability Too acid Too steep for sprinkler application	Somewhat limited Seepage Too acid Too steep for surface application	Very limited Restricted permeability Slope	Somewhat limited Too steep for surface application Restricted permeability Too acid Too steep for sprinkler application
3580:							
Holder, eroded------	80	Somewhat limited Restricted permeability Too acid	Somewhat limited Restricted permeability Too acid	Somewhat limited Restricted permeability Too steep for surface application Too acid	Somewhat limited Seepage Too acid	Very limited Restricted permeability	Somewhat limited Restricted permeability Too steep for surface application Too acid
3598:							
Holdrege, eroded------	75	Somewhat limited Restricted permeability	Somewhat limited Restricted permeability	Somewhat limited Too steep for surface application Restricted permeability	Somewhat limited Seepage	Very limited Restricted permeability Slope	Somewhat limited Too steep for surface application Restricted permeability
3616:							
Holdrege, overblown---	93	Not limited	Not limited	Not limited	Very limited Seepage	Very limited Restricted permeability	Not limited
3770:							
Hord---------	90	Somewhat limited Filtering capacity	Somewhat limited Filtering capacity	Somewhat limited Filtering capacity	Very limited Seepage	Very limited Restricted permeability	Somewhat limited Filtering capacity
3771:							
Hord---------	90	Not limited	Not limited	Not limited	Very limited Seepage	Very limited Restricted permeability	Not limited
3772:							
Hord---------	90	Not limited	Not limited	Somewhat limited Too steep for surface application	Very limited Seepage	Very limited Restricted permeability Slope	Somewhat limited Too steep for surface application

Table 13.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste	Application of sewage sludge	Disposal of wastewater by irrigation	Overland flow of wastewater	Rapid infiltration of wastewater	Slow rate treatment of wastewater
3782:							
Hord, sandy substratum--	90	Very limited Filtering capacity Restricted permeability	Very limited Filtering capacity Restricted permeability	Very limited Filtering capacity Restricted permeability	Very limited Seepage Too level	Very limited Restricted permeability	Very limited Filtering capacity Restricted permeability
3869:							
Inavale, very rarely flooded-----	95	Very limited Filtering capacity Leaching	Very limited Filtering capacity Flooding	Very limited Filtering capacity	Very limited Seepage Flooding	Not limited	Very limited Filtering capacity
3875:							
Inavale, very rarely flooded-----	95	Very limited Filtering capacity Leaching Too acid	Very limited Filtering capacity Too acid Flooding	Very limited Filtering capacity Too acid Too steep for surface application	Very limited Seepage Too acid Flooding	Somewhat limited Slope	Very limited Filtering capacity Too acid Too steep for surface application
3927:							
Ipage--------	85	Very limited Filtering capacity Leaching Too acid	Very limited Filtering capacity Too acid	Very limited Filtering capacity Too acid	Very limited Seepage Too acid	Very limited Depth to saturated zone	Very limited Filtering capacity Too acid
3948:							
Ipage, silty substratum--	70	Very limited Filtering capacity Leaching Restricted permeability Too acid Droughty	Very limited Filtering capacity Too acid Restricted permeability Droughty	Very limited Filtering capacity Too acid Restricted permeability Droughty	Very limited Seepage Too acid	Very limited Restricted permeability Depth to saturated zone	Very limited Filtering capacity Too acid Restricted permeability
Tryon, silty substratum, wet---------	25	Very limited Ponding Depth to saturated zone Filtering capacity Leaching Restricted permeability	Very limited Ponding Depth to saturated zone Filtering capacity Restricted permeability Too acid	Very limited Ponding Depth to saturated zone Filtering capacity Restricted permeability Too acid	Very limited Seepage Ponding Depth to saturated zone Too level Too acid	Very limited Ponding Restricted permeability Depth to saturated zone	Very limited Ponding Depth to saturated zone Filtering capacity Restricted permeability Too acid

Table 13.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste	Application of sewage sludge	Disposal of wastewater by irrigation	Overland flow of wastewater	Rapid infiltration of wastewater	Slow rate treatment of wastewater
3993:							
Jansen, overblown---	80	Very limited Filtering capacity Restricted permeability Too acid	Very limited Filtering capacity Restricted permeability Too acid	Very limited Filtering capacity Restricted permeability Too acid	Very limited Seepage Too level Too acid	Very limited Restricted permeability	Very limited Filtering capacity Restricted permeability Too acid
4019:							
Janude, sandy substratum, very rarely flooded-----	80	Very limited Filtering capacity Too acid	Very limited Filtering capacity Flooding Too acid	Very limited Filtering capacity Too acid	Very limited Seepage Flooding Too acid	Very limited Depth to saturated zone Restricted permeability	Very limited Filtering capacity Too acid
4020:							
Janude, calcareous, very rarely flooded-----	90	Very limited Filtering capacity	Very limited Filtering capacity Low adsorption Flooding	Very limited Filtering capacity	Very limited Seepage Too level Flooding	Very limited Depth to saturated zone Restricted permeability	Very limited Filtering capacity
4417:							
Lamo, sand substratum, rarely flooded-----	85	Very limited Filtering capacity Depth to saturated zone Restricted permeability	Very limited Filtering capacity Depth to saturated zone Flooding Restricted permeability	Very limited Filtering capacity Depth to saturated zone Restricted permeability	Very limited Seepage Depth to saturated zone Too level Flooding	Very limited Restricted permeability Depth to saturated zone	Very limited Filtering capacity Depth to saturated zone Restricted permeability
4586:							
Lex, rarely flooded-----	85	Very limited Filtering capacity Depth to saturated zone	Very limited Filtering capacity Depth to saturated zone Flooding	Very limited Filtering capacity Depth to saturated zone	Very limited Seepage Depth to saturated zone Too level Flooding	Very limited Depth to saturated zone Restricted permeability	Very limited Filtering capacity Depth to saturated zone

Table 13.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste	Application of sewage sludge	Disposal of wastewater by irrigation	Overland flow of wastewater	Rapid infiltration of wastewater	Slow rate treatment of wastewater
4613:							
Libory-------	85	Very limited Depth to saturated zone Filtering capacity Leaching Restricted permeability Too acid	Very limited Depth to saturated zone Filtering capacity Too acid Restricted permeability	Very limited Depth to saturated zone Filtering capacity Too acid Restricted permeability	Very limited Seepage Depth to saturated zone Too acid	Very limited Restricted permeability Depth to saturated zone	Very limited Depth to saturated zone Filtering capacity Too acid Restricted permeability
4650:							
Lockton------	90	Very limited Filtering capacity Too acid Depth to saturated zone	Very limited Filtering capacity Too acid Depth to saturated zone	Very limited Filtering capacity Too acid Depth to saturated zone	Very limited Seepage Too acid Depth to saturated zone	Very limited Depth to saturated zone Restricted permeability	Very limited Filtering capacity Too acid Depth to saturated zone
4744:							
Loup, loamy substratum--	90	Very limited Depth to saturated zone Restricted permeability Filtering capacity Leaching	Very limited Depth to saturated zone Restricted permeability Filtering capacity	Very limited Depth to saturated zone Restricted permeability Filtering capacity	Very limited Seepage Depth to saturated zone	Very limited Restricted permeability Depth to saturated zone	Very limited Depth to saturated zone Filtering capacity Restricted permeability
4932:							
Marlake------	80	Very limited Ponding Depth to saturated zone Filtering capacity Restricted permeability Runoff	Very limited Ponding Depth to saturated zone Filtering capacity Too acid Restricted permeability	Very limited Ponding Depth to saturated zone Filtering capacity Too acid Restricted permeability	Very limited Seepage Ponding Depth to saturated zone Too level Too acid	Very limited Ponding Restricted permeability Depth to saturated zone	Very limited Ponding Depth to saturated zone Filtering capacity Too acid Restricted permeability
5705:							
O'Neill------	50	Very limited Filtering capacity Depth to dense layer Too acid	Very limited Filtering capacity Too acid	Very limited Filtering capacity Too acid	Very limited Seepage Too level Too acid	Very limited Restricted permeability	Very limited Filtering capacity Too acid
Pivot, loamy surface-----	35	Very limited Filtering capacity Leaching Droughty Too acid	Very limited Filtering capacity Too acid Droughty	Very limited Filtering capacity Too acid Droughty	Very limited Seepage Too acid	Somewhat limited Restricted permeability	Very limited Filtering capacity Too acid

Table 13.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste	Application of sewage sludge	Disposal of wastewater by irrigation	Overland flow of wastewater	Rapid infiltration of wastewater	Slow rate treatment of wastewater
5713:							
O'Neill------	90	Very limited Filtering capacity Depth to dense layer Too acid	Very limited Filtering capacity Too acid	Very limited Filtering capacity Too acid Too steep for surface application	Very limited Seepage Too acid	Very limited Restricted permeability	Very limited Filtering capacity Too acid Too steep for surface application
5905:							
Ortello, silty substratum--	85	Very limited Filtering capacity Restricted permeability	Very limited Filtering capacity Restricted permeability	Very limited Filtering capacity Restricted permeability	Very limited Seepage	Very limited Restricted permeability	Very limited Filtering capacity Restricted permeability
5909:							
Ortello, silty substratum--	70	Somewhat limited Filtering capacity	Somewhat limited Filtering capacity	Somewhat limited Filtering capacity	Very limited Seepage	Very limited Restricted permeability	Somewhat limited Filtering capacity
Holder, loamy overblown---	25	Somewhat limited Restricted permeability Too acid	Somewhat limited Restricted permeability Too acid	Somewhat limited Restricted permeability Too acid	Very limited Seepage Too acid	Very limited Restricted permeability	Somewhat limited Restricted permeability Too acid
5914:							
Ortello------	85	Very limited Filtering capacity Too acid	Very limited Filtering capacity Too acid	Very limited Filtering capacity Too acid	Very limited Seepage Too level Too acid	Very limited Restricted permeability	Very limited Filtering capacity Too acid
5985:							
Ovina--------	85	Very limited Depth to saturated zone Filtering capacity Restricted permeability	Very limited Depth to saturated zone Filtering capacity Restricted permeability	Very limited Depth to saturated zone Filtering capacity Restricted permeability	Very limited Seepage Depth to saturated zone	Very limited Restricted permeability Depth to saturated zone	Very limited Depth to saturated zone Filtering capacity Restricted permeability
6136:							
Platte, frequently flooded-----	60	Very limited Filtering capacity Flooding Depth to saturated zone Droughty	Very limited Filtering capacity Flooding Depth to saturated zone Droughty	Very limited Filtering capacity Flooding Depth to saturated zone Droughty	Very limited Flooding Seepage Depth to saturated zone	Very limited Flooding Depth to saturated zone Restricted permeability	Very limited Filtering capacity Flooding Depth to saturated zone

Table 13.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste	Application of sewage sludge	Disposal of wastewater by irrigation	Overland flow of wastewater	Rapid infiltration of wastewater	Slow rate treatment of wastewater
6136:							
Alda, frequently flooded-----	35	Very limited Filtering capacity Flooding Depth to saturated zone Sodium content	Very limited Filtering capacity Flooding Depth to saturated zone Sodium content	Very limited Filtering capacity Flooding Depth to saturated zone Sodium content	Very limited Flooding Seepage Depth to saturated zone Sodium content	Very limited Flooding Depth to saturated zone Restricted permeability	Very limited Filtering capacity Flooding Depth to saturated zone Sodium content
6139:							
Platte, occasionally flooded-----	50	Very limited Filtering capacity Depth to saturated zone Flooding	Very limited Filtering capacity Flooding Depth to saturated zone	Very limited Filtering capacity Depth to saturated zone Flooding	Very limited Flooding Seepage Depth to saturated zone	Very limited Depth to saturated zone Restricted permeability Flooding	Very limited Filtering capacity Depth to saturated zone Flooding
Bolent, occasionally flooded-----	45	Very limited Filtering capacity Depth to saturated zone Flooding Leaching Droughty	Very limited Filtering capacity Flooding Depth to saturated zone Droughty	Very limited Filtering capacity Depth to saturated zone Flooding Droughty	Very limited Flooding Seepage Depth to saturated zone	Very limited Depth to saturated zone Flooding Restricted permeability	Very limited Filtering capacity Depth to saturated zone Flooding
6143:							
Platte, occasionally flooded-----	55	Very limited Filtering capacity Depth to saturated zone Droughty Flooding	Very limited Filtering capacity Flooding Depth to saturated zone Droughty	Very limited Filtering capacity Depth to saturated zone Droughty Flooding	Very limited Flooding Seepage Depth to saturated zone	Very limited Depth to saturated zone Restricted permeability Flooding	Very limited Filtering capacity Depth to saturated zone Flooding
Inavale, very rarely flooded-----	44	Very limited Filtering capacity Leaching	Very limited Filtering capacity Flooding	Very limited Filtering capacity Too steep for surface application	Very limited Seepage Flooding	Somewhat limited Slope	Very limited Filtering capacity Too steep for surface application

Table 13.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste	Application of sewage sludge	Disposal of wastewater by irrigation	Overland flow of wastewater	Rapid infiltration of wastewater	Slow rate treatment of wastewater
6800:							
Scott	90	Very limited Restricted permeability Ponding Depth to saturated zone Runoff Too acid	Very limited Restricted permeability Ponding Depth to saturated zone Too acid	Very limited Restricted permeability Ponding Depth to saturated zone Too acid	Very limited Ponding Depth to saturated zone Seepage Too acid	Very limited Ponding Restricted permeability Depth to saturated zone	Very limited Ponding Depth to saturated zone Restricted permeability Too acid
6956:							
Silver Creek, overblown, ponded	85	Very limited Restricted permeability Ponding Depth to saturated zone Sodium content Runoff	Very limited Restricted permeability Ponding Depth to saturated zone Sodium content Filtering capacity	Very limited Restricted permeability Ponding Depth to saturated zone Sodium content Filtering capacity	Very limited Seepage Ponding Depth to saturated zone Too level Sodium content	Very limited Ponding Restricted permeability Depth to saturated zone	Very limited Ponding Depth to saturated zone Restricted permeability Sodium content Filtering capacity
6957:							
Silver Creek, alkali	55	Very limited Restricted permeability Sodium content Depth to saturated zone Runoff	Very limited Restricted permeability Sodium content Depth to saturated zone Flooding	Very limited Restricted permeability Sodium content Depth to saturated zone	Very limited Seepage Sodium content Depth to saturated zone Too level Flooding	Very limited Restricted permeability Depth to saturated zone	Very limited Restricted permeability Sodium content Depth to saturated zone
Silver Creek, saline, alkali	35	Very limited Restricted permeability Sodium content Runoff Salinity Filtering capacity	Very limited Restricted permeability Sodium content Filtering capacity	Very limited Restricted permeability Sodium content Filtering capacity	Very limited Seepage Sodium content	Very limited Restricted permeability Depth to saturated zone	Very limited Sodium content Restricted permeability Filtering capacity
6978:							
Simeon	70	Very limited Filtering capacity Droughty Leaching Too acid	Very limited Filtering capacity Droughty Too acid	Very limited Filtering capacity Droughty Too acid	Very limited Seepage Too acid	Somewhat limited Restricted permeability	Very limited Filtering capacity Too acid
7225:							
Thurman	85	Very limited Filtering capacity Leaching	Very limited Filtering capacity	Very limited Filtering capacity	Very limited Seepage	Somewhat limited Restricted permeability	Very limited Filtering capacity

Table 13.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste	Application of sewage sludge	Disposal of wastewater by irrigation	Overland flow of wastewater	Rapid infiltration of wastewater	Slow rate treatment of wastewater
7249:							
Thurman, loamy substratum--	90	Very limited Filtering capacity Leaching	Very limited Filtering capacity	Very limited Filtering capacity Too steep for surface application	Very limited Seepage	Somewhat limited Restricted permeability	Very limited Filtering capacity Too steep for surface application
7250:							
Thurman, loamy substratum--	90	Very limited Filtering capacity Leaching	Very limited Filtering capacity	Very limited Filtering capacity	Very limited Seepage	Somewhat limited Restricted permeability	Very limited Filtering capacity
7429:							
Uly, eroded--	85	Not limited	Not limited	Not limited	Very limited Seepage	Very limited Restricted permeability	Not limited
7436:							
Uly, eroded--	75	Somewhat limited Slope	Somewhat limited Slope	Very limited Too steep for surface application Too steep for sprinkler application	Very limited Seepage Too steep for surface application	Very limited Restricted permeability Slope	Very limited Too steep for surface application Too steep for sprinkler application
Coly---------	20	Not limited	Not limited	Somewhat limited Too steep for surface application Too steep for sprinkler application	Very limited Seepage Too steep for surface application	Very limited Restricted permeability Slope	Somewhat limited Too steep for surface application Too steep for sprinkler application
7438:							
Uly, eroded--	90	Not limited	Not limited	Somewhat limited Too steep for surface application	Very limited Seepage	Very limited Restricted permeability	Somewhat limited Too steep for surface application
7439:							
Uly, eroded--	70	Somewhat limited Slope	Somewhat limited Slope	Very limited Too steep for surface application Too steep for sprinkler application	Very limited Seepage Too steep for surface application	Very limited Slope Restricted permeability	Very limited Too steep for surface application Too steep for sprinkler application
Coly---------	25	Very limited Slope	Very limited Slope	Very limited Too steep for surface application Too steep for sprinkler application	Very limited Seepage Too steep for surface application	Very limited Slope Restricted permeability	Very limited Too steep for surface application Too steep for sprinkler application

Table 13.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste	Application of sewage sludge	Disposal of wastewater by irrigation	Overland flow of wastewater	Rapid infiltration of wastewater	Slow rate treatment of wastewater
7440:							
Uly----------	65	Somewhat limited Slope	Somewhat limited Slope	Very limited Too steep for surface application Too steep for sprinkler application	Very limited Seepage Too steep for surface application	Very limited Slope Restricted permeability	Very limited Too steep for surface application Too steep for sprinkler application
Hobbs, occasionally flooded-----	20	Somewhat limited Flooding	Very limited Flooding	Somewhat limited Flooding	Very limited Flooding Seepage	Very limited Restricted permeability Flooding	Somewhat limited Flooding
7652:							
Valentine----	95	Very limited Filtering capacity Leaching Droughty Too acid	Very limited Filtering capacity Too acid Droughty	Very limited Filtering capacity Too steep for surface application Too acid Droughty Too steep for sprinkler application	Very limited Seepage Too acid Too steep for surface application	Somewhat limited Slope	Very limited Filtering capacity Too steep for surface application Too acid Too steep for sprinkler application
7656:							
Valentine, rolling-----	95	Very limited Slope Filtering capacity Leaching Droughty Too acid	Very limited Slope Filtering capacity Too acid Droughty	Very limited Too steep for surface application Too steep for sprinkler application Filtering capacity Too acid Droughty	Very limited Seepage Too steep for surface application Too acid	Very limited Slope	Very limited Too steep for surface application Too steep for sprinkler application Filtering capacity Too acid
7659:							
Valentine, rolling-----	60	Very limited Slope Filtering capacity Leaching Droughty Too acid	Very limited Slope Filtering capacity Too acid Droughty	Very limited Too steep for surface application Too steep for sprinkler application Filtering capacity Too acid Droughty	Very limited Seepage Too steep for surface application Too acid	Very limited Slope	Very limited Too steep for surface application Too steep for sprinkler application Filtering capacity Too acid

Table 13.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste	Application of sewage sludge	Disposal of wastewater by irrigation	Overland flow of wastewater	Rapid infiltration of wastewater	Slow rate treatment of wastewater
7659: Valentine, hilly-------	38	Very limited Slope Filtering capacity Leaching Droughty Too acid	Very limited Slope Filtering capacity Droughty Too acid	Very limited Too steep for surface application Too steep for sprinkler application Filtering capacity Droughty Too acid	Very limited Seepage Too steep for surface application Too acid	Very limited Slope	Very limited Too steep for surface application Too steep for sprinkler application Filtering capacity Too acid
7662: Valentine----	90	Very limited Filtering capacity Leaching Droughty Too acid	Very limited Filtering capacity Too acid Droughty	Very limited Filtering capacity Too steep for surface application Too acid Droughty Too steep for sprinkler application	Very limited Seepage Too acid Too steep for surface application	Somewhat limited Slope	Very limited Filtering capacity Too steep for surface application Too acid Too steep for sprinkler application
7664: Valentine----	90	Very limited Slope Filtering capacity Leaching Droughty Too acid	Very limited Slope Filtering capacity Too acid Droughty	Very limited Too steep for surface application Too steep for sprinkler application Filtering capacity Too acid Droughty	Very limited Seepage Too steep for surface application Too acid	Very limited Slope	Very limited Too steep for surface application Too steep for sprinkler application Filtering capacity Too acid
7669: Valentine, loamy substratum--	80	Very limited Filtering capacity Leaching Too acid	Very limited Filtering capacity Too acid	Very limited Filtering capacity Too acid	Very limited Seepage Too acid	Very limited Restricted permeability	Very limited Filtering capacity Too acid
7721: Valentine----	60	Very limited Filtering capacity Leaching Droughty Too acid	Very limited Filtering capacity Droughty Too acid	Very limited Too steep for surface application Filtering capacity Droughty Too acid Too steep for sprinkler application	Very limited Seepage Too steep for surface application Too acid	Very limited Slope	Very limited Too steep for surface application Filtering capacity Too steep for sprinkler application Too acid

Table 13.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste	Application of sewage sludge	Disposal of wastewater by irrigation	Overland flow of wastewater	Rapid infiltration of wastewater	Slow rate treatment of wastewater
7721:							
Libory-------	35	Very limited Filtering capacity Depth to saturated zone Leaching Restricted permeability Too acid	Very limited Filtering capacity Depth to saturated zone Restricted permeability Too acid	Very limited Filtering capacity Depth to saturated zone Restricted permeability Too acid	Very limited Seepage Depth to saturated zone Too acid	Very limited Restricted permeability Depth to saturated zone	Very limited Filtering capacity Depth to saturated zone Restricted permeability Too acid
7748:							
Valentine----	65	Very limited Filtering capacity Leaching Droughty	Very limited Filtering capacity Droughty	Very limited Filtering capacity Too steep for surface application Droughty Too steep for sprinkler application	Very limited Seepage Too steep for surface application	Somewhat limited Slope	Very limited Filtering capacity Too steep for surface application Too steep for sprinkler application
Tryon, silty substratum, wet---------	25	Very limited Ponding Depth to saturated zone Filtering capacity Leaching Restricted permeability	Very limited Ponding Depth to saturated zone Filtering capacity Restricted permeability Too acid	Very limited Ponding Depth to saturated zone Filtering capacity Restricted permeability Too acid	Very limited Seepage Ponding Depth to saturated zone Too acid	Very limited Ponding Restricted permeability Depth to saturated zone	Very limited Ponding Depth to saturated zone Filtering capacity Too acid Restricted permeability
7924:							
Wann, rarely flooded-----	90	Somewhat limited Depth to saturated zone Sodium content Filtering capacity	Somewhat limited Depth to saturated zone Flooding Sodium content Filtering capacity	Somewhat limited Depth to saturated zone Sodium content Filtering capacity	Very limited Seepage Depth to saturated zone Flooding Sodium content	Very limited Depth to saturated zone Restricted permeability	Somewhat limited Depth to saturated zone Sodium content Filtering capacity
7927:							
Wann, rarely flooded-----	90	Very limited Filtering capacity Depth to saturated zone	Very limited Filtering capacity Depth to saturated zone Flooding	Very limited Filtering capacity Depth to saturated zone	Very limited Seepage Depth to saturated zone Flooding	Very limited Depth to saturated zone Restricted permeability	Very limited Filtering capacity Depth to saturated zone

Table 13.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste	Application of sewage sludge	Disposal of wastewater by irrigation	Overland flow of wastewater	Rapid infiltration of wastewater	Slow rate treatment of wastewater
8020:							
Wood River---	85	Very limited Filtering capacity Restricted permeability Sodium content Runoff	Very limited Filtering capacity Restricted permeability Sodium content	Very limited Filtering capacity Restricted permeability Sodium content	Very limited Seepage Sodium content Too level	Very limited Restricted permeability	Very limited Filtering capacity Restricted permeability Sodium content
8022:							
Wood River, overblown---	65	Very limited Restricted permeability Runoff Filtering capacity	Very limited Restricted permeability Filtering capacity	Very limited Restricted permeability Filtering capacity	Very limited Seepage	Very limited Restricted permeability Depth to saturated zone	Somewhat limited Restricted permeability Filtering capacity
Silver Creek, overblown, alkali------	20	Very limited Ponding Depth to saturated zone Sodium content Restricted permeability Runoff	Very limited Ponding Depth to saturated zone Sodium content Restricted permeability Flooding	Very limited Ponding Depth to saturated zone Sodium content Restricted permeability Filtering capacity	Very limited Seepage Ponding Depth to saturated zone Sodium content Flooding	Very limited Ponding Restricted permeability Depth to saturated zone	Very limited Ponding Depth to saturated zone Sodium content Restricted permeability Filtering capacity
8023:							
Wood River---	55	Very limited Restricted permeability Runoff	Very limited Restricted permeability	Very limited Restricted permeability	Very limited Seepage Too level	Very limited Restricted permeability	Somewhat limited Restricted permeability
Silver Creek, alkali------	40	Very limited Restricted permeability Sodium content Depth to saturated zone Runoff Filtering capacity	Very limited Restricted permeability Sodium content Depth to saturated zone Flooding Filtering capacity	Very limited Restricted permeability Sodium content Depth to saturated zone Filtering capacity	Very limited Seepage Sodium content Depth to saturated zone Too level Flooding	Very limited Restricted permeability Depth to saturated zone	Very limited Restricted permeability Sodium content Depth to saturated zone Filtering capacity
9975:							
Sanitary landfill----	100	Not rated	Not rated	Not rated	Not rated	Not rated	Not rated
9985:							
Gravel pits--	100	Not rated	Not rated	Not rated	Not rated	Not rated	Not rated

Table 13.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste	Application of sewage sludge	Disposal of wastewater by irrigation	Overland flow of wastewater	Rapid infiltration of wastewater	Slow rate treatment of wastewater
9995:							
Miscellaneous water, sewage lagoons-----	100	Not rated	Not rated	Not rated	Not rated	Not rated	Not rated
9998:							
Water--------	100	Not rated	Not rated	Not rated	Not rated	Not rated	Not rated

Table 14a.--Construction Materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of gravel	Potential source of sand
1102:			
Alda, rarely flooded	90	Poor	Fair
		Bottom layer	Thickest layer
		Thickest layer	Bottom layer
1104:			
Alda, rarely flooded	95	Poor	Fair
		Bottom layer	Thickest layer
		Thickest layer	Bottom layer
1166:			
Almeria-------------	90	Poor	Fair
		Bottom layer	Thickest layer
		Thickest layer	Bottom layer
1348:			
Barney, frequently flooded------------	55	Poor	Fair
		Bottom layer	Thickest layer
		Thickest layer	Bottom layer
Barney, wet, channeled----------	40	Poor	Fair
		Bottom layer	Thickest layer
		Thickest layer	Bottom layer
1354:			
Barney, frequently flooded------------	60	Poor	Fair
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
Bolent, occasionally flooded------------	35	Poor	Fair
		Bottom layer	Thickest layer
		Thickest layer	Bottom layer
1547:			
Blendon-------------	85	Poor	Fair
		Bottom layer	Thickest layer
		Thickest layer	Bottom layer
1669:			
Boelus, sandy substratum---------	35	Poor	Fair
		Bottom layer	Thickest layer
		Thickest layer	Bottom layer
O'Neill-------------	35	Poor	Fair
		Bottom layer	Thickest layer
		Thickest layer	Bottom layer
Pivot, loamy surface	15	Poor	Fair
		Bottom layer	Thickest layer
		Thickest layer	Bottom layer

Table 14a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel	Potential source of sand
1678:			
Bolent, occasionally flooded-----------	85	Poor Bottom layer Thickest layer	Fair Thickest layer Bottom layer
1680:			
Bolent, occasionally flooded-----------	85	Poor Bottom layer Thickest layer	Fair Thickest layer Bottom layer
1688:			
Bolent, occasionally flooded-----------	90	Poor Bottom layer Thickest layer	Fair Thickest layer Bottom layer
1704:			
Bolent, occasionally flooded-----------	65	Poor Bottom layer Thickest layer	Fair Thickest layer Bottom layer
Calamus, rarely flooded-----------	30	Poor Bottom layer Thickest layer	Fair Thickest layer Bottom layer
1796:			
Brocksburg----------	85	Poor Bottom layer Thickest layer	Fair Thickest layer Bottom layer
1930:			
Butler--------------	94	Poor Bottom layer Thickest layer	Poor Bottom layer Thickest layer
1942:			
Calamus, rarely flooded-----------	95	Poor Bottom layer Thickest layer	Fair Thickest layer Bottom layer
2020:			
Caruso, rarely flooded-----------	85	Poor Bottom layer Thickest layer	Fair Thickest layer Bottom layer
2168:			
Coly----------------	90	Poor Bottom layer Thickest layer	Poor Bottom layer Thickest layer
2223:			
Cozad---------------	95	Poor Bottom layer Thickest layer	Poor Bottom layer Thickest layer

Table 14a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel	Potential source of sand
2238:			
Cozad, sandy substratum----------	80	Poor	Poor
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
2240:			
Cozad, sandy substratum----------	60	Poor	Fair
		Bottom layer	Thickest layer
		Thickest layer	Bottom layer
Hobbs, occasionally flooded-----------	30	Poor	Poor
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
2371:			
Cullison------------	85	Poor	Poor
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
2415:			
Darr, very rarely flooded-----------	95	Poor	Fair
		Bottom layer	Thickest layer
		Thickest layer	Bottom layer
2430:			
Detroit-------------	95	Poor	Poor
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
2731:			
Els-----------------	50	Poor	Fair
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
Tryon---------------	40	Poor	Fair
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
2846:			
Fillmore------------	80	Poor	Poor
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
2918:			
Gates---------------	80	Poor	Poor
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
2920:			
Gates---------------	75	Poor	Poor
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
2924:			
Gates---------------	85	Poor	Poor
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer

Table 14a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel	Potential source of sand
2925:			
Gates, eroded-------	95	Poor	Poor
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
2927:			
Gates---------------	75	Poor	Poor
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
2940:			
Gates, overblown----	85	Poor	Poor
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
2972:			
Gayville------------	85	Poor	Fair
		Bottom layer	Thickest layer
		Thickest layer	Bottom layer
3023:			
Gibbon, rarely flooded-----------	90	Poor	Fair
		Bottom layer	Thickest layer
		Thickest layer	Bottom layer
3045:			
Gibbon, saline, rarely flooded-----	80	Poor	Fair
		Bottom layer	Thickest layer
		Thickest layer	Bottom layer
3140:			
Gothenburg, frequently flooded-	80	Poor	Fair
		Bottom layer	Thickest layer
		Thickest layer	Bottom layer
3290:			
Hall----------------	90	Poor	Poor
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
3293:			
Hall, eroded--------	95	Poor	Poor
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
3294:			
Hall, eroded--------	80	Poor	Poor
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
3300:			
Hall, sandy substratum---------	95	Poor	Fair
		Bottom layer	Thickest layer
		Thickest layer	Bottom layer
3301:			
Hall, eroded--------	70	Poor	Poor
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer

Table 14a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel	Potential source of sand
3301:			
Hobbs, occasionally flooded	25	Poor	Poor
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
3330:			
Hastings	95	Poor	Poor
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
3331:			
Hastings	95	Poor	Poor
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
3478:			
Hersh	90	Poor	Fair
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
3532:			
Hobbs, occasionally flooded	90	Poor	Poor
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
3537:			
Hobbs, frequently flooded	75	Poor	Poor
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
3568:			
Holder, overblown	80	Poor	Poor
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
3570:			
Holder	85	Poor	Poor
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
3571:			
Holder	95	Poor	Poor
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
3578:			
Holder, severely eroded	80	Poor	Poor
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
3580:			
Holder, eroded	80	Poor	Poor
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
3598:			
Holdrege, eroded	75	Poor	Poor
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer

Table 14a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel	Potential source of sand
3616:			
Holdrege, overblown-	93	Poor	Poor
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
3770:			
Hord----------------	90	Poor	Poor
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
3771:			
Hord----------------	90	Poor	Poor
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
3772:			
Hord----------------	90	Poor	Poor
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
3782:			
Hord, sandy substratum---------	90	Poor	Fair
		Bottom layer	Thickest layer
		Thickest layer	Bottom layer
3869:			
Inavale, very rarely flooded------------	95	Poor	Fair
		Bottom layer	Thickest layer
		Thickest layer	Bottom layer
3875:			
Inavale, very rarely flooded------------	95	Poor	Fair
		Bottom layer	Thickest layer
		Thickest layer	Bottom layer
3927:			
Ipage---------------	85	Poor	Fair
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
3948:			
Ipage, silty substratum---------	70	Poor	Fair
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
Tryon, silty substratum, wet----	25	Poor	Fair
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
3993:			
Jansen, overblown---	80	Poor	Fair
		Bottom layer	Thickest layer
		Thickest layer	Bottom layer

Table 14a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel	Potential source of sand
4019:			
Janude, sandy substratum, very rarely flooded-----	80	Poor	Fair
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
4020:			
Janude, calcareous, very rarely flooded	90	Poor	Fair
		Bottom layer	Thickest layer
		Thickest layer	Bottom layer
4417:			
Lamo, sand substratum, rarely flooded------------	85	Poor	Fair
		Bottom layer	Thickest layer
		Thickest layer	Bottom layer
4586:			
Lex, rarely flooded-	85	Poor	Fair
		Bottom layer	Thickest layer
		Thickest layer	Bottom layer
4613:			
Libory--------------	85	Poor	Fair
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
4650:			
Lockton-------------	90	Poor	Fair
		Bottom layer	Thickest layer
		Thickest layer	Bottom layer
4744:			
Loup, loamy substratum---------	90	Poor	Fair
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
4932:			
Marlake-------------	80	Poor	Fair
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
5705:			
O'Neill-------------	50	Poor	Fair
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
Pivot, loamy surface	35	Poor	Fair
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
5713:			
O'Neill-------------	90	Poor	Fair
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer

Table 14a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel	Potential source of sand
5905:			
Ortello, silty substratum----------	85	Poor Bottom layer Thickest layer	Fair Bottom layer Thickest layer
5909:			
Ortello, silty substratum----------	70	Poor Bottom layer Thickest layer	Fair Bottom layer Thickest layer
Holder, loamy overblown----------	25	Poor Bottom layer Thickest layer	Poor Bottom layer Thickest layer
5914:			
Ortello-------------	85	Poor Bottom layer Thickest layer	Fair Thickest layer Bottom layer
5985:			
Ovina---------------	85	Poor Bottom layer Thickest layer	Poor Bottom layer Thickest layer
6136:			
Platte, frequently flooded-----------	60	Poor Bottom layer Thickest layer	Fair Thickest layer Bottom layer
Alda, frequently flooded-----------	35	Poor Bottom layer Thickest layer	Fair Thickest layer Bottom layer
6139:			
Platte, occasionally flooded-----------	50	Poor Bottom layer Thickest layer	Fair Thickest layer Bottom layer
Bolent, occasionally flooded-----------	45	Poor Bottom layer Thickest layer	Fair Thickest layer Bottom layer
6143:			
Platte, occasionally flooded-----------	55	Poor Bottom layer Thickest layer	Fair Thickest layer Bottom layer
Inavale, very rarely flooded-----------	44	Poor Bottom layer Thickest layer	Fair Thickest layer Bottom layer
6800:			
Scott---------------	90	Poor Bottom layer Thickest layer	Poor Bottom layer Thickest layer

Table 14a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel	Potential source of sand
6956:			
Silver Creek, overblown, ponded--	85	Poor	Fair
		Bottom layer	Thickest layer
		Thickest layer	Bottom layer
6957:			
Silver Creek, alkali	55	Poor	Poor
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
Silver Creek, saline, alkali-----	35	Poor	Poor
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
6978:			
Simeon-------------	70	Poor	Fair
		Bottom layer	Thickest layer
		Thickest layer	Bottom layer
7225:			
Thurman------------	85	Poor	Fair
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
7249:			
Thurman, loamy substratum---------	90	Poor	Fair
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
7250:			
Thurman, loamy substratum---------	90	Poor	Fair
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
7429:			
Uly, eroded---------	85	Poor	Poor
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
7436:			
Uly, eroded---------	75	Poor	Poor
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
Coly----------------	20	Poor	Poor
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
7438:			
Uly, eroded---------	90	Poor	Poor
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
7439:			
Uly, eroded---------	70	Poor	Poor
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer

Table 14a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel	Potential source of sand
7439:			
Coly----------------	25	Poor	Poor
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
7440:			
Uly-----------------	65	Poor	Poor
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
Hobbs, occasionally flooded-----------	20	Poor	Poor
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
7652:			
Valentine-----------	95	Poor	Fair
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
7656:			
Valentine, rolling--	95	Poor	Fair
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
7659:			
Valentine, rolling--	60	Poor	Fair
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
Valentine, hilly----	38	Poor	Fair
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
7662:			
Valentine-----------	90	Poor	Fair
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
7664:			
Valentine-----------	90	Poor	Fair
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
7669:			
Valentine, loamy substratum---------	80	Poor	Fair
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
7721:			
Valentine-----------	60	Poor	Fair
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
Libory--------------	35	Poor	Fair
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
7748:			
Valentine-----------	65	Poor	Fair
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer

Table 14a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel	Potential source of sand
7748:			
Tryon, silty substratum, wet----	25	Poor	Fair
		Bottom layer	Bottom layer
		Thickest layer	Thickest layer
7924:			
Wann, rarely flooded	90	Poor	Fair
		Bottom layer	Thickest layer
		Thickest layer	Bottom layer
7927:			
Wann, rarely flooded	90	Poor	Fair
		Bottom layer	Thickest layer
		Thickest layer	Bottom layer
8020:			
Wood River----------	85	Poor	Fair
		Bottom layer	Thickest layer
		Thickest layer	Bottom layer
8022:			
Wood River, overblown----------	65	Poor	Fair
		Bottom layer	Thickest layer
		Thickest layer	Bottom layer
Silver Creek, overblown, alkali--	20	Poor	Fair
		Bottom layer	Thickest layer
		Thickest layer	Bottom layer
8023:			
Wood River----------	55	Poor	Fair
		Bottom layer	Thickest layer
		Thickest layer	Bottom layer
Silver Creek, alkali	40	Poor	Fair
		Bottom layer	Thickest layer
		Thickest layer	Bottom layer
9975:			
Sanitary landfill-----------	100	Not rated	Not rated
9985:			
Gravel pits---------	100	Not rated	Not rated
9995:			
Miscellaneous water, sewage lagoons-----	100	Not rated	Not rated
9998:			
Water---------------	100	Not rated	Not rated

Table 14b.--Construction Materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill	Potential source of topsoil
1102:				
Alda, rarely flooded	90	Fair Low content of organic matter Sodium content	Fair Depth to saturated zone	Fair Depth to saturated zone Sodium content
1104:				
Alda, rarely flooded	95	Fair Low content of organic matter Sodium content	Fair Depth to saturated zone	Fair Depth to saturated zone Sodium content
1166:				
Almeria-------------	90	Poor Too sandy Low content of organic matter	Poor Depth to saturated zone	Poor Too sandy Depth to saturated zone
1348:				
Barney, frequently flooded------------	55	Poor Too sandy Low content of organic matter Droughty	Poor Depth to saturated zone	Poor Hard to reclaim Too sandy Depth to saturated zone
Barney, wet, channeled----------	40	Poor Too sandy Low content of organic matter Droughty	Poor Depth to saturated zone	Poor Hard to reclaim Too sandy Depth to saturated zone
1354:				
Barney, frequently flooded------------	60	Poor Too sandy Low content of organic matter Droughty	Poor Depth to saturated zone	Poor Hard to reclaim Too sandy Depth to saturated zone
Bolent, occasionally flooded------------	35	Poor Too sandy Low content of organic matter	Fair Depth to saturated zone	Poor Too sandy Depth to saturated zone
1547:				
Blendon-------------	85	Fair Low content of organic matter Too acid	Good	Good

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill	Potential source of topsoil
1669:				
Boelus, sandy substratum---------	35	Poor Wind erosion Too sandy Low content of organic matter Too acid	Good	Fair Too sandy
O'Neill-------------	35	Fair Low content of organic matter Too sandy Too acid	Good	Fair Too sandy
Pivot, loamy surface	15	Fair Too sandy Low content of organic matter Too acid Droughty	Good	Fair Too sandy
1678:				
Bolent, occasionally flooded------------	85	Poor Too sandy Low content of organic matter Droughty	Fair Depth to saturated zone	Poor Too sandy Depth to saturated zone
1680:				
Bolent, occasionally flooded------------	85	Fair Low content of organic matter Too sandy	Fair Depth to saturated zone	Fair Too sandy Depth to saturated zone
1688:				
Bolent, occasionally flooded------------	90	Poor Too sandy Wind erosion Low content of organic matter Droughty Too acid	Fair Depth to saturated zone	Poor Too sandy Depth to saturated zone
1704:				
Bolent, occasionally flooded------------	65	Poor Too sandy Low content of organic matter Droughty	Fair Depth to saturated zone	Poor Too sandy Depth to saturated zone
Calamus, rarely flooded------------	30	Poor Too sandy Wind erosion Low content of organic matter Too acid	Good	Poor Too sandy

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill	Potential source of topsoil
1796:				
Brocksburg----------	85	Fair Low content of organic matter Too acid Water erosion	Good	Good
1930:				
Butler--------------	94	Poor Too clayey Low content of organic matter Too acid Water erosion	Poor Depth to saturated zone Low strength Shrink-swell	Poor Too clayey Depth to saturated zone
1942:				
Calamus, rarely flooded------------	95	Poor Wind erosion Too sandy Low content of organic matter	Good	Poor Too sandy
2020:				
Caruso, rarely flooded------------	85	Fair Low content of organic matter Water erosion Too clayey	Poor Low strength Depth to saturated zone	Fair Too clayey Depth to saturated zone
2168:				
Coly----------------	90	Fair Low content of organic matter Water erosion	Fair Low strength Slope	Poor Slope
2223:				
Cozad---------------	95	Fair Water erosion	Good	Good
2238:				
Cozad, sandy substratum---------	80	Fair Low content of organic matter Too acid Water erosion	Good	Good
2240:				
Cozad, sandy substratum---------	60	Fair Low content of organic matter Too acid Water erosion	Good	Good
Hobbs, occasionally flooded------------	30	Fair Water erosion	Poor Low strength	Good

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill	Potential source of topsoil
2371:				
Cullison	85	Fair Low content of organic matter Carbonate content	Poor Depth to saturated zone Low strength	Poor Depth to saturated zone
2415:				
Darr, very rarely flooded	95	Fair Too acid Low content of organic matter	Good	Good
2430:				
Detroit	95	Poor Too clayey Low content of organic matter Too acid Water erosion	Poor Low strength Shrink-swell	Poor Too clayey
2731:				
Els	50	Poor Too sandy Wind erosion Low content of organic matter Too acid	Fair Depth to saturated zone	Poor Too sandy Depth to saturated zone
Tryon	40	Fair Too sandy Low content of organic matter Too acid	Poor Depth to saturated zone	Poor Depth to saturated zone Too sandy
2846:				
Fillmore	80	Poor Too clayey Too acid Water erosion	Poor Depth to saturated zone Low strength Shrink-swell	Poor Too clayey Depth to saturated zone
2918:				
Gates	80	Fair Low content of organic matter Water erosion	Good	Good
2920:				
Gates	75	Fair Low content of organic matter Water erosion	Good	Good
2924:				
Gates	85	Fair Low content of organic matter Water erosion	Good	Good

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill	Potential source of topsoil
2925:				
Gates, eroded-------	95	Fair Low content of organic matter Water erosion	Good	Good
2927:				
Gates---------------	75	Fair Low content of organic matter Water erosion	Good	Fair Slope
2940:				
Gates, overblown----	85	Fair Low content of organic matter Too acid Water erosion	Good	Good
2972:				
Gayville------------	85	Poor Too alkaline Sodium content Low content of organic matter Water erosion Too clayey	Fair Low strength	Poor Sodium content Too clayey
3023:				
Gibbon, rarely flooded-----------	90	Fair Water erosion	Fair Depth to saturated zone	Fair Depth to saturated zone
3045:				
Gibbon, saline, rarely flooded-----	80	Fair Low content of organic matter Water erosion	Fair Depth to saturated zone Shrink-swell	Fair Depth to saturated zone
3140:				
Gothenburg, frequently flooded-	80	Poor Too sandy Droughty Low content of organic matter	Poor Depth to saturated zone	Poor Too sandy Depth to saturated zone Rock fragments
3290:				
Hall----------------	90	Fair Low content of organic matter Water erosion Too clayey	Fair Shrink-swell	Fair Too clayey
3293:				
Hall, eroded--------	95	Fair Low content of organic matter Water erosion	Good	Good

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill	Potential source of topsoil
3294:				
Hall, eroded	80	Fair Low content of organic matter Water erosion	Good	Good
3300:				
Hall, sandy substratum	95	Fair Water erosion Too clayey	Poor Low strength Shrink-swell	Fair Too clayey
3301:				
Hall, eroded	70	Fair Low content of organic matter Water erosion	Fair No shrink-swell limitation	Good
Hobbs, occasionally flooded	25	Fair Low content of organic matter Water erosion	Poor Low strength	Good
3330:				
Hastings	95	Fair Low content of organic matter Water erosion Too acid	Poor Low strength Shrink-swell	Good
3331:				
Hastings	95	Poor Too clayey Low content of organic matter Water erosion Too acid	Poor Low strength Shrink-swell	Poor Too clayey
3478:				
Hersh	90	Fair Low content of organic matter	Good	Good
3532:				
Hobbs, occasionally flooded	90	Fair Low content of organic matter Water erosion	Poor Low strength	Good
3537:				
Hobbs, frequently flooded	75	Fair Water erosion	Poor Low strength	Good
3568:				
Holder, overblown	80	Fair Low content of organic matter Too acid	Poor Low strength	Good

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill	Potential source of topsoil
3570:				
Holder--------------	85	Fair	Poor	Fair
		Low content of organic matter	Low strength	Too clayey
		Water erosion		
		Too clayey		
		Too acid		
3571:				
Holder--------------	95	Fair	Poor	Fair
		Low content of organic matter	Low strength	Too clayey
		Water erosion		
		Too clayey		
		Too acid		
3578:				
Holder, severely eroded-------------	80	Fair	Good	Good
		Low content of organic matter		
		Water erosion		
		Too acid		
3580:				
Holder, eroded------	80	Fair	Poor	Good
		Low content of organic matter	Low strength	
			Shrink-swell	
		Water erosion		
		Too acid		
3598:				
Holdrege, eroded----	75	Fair	Poor	Good
		Low content of organic matter	Low strength	
		Water erosion		
3616:				
Holdrege, overblown-	93	Fair	Poor	Fair
		Low content of organic matter	Low strength	Too clayey
			Shrink-swell	
		Water erosion		
		Too clayey		
3770:				
Hord----------------	90	Fair	Poor	Good
		Low content of organic matter	Low strength	
		Water erosion		
3771:				
Hord----------------	90	Fair	Poor	Good
		Low content of organic matter	Low strength	
		Water erosion		
3772:				
Hord----------------	90	Fair	Poor	Good
		Low content of organic matter	Low strength	
		Water erosion		

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill	Potential source of topsoil
3782:				
Hord, sandy substratum	90	Good	Good	Good
3869:				
Inavale, very rarely flooded	95	Poor Wind erosion Low content of organic matter Too sandy Too acid	Good	Fair Too sandy
3875:				
Inavale, very rarely flooded	95	Poor Too sandy Wind erosion Low content of organic matter Too acid	Good	Poor Too sandy
3927:				
Ipage	85	Poor Too sandy Wind erosion Low content of organic matter Too acid	Good	Poor Too sandy
3948:				
Ipage, silty substratum	70	Poor Too sandy Wind erosion Low content of organic matter Too acid Droughty	Good	Poor Too sandy
Tryon, silty substratum, wet	25	Poor Too sandy Low content of organic matter Too acid	Poor Depth to saturated zone Low strength	Poor Too sandy Depth to saturated zone
3993:				
Jansen, overblown	80	Fair Low content of organic matter Too clayey Too acid Water erosion	Good	Fair Too clayey Hard to reclaim
4019:				
Janude, sandy substratum, very rarely flooded	80	Fair Too acid	Good	Good

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill	Potential source of topsoil
4020:				
Janude, calcareous, very rarely flooded	90	Fair Low content of organic matter	Good	Good
4417:				
Lamo, sand substratum, rarely flooded-----------	85	Fair Low content of organic matter Water erosion Too clayey	Fair Depth to saturated zone	Fair Depth to saturated zone Too clayey
4586:				
Lex, rarely flooded-	85	Fair Low content of organic matter	Fair Depth to saturated zone	Fair Depth to saturated zone Hard to reclaim
4613:				
Libory-------------	85	Poor Wind erosion Too sandy Low content of organic matter Too acid Water erosion	Poor Low strength Depth to saturated zone	Fair Too sandy Depth to saturated zone Too acid
4650:				
Lockton------------	90	Fair Low content of organic matter Too acid	Good	Good
4744:				
Loup, loamy substratum---------	90	Poor Too sandy Low content of organic matter	Poor Depth to saturated zone	Poor Too sandy Depth to saturated zone
4932:				
Marlake------------	80	Poor Too sandy Low content of organic matter Too acid	Poor Depth to saturated zone	Poor Too sandy Depth to saturated zone
5705:				
O'Neill------------	50	Poor Too sandy Low content of organic matter Too acid	Good	Poor Too sandy
Pivot, loamy surface	35	Fair Low content of organic matter Droughty Too acid	Good	Fair Hard to reclaim

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill	Potential source of topsoil
5713:				
O'Neill	90	Fair Low content of organic matter Too acid	Good	Fair Hard to reclaim
5905:				
Ortello, silty substratum	85	Fair Low content of organic matter Too acid	Good	Good
5909:				
Ortello, silty substratum	70	Fair Low content of organic matter Water erosion	Good	Good
Holder, loamy overblown	25	Fair Low content of organic matter Water erosion Too acid	Poor Low strength	Good
5914:				
Ortello	85	Fair Low content of organic matter Too acid	Good	Good
5985:				
Ovina	85	Fair Carbonate content Low content of organic matter	Fair Depth to saturated zone	Fair Depth to saturated zone Carbonate content
6136:				
Platte, frequently flooded	60	Poor Too sandy Low content of organic matter Droughty	Fair Depth to saturated zone	Poor Too sandy Rock fragments Depth to saturated zone Hard to reclaim
Alda, frequently flooded	35	Fair Low content of organic matter Sodium content	Fair Depth to saturated zone	Fair Depth to saturated zone Sodium content
6139:				
Platte, occasionally flooded	50	Poor Too sandy Low content of organic matter	Fair Depth to saturated zone	Poor Too sandy Depth to saturated zone

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill	Potential source of topsoil
6139:				
Bolent, occasionally flooded-----------	45	Poor Too sandy Low content of organic matter Droughty	Fair Depth to saturated zone	Poor Too sandy Depth to saturated zone
6143:				
Platte, occasionally flooded-----------	55	Poor Too sandy Low content of organic matter Droughty	Fair Depth to saturated zone	Poor Too sandy Depth to saturated zone
Inavale, very rarely flooded-----------	44	Poor Too sandy Wind erosion Low content of organic matter Too acid	Good	Poor Too sandy
6800:				
Scott--------------	90	Poor Too clayey Too acid Water erosion	Poor Depth to saturated zone Low strength Shrink-swell	Poor Too clayey Depth to saturated zone
6956:				
Silver Creek, overblown, ponded--	85	Poor Too clayey Too alkaline Sodium content Low content of organic matter Water erosion	Poor Depth to saturated zone Shrink-swell	Poor Depth to saturated zone Too clayey Sodium content Salinity
6957:				
Silver Creek, alkali	55	Poor Too alkaline Sodium content Low content of organic matter Too clayey Water erosion	Poor Low strength Shrink-swell Depth to saturated zone	Fair Too clayey Depth to saturated zone Sodium content
Silver Creek, saline, alkali-----	35	Poor Sodium content Too alkaline Low content of organic matter Salinity Too clayey	Poor Low strength Shrink-swell	Fair Sodium content Too clayey

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill	Potential source of topsoil
6978:				
Simeon	70	Poor Too sandy Droughty Low content of organic matter Too acid	Good	Poor Too sandy Rock fragments Hard to reclaim
7225:				
Thurman	85	Fair Low content of organic matter Too sandy	Good	Fair Too sandy
7249:				
Thurman, loamy substratum	90	Poor Wind erosion Too sandy Low content of organic matter	Good	Poor Too sandy
7250:				
Thurman, loamy substratum	90	Poor Wind erosion Too sandy Low content of organic matter	Good	Fair Too sandy
7429:				
Uly, eroded	85	Fair Low content of organic matter Water erosion	Poor Low strength	Good
7436:				
Uly, eroded	75	Fair Low content of organic matter Water erosion	Good	Fair Slope
Coly	20	Fair Low content of organic matter Water erosion	Fair Low strength	Good
7438:				
Uly, eroded	90	Fair Low content of organic matter Water erosion	Poor Low strength	Good
7439:				
Uly, eroded	70	Fair Low content of organic matter Water erosion	Poor Low strength	Fair Slope
Coly	25	Fair Low content of organic matter Water erosion	Fair Low strength Slope	Poor Slope

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill	Potential source of topsoil
7440:				
Uly	65	Fair Low content of organic matter Water erosion	Poor Low strength	Fair Slope
Hobbs, occasionally flooded	20	Fair Water erosion	Poor Low strength	Good
7652:				
Valentine	95	Poor Too sandy Wind erosion Low content of organic matter Droughty Too acid	Good	Poor Too sandy
7656:				
Valentine, rolling	95	Poor Too sandy Wind erosion Low content of organic matter Droughty Too acid	Fair Slope	Poor Too sandy Slope
7659:				
Valentine, rolling	60	Poor Too sandy Wind erosion Low content of organic matter Droughty Too acid	Fair Slope	Poor Too sandy Slope
Valentine, hilly	38	Poor Too sandy Wind erosion Low content of organic matter Droughty Too acid	Poor Slope	Poor Slope Too sandy
7662:				
Valentine	90	Poor Too sandy Wind erosion Low content of organic matter Droughty Too acid	Good	Poor Too sandy
7664:				
Valentine	90	Poor Too sandy Wind erosion Low content of organic matter Droughty Too acid	Fair Slope	Poor Too sandy Slope

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill	Potential source of topsoil
7669:				
Valentine, loamy substratum	80	Poor	Good	Poor
		Too sandy		Too sandy
		Wind erosion		
		Low content of organic matter		
		Too acid		
7721:				
Valentine	60	Poor	Good	Poor
		Too sandy		Too sandy
		Wind erosion		
		Low content of organic matter		
		Droughty		
		Too acid		
Libory	35	Poor	Poor	Fair
		Wind erosion	Low strength	Too sandy
		Too sandy	Depth to saturated zone	Depth to saturated zone
		Low content of organic matter		
		Water erosion		
		Too acid		
7748:				
Valentine	65	Poor	Good	Poor
		Too sandy		Too sandy
		Wind erosion		
		Low content of organic matter		
		Droughty		
Tryon, silty substratum, wet	25	Poor	Poor	Poor
		Too sandy	Depth to saturated zone	Too sandy
		Low content of organic matter	Low strength	Depth to saturated zone
		Too acid		
7924:				
Wann, rarely flooded	90	Fair	Fair	Fair
		Low content of organic matter	Depth to saturated zone	Depth to saturated zone
		Sodium content		Rock fragments
		Water erosion		Sodium content
7927:				
Wann, rarely flooded	90	Poor	Fair	Poor
		Too sandy	Depth to saturated zone	Too sandy
		Low content of organic matter		Depth to saturated zone
8020:				
Wood River	85	Fair	Fair	Fair
		Low content of organic matter	Shrink-swell	Too clayey
		Too clayey		Sodium content
		Sodium content		Hard to reclaim
		Water erosion		

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill	Potential source of topsoil
8022:				
Wood River, overblown----------	65	Poor Too alkaline Low content of organic matter Water erosion	Poor Low strength Shrink-swell	Poor Hard to reclaim
Silver Creek, overblown, alkali--	20	Poor Sodium content Too alkaline Too clayey Low content of organic matter Water erosion	Poor Depth to saturated zone Low strength Shrink-swell	Poor Hard to reclaim Depth to saturated zone Sodium content Too clayey
8023:				
Wood River----------	55	Fair Too clayey Low content of organic matter Water erosion	Fair Shrink-swell	Fair Too clayey Sodium content
Silver Creek, alkali	40	Poor Too clayey Sodium content Low content of organic matter Water erosion	Fair Shrink-swell Depth to saturated zone	Poor Too clayey Sodium content Depth to saturated zone Hard to reclaim
9975:				
Sanitary landfill---	100	Not rated	Not rated	Not rated
9985:				
Gravel pits---------	100	Not rated	Not rated	Not rated
9995:				
Miscellaneous water, sewage lagoons-----	100	Not rated	Not rated	Not rated
9998:				
Water---------------	100	Not rated	Not rated	Not rated

Table 15.--Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table.)

Map symbol and soil name	Pct. of map unit	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds
1102:				
Alda, rarely flooded-----	90	Very limited Seepage	Somewhat limited Depth to saturated zone Seepage Piping	Very limited Cutbanks cave Depth to water
1104:				
Alda, rarely flooded-----	95	Very limited Seepage	Somewhat limited Depth to saturated zone Seepage Piping	Very limited Cutbanks cave Depth to water
1166:				
Almeria------	90	Very limited Seepage	Very limited Depth to saturated zone Seepage	Very limited Cutbanks cave
1348:				
Barney, frequently flooded-----	55	Very limited Seepage	Very limited Depth to saturated zone Seepage	Very limited Cutbanks cave
Barney, wet, channeled---	40	Very limited Seepage	Very limited Depth to saturated zone Seepage	Very limited Cutbanks cave
1354:				
Barney, frequently flooded-----	60	Very limited Seepage	Very limited Depth to saturated zone Seepage	Very limited Cutbanks cave
Bolent, occasionally flooded-----	35	Very limited Seepage	Somewhat limited Depth to saturated zone Seepage	Very limited Cutbanks cave Depth to water

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds
1547:				
Blendon-----	85	Very limited Seepage	Somewhat limited Seepage	Very limited Depth to water
1669:				
Boelus, sandy substratum--	35	Very limited Seepage	Somewhat limited Seepage	Very limited Depth to water
O'Neill------	35	Very limited Seepage	Somewhat limited Seepage	Very limited Depth to water
Pivot, loamy surface-----	15	Very limited Seepage	Somewhat limited Seepage	Very limited Depth to water
1678:				
Bolent, occasionally flooded-----	85	Very limited Seepage	Somewhat limited Depth to saturated zone Seepage	Very limited Cutbanks cave Depth to water
1680:				
Bolent, occasionally flooded-----	85	Very limited Seepage	Somewhat limited Depth to saturated zone Seepage	Very limited Cutbanks cave Depth to water
1688:				
Bolent, occasionally flooded-----	90	Very limited Seepage	Somewhat limited Depth to saturated zone Seepage	Very limited Cutbanks cave Depth to water
1704:				
Bolent, occasionally flooded-----	65	Very limited Seepage	Somewhat limited Seepage Depth to saturated zone	Very limited Cutbanks cave Depth to water
Calamus, rarely flooded-----	30	Very limited Seepage	Somewhat limited Seepage	Very limited Cutbanks cave Depth to water
1796:				
Brocksburg---	85	Very limited Seepage	Somewhat limited Seepage	Very limited Depth to water

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds
1930:				
Butler-------	94	Somewhat limited Seepage	Very limited Depth to saturated zone Piping	Very limited Depth to water
1942:				
Calamus, rarely flooded-----	95	Very limited Seepage	Somewhat limited Seepage	Very limited Cutbanks cave Depth to water
2020:				
Caruso, rarely flooded-----	85	Very limited Seepage	Somewhat limited Piping Depth to saturated zone Seepage	Somewhat limited Cutbanks cave Depth to water
2168:				
Coly---------	90	Somewhat limited Seepage Slope	Somewhat limited Piping	Very limited Depth to water
2223:				
Cozad--------	95	Somewhat limited Seepage	Somewhat limited Piping	Very limited Depth to water
2238:				
Cozad, sandy substratum--	80	Very limited Seepage	Very limited Piping	Very limited Depth to water
2240:				
Cozad, sandy substratum--	60	Very limited Seepage	Very limited Piping Seepage	Very limited Depth to water
Hobbs, occasionally flooded-----	30	Very limited Seepage	Somewhat limited Piping	Very limited Depth to water
2371:				
Cullison-----	85	Very limited Seepage	Very limited Depth to saturated zone Piping Seepage	Somewhat limited Cutbanks cave
2415:				
Darr, very rarely flooded-----	95	Very limited Seepage	Somewhat limited Seepage	Very limited Depth to water

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds
2430:				
Detroit------	95	Somewhat limited Seepage	Not limited	Very limited Depth to water
2731:				
Els----------	50	Very limited Seepage	Somewhat limited Depth to saturated zone Seepage	Very limited Cutbanks cave Depth to water
Tryon--------	40	Very limited Seepage	Very limited Depth to saturated zone Seepage	Very limited Cutbanks cave
2846:				
Fillmore-----	80	Somewhat limited Seepage	Very limited Ponding Depth to saturated zone	Very limited Depth to water
2918:				
Gates--------	80	Somewhat limited Seepage	Very limited Piping	Very limited Depth to water
2920:				
Gates--------	75	Somewhat limited Seepage	Very limited Piping	Very limited Depth to water
2924:				
Gates--------	85	Somewhat limited Seepage	Very limited Piping	Very limited Depth to water
2925:				
Gates, eroded------	95	Somewhat limited Seepage	Very limited Piping	Very limited Depth to water
2927:				
Gates--------	75	Somewhat limited Seepage	Somewhat limited Piping	Very limited Depth to water
2940:				
Gates, overblown---	85	Somewhat limited Seepage	Somewhat limited Piping	Very limited Depth to water
2972:				
Gayville-----	85	Very limited Seepage	Very limited Piping Seepage	Very limited Cutbanks cave Depth to water
3023:				
Gibbon, rarely flooded-----	90	Very limited Seepage	Somewhat limited Depth to saturated zone Seepage Piping	Very limited Cutbanks cave Depth to water

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds
3045:				
Gibbon, saline, rarely flooded-----	80	Very limited Seepage	Somewhat limited Depth to saturated zone Piping Seepage	Very limited Cutbanks cave Depth to water
3140:				
Gothenburg, frequently flooded-----	80	Very limited Seepage	Very limited Depth to saturated zone Seepage	Very limited Cutbanks cave
3290:				
Hall---------	90	Very limited Seepage	Somewhat limited Piping	Very limited Depth to water
3293:				
Hall, eroded-	95	Somewhat limited Seepage	Somewhat limited Piping	Very limited Depth to water
3294:				
Hall, eroded-	80	Somewhat limited Seepage	Somewhat limited Piping	Very limited Depth to water
3300:				
Hall, sandy substratum--	95	Very limited Seepage	Somewhat limited Piping Seepage	Very limited Depth to water
3301:				
Hall, eroded-	70	Somewhat limited Seepage	Somewhat limited Piping	Very limited Depth to water
Hobbs, occasionally flooded-----	25	Somewhat limited Seepage	Somewhat limited Piping	Very limited Depth to water
3330:				
Hastings-----	95	Somewhat limited Seepage	Somewhat limited Piping	Very limited Depth to water
3331:				
Hastings-----	95	Somewhat limited Seepage	Somewhat limited Piping	Very limited Depth to water
3478:				
Hersh--------	90	Very limited Seepage	Very limited Piping Seepage	Very limited Depth to water

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds
3532:				
Hobbs, occasionally flooded-----	90	Somewhat limited Seepage	Somewhat limited Piping	Very limited Depth to water
3537:				
Hobbs, frequently flooded-----	75	Very limited Seepage	Somewhat limited Piping	Very limited Depth to water
3568:				
Holder, overblown---	80	Somewhat limited Seepage	Very limited Piping	Very limited Depth to water
3570:				
Holder-------	85	Somewhat limited Seepage	Somewhat limited Piping	Very limited Depth to water
3571:				
Holder-------	95	Somewhat limited Seepage	Somewhat limited Piping	Very limited Depth to water
3578:				
Holder, severely eroded------	80	Somewhat limited Seepage	Somewhat limited Piping	Very limited Depth to water
3580:				
Holder, eroded------	80	Somewhat limited Seepage	Somewhat limited Piping	Very limited Depth to water
3598:				
Holdrege, eroded------	75	Somewhat limited Seepage	Somewhat limited Piping	Very limited Depth to water
3616:				
Holdrege, overblown---	93	Somewhat limited Seepage	Somewhat limited Piping	Very limited Depth to water
3770:				
Hord---------	90	Very limited Seepage	Somewhat limited Piping	Very limited Depth to water
3771:				
Hord---------	90	Somewhat limited Seepage	Somewhat limited Piping	Very limited Depth to water
3772:				
Hord---------	90	Somewhat limited Seepage	Somewhat limited Piping	Very limited Depth to water
3782:				
Hord, sandy substratum--	90	Very limited Seepage	Somewhat limited Piping Seepage	Very limited Depth to water

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds
3869:				
Inavale, very rarely flooded-----	95	Very limited Seepage	Somewhat limited Seepage	Very limited Depth to water
3875:				
Inavale, very rarely flooded-----	95	Very limited Seepage	Somewhat limited Seepage	Very limited Depth to water
3927:				
Ipage--------	85	Very limited Seepage	Somewhat limited Seepage	Very limited Cutbanks cave Depth to water
3948:				
Ipage, silty substratum--	70	Very limited Seepage	Somewhat limited Seepage	Very limited Cutbanks cave Depth to water
Tryon, silty substratum, wet---------	25	Very limited Seepage	Very limited Ponding Depth to saturated zone Seepage	Very limited Cutbanks cave
3993:				
Jansen, overblown---	80	Very limited Seepage	Somewhat limited Seepage	Very limited Depth to water
4019:				
Janude, sandy substratum, very rarely flooded-----	80	Very limited Seepage	Very limited Piping Seepage	Very limited Depth to water
4020:				
Janude, calcareous, very rarely flooded-----	90	Very limited Seepage	Very limited Piping Seepage	Very limited Depth to water
4417:				
Lamo, sand substratum, rarely flooded-----	85	Very limited Seepage	Very limited Depth to saturated zone Piping Seepage	Very limited Cutbanks cave Depth to water

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds
4586:				
Lex, rarely flooded-----	85	Very limited Seepage	Very limited Depth to saturated zone Seepage	Very limited Cutbanks cave Depth to water
4613:				
Libory-------	85	Very limited Seepage	Very limited Depth to saturated zone Piping Seepage	Very limited Cutbanks cave
4650:				
Lockton------	90	Very limited Seepage	Somewhat limited Seepage Depth to saturated zone	Very limited Cutbanks cave Depth to water
4744:				
Loup, loamy substratum--	90	Very limited Seepage	Very limited Depth to saturated zone Seepage	Very limited Cutbanks cave
4932:				
Marlake------	80	Very limited Seepage	Very limited Ponding Depth to saturated zone Seepage	Very limited Cutbanks cave
5705:				
O'Neill------	50	Very limited Seepage	Somewhat limited Seepage	Very limited Depth to water
Pivot, loamy surface-----	35	Very limited Seepage	Somewhat limited Seepage	Very limited Depth to water
5713:				
O'Neill------	90	Very limited Seepage	Somewhat limited Seepage	Very limited Depth to water
5905:				
Ortello, silty substratum--	85	Very limited Seepage	Somewhat limited Piping Seepage	Very limited Depth to water

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds
5909:				
Ortello, silty substratum	70	Very limited Seepage	Very limited Piping	Very limited Depth to water
Holder, loamy overblown	25	Somewhat limited Seepage	Very limited Piping	Very limited Depth to water
5914:				
Ortello	85	Very limited Seepage	Somewhat limited Seepage	Very limited Depth to water
5985:				
Ovina	85	Very limited Seepage	Very limited Depth to saturated zone Piping	Very limited Cutbanks cave
6136:				
Platte, frequently flooded	60	Very limited Seepage	Very limited Depth to saturated zone Seepage	Very limited Cutbanks cave Depth to water
Alda, frequently flooded	35	Very limited Seepage	Somewhat limited Depth to saturated zone Seepage Piping	Very limited Cutbanks cave Depth to water
6139:				
Platte, occasionally flooded	50	Very limited Seepage	Very limited Depth to saturated zone Seepage	Very limited Cutbanks cave Depth to water
Bolent, occasionally flooded	45	Very limited Seepage	Somewhat limited Seepage Depth to saturated zone	Very limited Cutbanks cave Depth to water

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds
6143:				
Platte, occasionally flooded-----	55	Very limited Seepage	Very limited Depth to saturated zone Seepage	Very limited Cutbanks cave Depth to water
Inavale, very rarely flooded-----	44	Very limited Seepage	Somewhat limited Seepage	Very limited Depth to water
6800:				
Scott--------	90	Somewhat limited Seepage	Very limited Ponding Depth to saturated zone	Very limited Depth to water
6956:				
Silver Creek, overblown, ponded------	85	Very limited Seepage	Very limited Ponding Depth to saturated zone Piping Seepage	Very limited Cutbanks cave Salty water
6957:				
Silver Creek, alkali------	55	Somewhat limited Seepage	Very limited Piping Depth to saturated zone	Somewhat limited Slow refill Cutbanks cave Depth to water
Silver Creek, saline, alkali------	35	Very limited Seepage	Very limited Piping Salinity	Very limited Cutbanks cave Depth to water Salty water
6978:				
Simeon-------	70	Very limited Seepage	Somewhat limited Seepage	Very limited Depth to water
7225:				
Thurman------	85	Very limited Seepage	Somewhat limited Seepage	Very limited Depth to water

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds
7249:				
Thurman, loamy substratum--	90	Very limited Seepage	Somewhat limited Seepage	Very limited Depth to water
7250:				
Thurman, loamy substratum--	90	Very limited Seepage	Somewhat limited Seepage	Very limited Depth to water
7429:				
Uly, eroded--	85	Somewhat limited Seepage	Somewhat limited Piping	Very limited Depth to water
7436:				
Uly, eroded--	75	Somewhat limited Seepage	Somewhat limited Piping	Very limited Depth to water
Coly---------	20	Somewhat limited Seepage	Somewhat limited Piping	Very limited Depth to water
7438:				
Uly, eroded--	90	Somewhat limited Seepage	Somewhat limited Piping	Very limited Depth to water
7439:				
Uly, eroded--	70	Somewhat limited Seepage Slope	Somewhat limited Piping	Very limited Depth to water
Coly---------	25	Somewhat limited Seepage Slope	Somewhat limited Piping	Very limited Depth to water
7440:				
Uly----------	65	Somewhat limited Seepage Slope	Somewhat limited Piping	Very limited Depth to water
Hobbs, occasionally flooded-----	20	Somewhat limited Seepage	Somewhat limited Piping	Very limited Depth to water
7652:				
Valentine----	95	Very limited Seepage	Somewhat limited Seepage	Very limited Depth to water
7656:				
Valentine, rolling-----	95	Very limited Seepage Slope	Somewhat limited Seepage	Very limited Depth to water
7659:				
Valentine, rolling-----	60	Very limited Seepage Slope	Somewhat limited Seepage	Very limited Depth to water

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds
7659:				
Valentine, hilly-------	38	Very limited Seepage Slope	Somewhat limited Seepage	Very limited Depth to water
7662:				
Valentine----	90	Very limited Seepage	Somewhat limited Seepage	Very limited Depth to water
7664:				
Valentine----	90	Very limited Seepage Slope	Somewhat limited Seepage	Very limited Depth to water
7669:				
Valentine, loamy substratum--	80	Very limited Seepage	Somewhat limited Seepage	Very limited Depth to water
7721:				
Valentine----	60	Very limited Seepage	Somewhat limited Seepage	Very limited Depth to water
Libory-------	35	Very limited Seepage	Somewhat limited Depth to saturated zone Piping Seepage	Very limited Depth to water
7748:				
Valentine----	65	Very limited Seepage	Somewhat limited Seepage	Very limited Depth to water
Tryon, silty substratum, wet---------	25	Very limited Seepage	Very limited Ponding Depth to saturated zone Seepage	Very limited Cutbanks cave
7924:				
Wann, rarely flooded-----	90	Very limited Seepage	Somewhat limited Depth to saturated zone Seepage Piping	Very limited Cutbanks cave Depth to water
7927:				
Wann, rarely flooded-----	90	Very limited Seepage	Somewhat limited Depth to saturated zone Seepage Piping	Very limited Cutbanks cave Depth to water

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds
8020:				
Wood River---	85	Very limited Seepage	Very limited Piping Seepage	Very limited Depth to water
8022:				
Wood River, overblown---	65	Somewhat limited Seepage	Very limited Piping Seepage	Very limited Depth to water
Silver Creek, overblown, alkali------	20	Very limited Seepage	Very limited Ponding Depth to saturated zone Piping Seepage	Very limited Cutbanks cave
8023:				
Wood River---	55	Very limited Seepage	Very limited Piping Seepage	Very limited Depth to water
Silver Creek, alkali------	40	Very limited Seepage	Very limited Piping Seepage Depth to saturated zone	Very limited Cutbanks cave Depth to water
9975:				
Sanitary landfill----	100	Not rated	Not rated	Not rated
9985:				
Gravel pits--	100	Very limited Seepage Slope	Not rated	Not rated
9995:				
Miscellaneous water, sewage lagoons-----	100	Not rated	Not rated	Not rated
9998:				
Water--------	100	Not rated	Not rated	Not rated

Table 16.--Engineering Index Properties

(Absence of an entry indicates that the data were not estimated.)

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
1102:												
Alda-----------	0-6	Sandy loam	CL-ML, ML, CL	A-4	0	0	95-100	95-100	90-100	50-75	0-32	NP-7
	6-12	Sandy loam	CL, CL-ML, ML	A-4	0	0	95-100	95-100	90-100	50-75	0-37	NP-12
	12-15	Very fine sandy loam	SC-SM, SM	A-2, A-4	0	0	95-100	95-100	90-100	30-50	0-31	NP-12
	15-33	Stratified very fine sandy loam to fine sand	SC-SM, SM	A-2, A-4	0	0	95-100	95-100	90-100	30-50	0-31	NP-12
	33-44	Gravelly coarse sand	SC-SM, SM, SP, SP-SM	A-1, A-2, A-3	0	0	90-100	65-100	30-95	2-15	0-17	NP-1
	44-80	Coarse sand	SC-SM, SM, SP, SP-SM	A-1, A-2, A-3	0	0	95-100	85-100	30-95	2-15	0-17	NP-1
1104:												
Alda-----------	0-6	Loam	ML, CL, CL-ML	A-4	0	0	95-100	95-100	85-100	50-75	25-45	6-18
	6-16	Loam	CL, CL-ML, ML	A-4	0	0	95-100	95-100	85-100	50-75	20-45	2-18
	16-20	Sandy loam	SC-SM, SM	A-2, A-4	0	0	95-100	95-100	70-100	30-50	17-31	2-12
	20-27	Sandy loam	SC-SM, SM	A-2, A-4	0	0	95-100	95-100	70-100	30-50	0-31	NP-12
	27-34	Coarse sand	SC-SM, SM	A-2, A-4	0	0	95-100	95-100	70-100	30-50	0-26	NP-7
	34-39	Gravelly sand	SC-SM, SM	A-2, A-4	0	0	70-100	70-100	70-100	30-50	0-26	NP-7
	39-80	Gravelly coarse sand	SC-SM, SM, SP, SP-SM	A-1, A-2, A-3	0	0	85-100	70-95	30-95	2-15	0-17	NP-1
1166:												
Almeria--------	0-4	Loamy sand	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0	100	100	50-80	15-55	0-31	NP-6
	4-14	Loamy sand	SC-SM, SM, SP, SP-SM	A-2, A-4	0	0	95-100	92-100	50-80	10-50	0-23	NP-6
	14-22	Stratified fine sand	SC-SM, SM, SP, SP-SM	A-2, A-3, A-4	0	0	94-100	85-100	50-80	0-50	0-23	NP-6
	22-33	Stratified fine sand	SC-SM, SM, SP, SP-SM	A-2, A-3, A-4	0	0	90-100	80-100	50-80	0-50	0-23	NP-6
	33-80	Stratified sand	SC-SM, SM, SP, SP-SM	A-2, A-3, A-4	0	0	90-100	80-100	50-80	0-50	0-23	NP-6
1348:												
Barney, frequently flooded-------	0-2	Silty clay loam	ML, CL, CL-ML	A-7-6, A-6	0	0	100	100	95-100	85-95	39-52	18-24
	2-6	Silty clay loam	ML, CL, CL-ML	A-7-6, A-6	0	0	100	100	95-100	85-95	39-52	18-24
	6-12	Stratified very fine sandy loam to loamy fine sand	SC-SM, SM	A-2, A-4	0	0	95-100	95-100	85-100	34-75	15-30	1-12
	12-16	Stratified sand to very fine sandy loam	SM, SP, SP-SM	A-1, A-2, A-3	0	0	95-100	90-100	30-70	3-15	0-30	NP-12
	16-80	Coarse sand	SM, SP, SP-SM	A-1, A-2, A-3	0	0	92-100	90-100	30-70	0-15	0-19	NP-2
Barney, wet, channeled-----	0-4	Mucky loam	CL-ML, CL, ML	A-6, A-4	0	0	100	100	85-95	60-95	25-45	6-18
	4-11	Clay loam	ML, CL, CL-ML	A-7-6, A-6	0	0	100	100	85-95	60-95	39-52	18-24
	11-18	Clay loam	ML, CL, CL-ML	A-7-6, A-6	0	0	95-100	95-100	85-95	60-95	35-47	18-24
	18-80	Coarse sand	SM, SP, SP-SM	A-1, A-2, A-3	0	0	95-100	90-100	30-70	0-15	0-19	NP-2

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
1354:												
Barney----------	0-6	Silty clay loam	ML, CL, CL-ML	A-7-6, A-6	0	0	100	100	95-100	85-95	39-52	18-24
	6-10	Stratified very fine sandy loam to loamy fine sand	SC-SM, SM	A-2, A-4	0	0	100	100	85-100	34-75	15-30	1-12
	10-18	Stratified sand to silty clay loam	SM, SP, SP-SM	A-1, A-2, A-3	0	0	95-100	90-100	30-70	3-15	0-39	NP-20
	18-80	Coarse sand	SM, SP, SP-SM	A-1, A-2, A-3	0	0	90-100	90-100	30-70	0-15	0-19	NP-2
Bolent----------	0-8	Loam	ML	A-4, A-6	0	0	95-100	95-100	85-100	70-95	27-41	9-17
	8-14	Very fine sandy loam	SC-SM, SM	A-2, A-4	0	0	95-100	95-100	85-100	34-75	18-30	4-12
	14-26	Stratified fine sand to very fine sandy loam	SC-SM, SM, SP, SP-SM	A-1, A-2, A-3	0	0	95-100	92-100	40-70	3-30	0-30	NP-12
	26-30	Sand	SC-SM, SM, SP, SP-SM	A-1, A-2, A-3	0	0	95-100	90-100	40-70	2-30	0-19	NP-2
	30-36	Coarse sand	SM, SP, SP-SM	A-1, A-2, A-3	0	0	95-100	90-100	25-65	0-15	0-19	NP-2
	36-80	Fine sand	SM, SP, SP-SM	A-1, A-2, A-3	0	0	90-100	90-100	25-65	0-15	0-19	NP-2
1547:												
Blendon---------	0-5	Loam	CL-ML, ML, CL	A-4, A-6	0	0	100	100	85-100	60-75	29-43	9-17
	5-15	Loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	85-100	60-75	29-43	9-17
	15-20	Loam	CL, ML, SC, SM	A-4	0	0	100	100	60-100	20-65	22-35	6-13
	20-32	Sandy loam	SC, SC-SM, SM	A-4, A-2	0	0	100	100	60-100	20-45	21-31	6-10
	32-45	Loamy sand	SC-SM, SM, SP-SM	A-2, A-4	0	0	100	90-100	50-100	10-45	16-28	2-10
	45-66	Loamy sand	SC-SM, SM, SP-SM	A-2, A-4	0	0	100	90-100	50-100	10-45	16-27	2-10
	66-80	Sand	SC-SM, SM, SP-SM	A-2, A-3	0	0	100	100	50-95	5-35	0-20	NP-4
1669:												
O'Neill---------	0-6	Loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	85-95	60-70	22-43	6-18
	6-13	Loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	85-95	60-70	22-43	6-18
	13-18	Fine sandy loam	SC, SC-SM	A-2, A-4	0	0	100	95-100	60-75	30-50	19-35	3-13
	18-27	Sandy loam	SC, SC-SM	A-2, A-4	0	0	100	95-100	60-75	30-50	19-33	3-13
	27-38	Loamy sand	SP, SP-SM	A-1, A-2, A-3	0	0	100	95-100	25-60	0-5	0-22	NP-5
	38-80	Coarse sand	SP, SP-SM	A-1, A-2, A-3	0	0	95-100	90-100	25-60	0-5	0-17	NP-1
Boelus----------	0-6	Loamy sand	SC-SM, SM	A-2	0	0	100	100	50-95	15-35	17-30	1-7
	6-12	Loamy sand	SM, SC-SM	A-2	0	0	100	100	50-95	15-35	17-30	1-7
	12-37	Loamy sand	SC-SM, SM, SP, SP-SM	A-2, A-3	0	0	100	100	50-95	2-35	0-24	NP-6
	37-45	Loam	CL, CL-ML, ML	A-4, A-6	0	0	100	95-100	85-95	60-70	29-41	12-19
	45-55	Loam	CL, CL-ML, ML	A-4, A-6	0	0	100	95-100	85-95	60-70	28-39	12-19
	55-65	Coarse sandy loam	SC, SC-SM	A-2, A-4	0	0	100	90-100	60-75	30-50	19-33	3-13
	65-80	Stratified loamy coarse sand to gravelly loamy coarse sand	SP, SP-SM	A-1, A-2, A-3	0	0	85-100	85-100	25-55	2-12	0-21	NP-4

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
1669:												
Pivot----------	0-7	Fine sandy loam	SM	A-2, A-4	0	0	100	100	60-85	30-40	19-33	3-12
	7-12	Fine sandy loam	SM	A-2, A-4	0	0	100	100	60-85	30-40	19-33	3-12
	12-17	Sandy loam	SM	A-2, A-4	0	0	100	95-100	60-85	30-40	19-33	3-12
	17-25	Loamy sand	SW-SM, SM, SP-SM	A-2, A-3	0	0	100	95-100	50-85	5-30	0-24	NP-6
	25-34	Loamy coarse sand	SM, SP, SP-SM, SW-SM	A-2, A-3	0	0	100	95-100	50-70	3-15	0-21	NP-4
	34-80	Coarse sand	GP, GP-GM, SP, SP-SM	A-1, A-2, A-3	0	0	90-100	85-95	20-54	2-12	0-17	NP-1
1678:												
Bolent---------	0-6	Loam	ML	A-4	0	0	100	100	85-100	70-95	27-41	9-17
	6-9	Loam	ML	A-4	0	0	100	100	85-100	70-95	27-41	9-17
	9-16	Very fine sandy loam	SC-SM, SM	A-2, A-4	0	0	100	100	85-100	34-75	18-30	4-12
	16-27	Stratified fine sand to very fine sandy loam	SC-SM, SM, SP, SP-SM	A-1, A-2, A-3	0	0	100	90-100	40-70	3-30	0-30	NP-12
	27-80	Coarse sand	SM, SP, SP-SM	A-1, A-2, A-3	0	0	95-100	90-100	25-65	0-15	0-19	NP-2
1680:												
Bolent---------	0-8	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	100	100	85-95	20-40	21-35	4-12
	8-12	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	100	100	85-95	20-40	20-31	4-12
	12-26	Loamy fine sand	ML, SC-SM, SM, SP-SM	A-4, A-2, A-3	0	0	100	100	50-85	5-36	0-21	NP-4
	26-33	Stratified very fine sandy loam to loamy fine sand	SC-SM, SM, SP, SP-SM	A-1, A-2, A-3	0	0	95-100	95-100	40-70	3-30	0-30	NP-12
	33-40	Sand	SC-SM, SM, SP, SP-SM	A-1, A-2, A-3	0	0	95-100	90-100	40-70	2-30	0-19	NP-2
	40-80	Coarse sand	SM, SP, SP-SM	A-1, A-2, A-3	0	0	90-100	90-100	25-65	0-15	0-19	NP-2
1688:												
Bolent---------	0-4	Loamy sand	SC-SM, SM	A-2, A-4	0	0	100	100	85-95	20-40	0-29	NP-7
	4-8	Loamy fine sand	SM, SC-SM	A-2, A-4	0	0	100	100	85-95	20-40	0-30	NP-7
	8-20	Fine sand	ML, SC-SM, SM, SP-SM	A-2, A-3, A-4	0	0	100	100	50-85	5-40	0-25	NP-4
	20-31	Stratified fine sand	ML, SC-SM, SM, SP-SM	A-3, A-4, A-2	0	0	100	100	50-85	5-40	0-24	NP-4
	31-80	Sand	SC-SM, SM, SP, SP-SM	A-1, A-2, A-3	0	0	90-100	90-100	40-70	2-30	0-19	NP-2
1704:												
Bolent---------	0-6	Loam	ML	A-4	0	0	100	100	85-100	70-95	27-41	9-17
	6-9	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	100	100	85-95	20-40	21-35	4-12
	9-27	Stratified fine sand to very fine sandy loam	SM, SP, SP-SM, SC-SM	A-1, A-2, A-3	0	0	100	95-100	40-70	3-30	0-30	NP-12
	27-38	Sand	SC-SM, SM, SP, SP-SM	A-1, A-2, A-3	0	0	100	95-100	40-70	2-30	0-19	NP-2
	38-80	Coarse sand	SM, SP, SP-SM	A-1, A-2, A-3	0	0	95-100	90-100	25-65	0-15	0-19	NP-2
Calamus--------	0-8	Loamy fine sand	SC-SM, SM	A-2	0	0	100	100	50-80	15-35	0-24	NP-6
	8-33	Fine sand	ML, SC-SM, SM, SP-SM	A-2, A-3, A-4	0	0	100	100	50-85	5-40	0-21	NP-4
	33-44	Stratified fine sand to very fine sandy loam	ML, SC-SM, SM, SP-SM	A-2, A-3, A-4	0	0	100	100	50-85	5-40	0-30	NP-12
	44-80	Coarse sand	SM, SP, SP-SM	A-1, A-2, A-3	0	0	95-100	90-100	25-65	0-15	0-19	NP-2

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
1796:												
Brocksburg-----	0-6	Loam	CL, ML	A-4, A-6	0	0	100	100	90-100	70-90	22-41	6-17
	6-20	Loam	CL, ML	A-4, A-6	0	0	100	100	90-100	70-90	22-41	6-17
	20-24	Loam	CL, ML	A-4, A-6	0	0	100	100	90-100	70-90	22-41	6-17
	24-28	Clay loam	CL	A-6, A-7	0	0	100	100	90-100	70-80	39-49	19-25
	28-32	Sandy clay loam	CL	A-6, A-7	0	0	100	100	90-100	70-80	32-48	13-25
	32-35	Coarse sandy loam	CL	A-4, A-2-4	0	0	100	100	90-100	10-45	0-31	NP-11
	35-41	Sand	SM, SP, SP-SM	A-1, A-2, A-3	0	0	100	90-100	20-60	3-15	0-19	NP-2
	41-80	Coarse sand	SM, SP, SP-SM	A-1, A-2, A-3	0	0	100	90-100	20-60	3-15	0-19	NP-2
1930:												
Butler---------	0-8	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	100	95-100	28-36	9-16
	8-15	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	100	95-100	28-36	9-16
	15-24	Silty clay	CH	A-7	0	0	100	100	100	95-100	53-70	29-40
	24-31	Silty clay	CH	A-7	0	0	100	100	100	95-100	53-70	29-40
	31-36	Silty clay	CH	A-7	0	0	100	100	100	95-100	53-70	29-40
	36-45	Silty clay loam	CH, CL	A-6, A-7	0	0	100	100	100	95-100	35-61	10-35
	45-80	Silt loam	CH, CL	A-6, A-4	0	0	100	100	100	95-100	28-36	5-15
1942:												
Calamus--------	0-9	Loamy fine sand	SC-SM, SM	A-2	0	0	100	100	50-80	15-35	0-24	NP-6
	9-21	Fine sand	ML, SC-SM, SM, SP-SM	A-2, A-3	0	0	100	100	50-85	5-35	0-21	NP-4
	21-43	Stratified fine sand to very fine sandy loam	ML, SC-SM, SM, SP-SM	A-2, A-3	0	0	100	100	50-85	5-35	0-30	NP-12
	43-54	Coarse sand	ML, SC-SM, SM, SP-SM	A-2, A-3	0	0	100	100	50-85	5-35	0-21	NP-4
	54-80	Coarse sand	SP, SP-SM, SM	A-1, A-2, A-3	0	0	100	85-100	25-65	0-15	0-19	NP-2
2020:												
Caruso---------	0-7	Loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	65-90	29-45	12-18
	7-13	Loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	65-90	29-45	12-18
	13-26	Very fine sandy loam	SC-SM, SM	A-4	0	0	100	100	85-100	50-75	18-30	4-12
	26-41	Clay loam	CH, CL	A-6, A-7	0	0	100	100	95-100	85-95	38-47	19-25
	41-54	Sandy loam	SC-SM, SM	A-4, A-2	0	0	100	85-100	60-100	20-50	0-31	NP-12
	54-72	Loam		A-4, A-6	0	0	100	90-100	90-100	80-95	19-39	3-19
	72-80	Sand	SC-SM, SM, SP, SP-SM	A-1, A-2, A-3	0	0	95-100	90-100	40-70	2-30	0-19	NP-2
2168:												
Coly-----------	0-5	Silt loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0	100	100	85-100	85-100	29-38	12-16
	5-9	Silt loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0	100	100	85-100	85-100	29-37	12-16
	9-18	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	85-100	85-100	26-36	9-16
	18-80	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	85-100	85-100	28-36	12-16
2223:												
Cozad----------	0-12	Loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	100	75-100	23-39	6-17
	12-18	Loam	CL, CL-ML, ML	A-4, A-6	0	0	95-100	95-100	90-100	80-95	21-31	6-12
	18-26	Loam	CL, CL-ML, ML	A-4, A-6	0	0	95-100	95-100	90-100	80-95	21-31	6-12
	26-30	Loam	CL, CL-ML, ML	A-4, A-6	0	0	95-100	95-100	90-100	80-95	21-31	6-12
	30-39	Loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	100	75-100	23-39	6-17
	39-55	Loam	CL, CL-ML, ML	A-4, A-6	0	0	95-100	95-100	90-100	80-95	21-31	6-12
	55-75	Silty clay loam	CL, CL-ML, ML	A-4, A-6	0	0	95-100	95-100	80-100	50-100	34-43	18-24
	75-80	Stratified coarse sand to fine sand to sand	CL, CL-ML	A-3, A-2, A-1	0	0	100	100	25-65	5-25	0-20	NP-4

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
2238:												
Cozad----------	0-5	Loam	CL, CL-ML, ML	A-6, A-4	0	0	100	100	95-100	85-100	25-38	6-12
	5-10	Loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	85-100	25-38	6-12
	10-13	Loam	CL	A-4, A-6	0	0	100	100	98-100	85-100	22-37	6-13
	13-31	Very fine sandy loam	CL, CL-ML	A-4, A-6	0	0	100	100	100	85-100	21-31	6-12
	31-41	Very fine sandy loam	CL, CL-ML	A-4, A-6	0	0	100	100	100	85-100	18-29	4-11
	41-80	Stratified loamy fine sand to very fine sandy loam to sand	CL, CL-ML	A-4, A-6	0	0	100	100	100	85-100	18-25	3-7
2240:												
Cozad----------	0-8	Silt loam	CL, CL-ML, ML	A-6, A-4	0	0	100	100	95-100	85-100	30-43	11-17
	8-13	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	85-100	30-43	11-17
	13-22	Silt loam	CL	A-4, A-6	0	0	100	100	98-100	85-100	27-40	9-16
	22-42	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	100	85-100	26-36	9-16
	42-80	Stratified loamy fine sand	CL, CL-ML	A-4, A-6	0	0	100	100	100	85-100	18-25	3-7
Hobbs----------	0-7	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	85-100	31-45	11-18
	7-24	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	85-100	33-45	13-18
	24-49	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	85-100	32-45	12-18
	49-59	Silt loam	CL, CL-ML, MH	A-4, A-6, A-7	0	0	100	100	95-100	80-100	27-43	9-18
	59-69	Silt loam	CL, CL-ML, MH	A-4, A-6, A-7	0	0	100	100	95-100	80-100	26-40	9-19
	69-80	Stratified loamy fine sand	CL, CL-ML	A-4, A-6	0	0	100	100	100	85-100	17-26	2-7
2371:												
Cullison-------	0-5	Fine sandy loam	SM, SC-SM	A-2, A-4	0	0	100	100	70-100	30-45	25-44	2-9
	5-10	Fine sandy loam	SM, SC-SM	A-2, A-4	0	0	100	100	70-100	30-45	25-44	2-9
	10-13	Loamy fine sand	SM, SP-SM	A-2, A-3	0	0	100	100	60-100	5-30	0-22	NP-4
	13-20	Fine sandy loam	ML, SM	A-4	0	0	100	100	70-85	40-60	21-37	4-12
	20-24	Fine sandy loam	ML, SM	A-4	0	0	100	100	70-85	40-60	18-31	4-12
	24-29	Fine sandy loam	ML, SM	A-4	0	0	100	100	70-85	40-60	18-31	4-12
	29-51	Fine sandy loam	SM, ML	A-4	0	0	100	100	70-85	40-60	16-28	2-10
	51-80	Silty clay loam	CL, SC	A-4, A-6, A-7	0	0	100	100	70-100	40-85	37-47	19-25
2415:												
Darr-----------	0-6	Sandy loam	SC-SM, SM	A-4	0	0	100	100	70-85	40-50	20-32	2-7
	6-12	Sandy loam	SM	A-2, A-4	0	0	100	100	65-85	30-50	17-33	2-12
	12-31	Coarse sandy loam	SM	A-2, A-4	0	0	100	100	65-85	30-50	17-31	2-12
	31-50	Coarse sand	SM, SP-SM	A-1	0	0	95-100	90-100	25-35	10-25	0-20	NP-3
	50-58	Coarse sand	SM, SP-SM	A-1	0	0	95-100	90-100	25-35	10-25	0-20	NP-3
	58-80	Gravelly coarse sand	SM, SP-SM	A-1	0	0	80-100	80-100	25-35	10-25	0-20	NP-3
2430:												
Detroit--------	0-7	Silt loam	CL	A-6	0	0	100	100	95-100	85-95	35-45	14-18
	7-12	Silt loam	CL	A-6	0	0	100	100	95-100	85-95	35-45	14-18
	12-17	Silty clay loam	CH	A-7	0	0	100	100	95-100	90-100	43-55	21-29
	17-26	Silty clay	CH	A-7	0	0	100	100	95-100	90-100	47-59	25-33
	26-33	Silty clay	CH	A-7	0	0	100	100	95-100	90-100	47-59	25-33
	33-46	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	85-100	39-50	21-29
	46-65	Silt loam	CL	A-6, A-7	0	0	100	100	95-100	85-100	29-39	12-19
	65-80	Silt loam	CL	A-6, A-7	0	0	100	100	95-100	85-100	29-39	12-19

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
2731:												
Els------------	0-5	Loamy fine sand	SM, SP-SM	A-2	0	0	100	100	85-100	10-30	0-30	NP-7
	5-9	Loamy fine sand	SM, SP, SP-SM	A-2, A-3	0	0	100	90-100	70-100	4-30	0-30	NP-7
	9-11	Loamy fine sand	SM, SP, SP-SM	A-2, A-3	0	0	100	90-100	70-100	4-30	0-25	NP-7
	11-17	Loamy fine sand	SM, SP, SP-SM	A-2, A-3	0	0	100	90-100	70-100	4-30	0-25	NP-7
	17-45	Fine sand	SM, SP, SP-SM	A-2, A-3	0	0	100	90-100	70-100	4-30	0-21	NP-4
	45-60	Fine sandy loam	ML, SM	A-4	0	0	100	100	70-95	40-55	21-35	6-12
	60-80	Loamy fine sand	SM, SP, SP-SM	A-2, A-3	0	0	90-100	90-100	70-100	4-30	0-21	NP-4
Tryon----------	0-4	Fine sandy loam	ML, SM	A-4	0	0	100	100	70-95	40-55	29-46	5-12
	4-7	Fine sandy loam	ML, SM	A-4	0	0	100	100	70-95	40-55	29-46	5-12
	7-13	Loamy fine sand	SM, SP, SP-SM	A-2, A-3	0	0	100	90-100	70-100	4-30	0-25	NP-7
	13-30	Loamy fine sand	SM, SP, SP-SM	A-2, A-3	0	0	100	90-100	70-100	4-30	0-25	NP-7
	30-47	Fine sand	SM, SP, SP-SM	A-2, A-3	0	0	100	90-100	70-100	4-30	0-21	NP-4
	47-55	Fine sandy loam	ML, SM	A-4	0	0	100	100	70-95	40-55	21-35	6-12
	55-80	Loamy fine sand	SM, SP, SP-SM	A-2, A-3	0	0	100	90-100	70-100	4-30	0-21	NP-4
2846:												
Fillmore-------	0-5	Silty clay loam	CL, CL-ML, ML	A-7, A-6	0	0	100	100	95-100	95-100	30-45	10-25
	5-9	Silty clay loam	CL, CL-ML, ML	A-7, A-6	0	0	100	100	95-100	95-100	30-45	10-25
	9-11	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	95-100	20-40	2-20
	11-35	Silty clay	CH	A-7	0	0	100	100	100	95-100	61-71	30-45
	35-45	Silty clay	CH	A-7	0	0	100	100	100	95-100	61-71	30-45
	45-50	Silty clay loam	CH, CL	A-6, A-7	0	0	100	100	100	95-100	35-60	20-40
	50-80	Silt loam	CH, CL	A-6, A-4	0	0	100	100	100	95-100	20-40	2-20
2918:												
Gates----------	0-5	Silt loam	ML	A-4	0	0	100	100	95-100	65-100	24-31	8-12
	5-17	Silt loam	ML	A-4	0	0	100	100	95-100	85-100	23-31	8-12
	17-30	Very fine sandy loam	ML	A-4	0	0	100	100	95-100	85-100	18-29	3-11
	30-80	Very fine sandy loam	ML	A-4	0	0	100	100	95-100	85-100	18-29	3-11
2920:												
Gates----------	0-6	Silt loam	ML	A-4	0	0	100	100	95-100	65-100	24-31	8-12
	6-13	Silt loam	ML	A-4	0	0	100	100	95-100	85-100	23-31	8-12
	13-80	Silt loam	ML	A-4	0	0	100	100	95-100	85-100	24-29	9-11
2924:												
Gates----------	0-5	Silt loam	ML	A-4	0	0	100	100	95-100	65-100	25-30	9-11
	5-9	Silt loam	ML	A-4	0	0	100	100	95-100	85-100	23-27	8-10
	9-19	Very fine sandy loam	ML	A-4	0	0	100	100	95-100	85-100	24-29	9-11
	19-80	Very fine sandy loam	ML	A-4	0	0	100	100	95-100	85-100	24-29	9-11
2925:												
Gates----------	0-5	Silt loam	ML	A-4	0	0	100	100	95-100	65-100	25-30	9-11
	5-30	Very fine sandy loam	ML	A-4	0	0	100	100	95-100	85-100	24-29	9-11
	30-80	Very fine sandy loam	ML	A-4	0	0	100	100	95-100	85-100	24-29	9-11
2927:												
Gates----------	0-7	Silt loam	ML	A-4	0	0	100	100	95-100	65-100	28-39	12-19
	7-13	Silt loam	ML	A-4	0	0	100	100	95-100	65-100	28-39	12-19
	13-22	Silt loam	ML	A-4	0	0	100	100	95-100	65-100	28-39	12-19
	22-29	Silt loam	ML	A-4	0	0	100	100	95-100	65-100	28-39	12-19
	29-35	Silt loam	ML	A-4	0	0	100	100	95-100	85-100	27-39	12-19
	35-46	Silt loam	ML	A-4	0	0	100	100	95-100	85-100	27-39	12-19
	46-51	Silt loam	ML	A-4	0	0	100	100	95-100	85-100	27-39	12-19
	51-80	Silt loam	ML	A-4	0	0	100	100	95-100	85-100	27-38	12-19

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
2940:												
Gates----------	0-4	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-4, A-2	0	0	100	100	60-100	30-65	20-29	4-10
	4-8	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0	100	100	60-100	30-65	25-31	9-12
	8-13	Fine sandy loam	ML, SC-SM, SM, CL-ML	A-4, A-2	0	0	100	100	60-100	30-65	25-31	9-12
	13-42	Loam	ML	A-4	0	0	100	100	95-100	85-100	24-38	9-19
	42-60	Loam	ML	A-4	0	0	100	100	95-100	85-100	24-38	9-19
	60-80	Loam	ML	A-4	0	0	100	100	95-100	85-100	24-38	9-19
2972:												
Gayville-------	0-3	Loam	CL, CL-ML, ML	A-4	0	0	100	100	95-100	90-100	29-43	9-18
	3-6	Clay loam	CL	A-6, A-7	0	0	100	100	90-100	70-90	41-51	19-25
	6-28	Silty clay loam	CL	A-6, A-7	0	0	100	100	90-100	70-90	37-49	19-25
	28-34	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	90-100	18-38	4-19
	34-54	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	90-100	18-30	4-12
	54-65	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	90-100	18-30	4-12
	65-80	Stratified loamy fine sand to very fine sandy loam to sand	CL, CL-ML	A-4, A-6	0	0	100	100	100	85-100	18-25	3-7
3023:												
Gibbon---------	0-7	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	85-100	70-90	33-45	13-18
	7-23	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	85-100	70-90	33-45	13-18
	23-36	Silty clay loam	CH, CL	A-6, A-7	0	0	100	100	95-100	85-95	38-47	19-25
	36-42	Silty clay loam	CH, CL	A-6, A-7	0	0	100	100	95-100	85-95	38-47	19-25
	42-46	Silt loam	CL	A-6	0	0	100	100	90-100	80-90	32-40	13-19
	46-62	Stratified loamy sand to sandy loam to sand to clay loam	SC-SM, SM	A-2, A-4	0	0	95-100	95-100	70-100	30-50	0-30	NP-12
	62-76	Loam	CL	A-6	0	0	100	100	90-100	80-90	32-40	13-19
	76-80	Coarse sand	SM, SP, SP-SM	A-1, A-2, A-3	0	0	60-100	50-95	30-65	3-14	0-19	NP-2
3045:												
Gibbon---------	0-7	Loam	CL, CL-ML, ML	A-4	0	0	100	100	85-100	70-90	33-45	13-18
	7-23	Loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	65-90	30-39	13-19
	23-34	Silty clay loam	CH, CL	A-6, A-7	0	0	100	100	95-100	85-95	41-53	19-25
	34-48	Silty clay loam	CH, CL	A-6, A-7	0	0	100	100	95-100	85-95	38-47	19-25
	48-52	Clay loam	CH, CL	A-6, A-7	0	0	100	100	95-100	85-95	39-51	19-25
	52-62	Clay loam	CH, CL	A-6, A-7	0	0	100	100	95-100	85-95	38-47	19-25
	62-80	Stratified loamy sand to very fine sandy loam to gravelly sand	SC-SM, SM	A-2, A-4	0	0	95-100	95-100	70-100	30-50	0-30	NP-12
3140:												
Gothenburg-----	0-4	Stratified loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	75-95	30-80	22-37	6-13
	4-5	Loamy coarse sand	SM, SP, SP-SM	A-1, A-2, A-3	0	0	95-100	85-95	25-65	0-15	0-22	NP-4
	5-80	Stratified coarse sand to gravelly coarse sand	SM, SP, SP-SM	A-1, A-2, A-3	0	0	70-95	65-95	25-65	0-15	0-17	NP-1

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
3290:												
Hall-----------	0-7	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	95-100	31-47	10-19
	7-14	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	95-100	31-47	10-19
	14-21	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	39-55	19-28
	21-30	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	39-55	19-28
	30-37	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	39-53	19-29
	37-47	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	27-45	10-23
	47-67	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	85-100	75-100	22-40	7-21
	67-80	Silty clay loam	CL, CL-ML, ML	A-4	0	0	100	100	85-100	75-100	22-40	7-21
3293:												
Hall-----------	0-7	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	95-100	31-47	10-19
	7-10	Silty clay loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	95-100	39-49	17-21
	10-17	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	43-51	22-26
	17-21	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	38-48	19-25
	21-28	Silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	36-43	17-21
	28-80	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	85-100	75-100	22-38	7-19
3294:												
Hall-----------	0-9	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	95-100	29-45	9-18
	9-15	Silty clay loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	95-100	41-53	19-25
	15-22	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	39-51	19-26
	22-26	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	37-49	17-25
	26-30	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	26-41	9-21
	30-39	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	85-100	75-100	22-40	7-21
	39-80	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	85-100	75-100	22-40	7-21
3300:												
Hall-----------	0-7	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	95-100	31-47	10-19
	7-18	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	95-100	31-47	10-19
	18-30	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	39-55	19-28
	30-47	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	39-55	19-28
	47-60	Very fine sandy loam	CL, CL-ML	A-4, A-6	0	0	100	100	100	85-100	24-36	9-17
	60-80	Stratified fine sand to coarse sand to sand	CL, CL-ML	A-4, A-6	0	0	100	100	100	85-100	16-25	2-7
3301:												
Hall-----------	0-8	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	95-100	29-45	9-18
	8-12	Silty clay loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	95-100	39-52	18-24
	12-24	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	39-49	19-25
	24-37	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	39-49	19-25
	37-41	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	26-39	9-19
	41-80	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	85-100	75-100	22-40	7-21
Hobbs----------	0-6	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	85-100	29-45	9-18
	6-13	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	85-100	29-45	9-18
	13-30	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	85-100	29-45	9-18
	30-36	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	85-100	29-45	9-18
	36-47	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	85-100	27-43	9-18
	47-73	Silt loam	CL, CL-ML, MH	A-4, A-6, A-7	0	0	100	100	95-100	80-100	26-39	9-19
	73-80	Silt loam	CL, CL-ML, MH	A-4, A-6, A-7	0	0	100	100	95-100	80-100	26-39	9-19
3330:												
Hastings-------	0-5	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	100	95-100	25-40	5-15
	5-14	Silt loam	CL	A-4, A-6	0	0	100	100	100	95-100	25-40	5-15
	14-18	Silty clay loam	CH, CL	A-7	0	0	100	100	100	95-100	30-45	10-25
	18-26	Silty clay	CL, CH	A-7	0	0	100	100	100	95-100	30-45	10-25
	26-30	Silty clay	CH, CL	A-7	0	0	100	100	100	95-100	52-70	29-43
	30-35	Silty clay loam	CL	A-6, A-7	0	0	100	100	100	95-100	30-50	10-25
	35-42	Silty clay loam	CL	A-6, A-7	0	0	100	100	100	95-100	30-50	10-25
	42-80	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	100	95-100	25-40	5-15

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
3331:												
Hastings-------	0-5	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	100	95-100	25-40	5-15
	5-13	Silt loam	CL	A-4, A-6	0	0	100	100	100	95-100	25-40	5-15
	13-19	Silty clay loam	CH, CL	A-7	0	0	100	100	100	95-100	30-45	10-25
	19-24	Silty clay	CL, CH	A-7	0	0	100	100	100	95-100	30-45	10-25
	24-35	Silty clay	CH, CL	A-7	0	0	100	100	100	95-100	52-70	29-43
	35-41	Silty clay loam	CL	A-6, A-7	0	0	100	100	100	95-100	30-50	10-25
	41-46	Silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	100	95-100	25-40	5-15
	46-80	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	100	95-100	25-40	5-15
3478:												
Hersh----------	0-6	Fine sandy loam	ML, SC, SC-SM, SM	A-4	0	0	100	100	70-85	40-55	21-33	6-12
	6-17	Fine sandy loam	ML, SM	A-4	0	0	100	100	90-100	40-65	20-30	6-12
	17-47	Fine sandy loam	SM	A-2	0	0	100	100	50-80	10-35	20-30	6-12
	47-80	Silt loam	ML	A-4	0	0	100	100	95-100	85-100	24-29	9-11
3532:												
Hobbs----------	0-6	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	85-100	29-45	9-18
	6-13	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	85-100	29-45	9-18
	13-30	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	85-100	29-45	9-18
	30-36	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	85-100	29-45	9-18
	36-47	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	85-100	27-43	9-18
	47-73	Silt loam	CL, CL-ML, MH	A-4, A-6, A-7	0	0	100	100	95-100	80-100	26-39	9-19
	73-80	Silt loam	CL, CL-ML, MH	A-4, A-6, A-7	0	0	100	100	95-100	80-100	26-39	9-19
3537:												
Hobbs----------	0-6	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	85-100	29-45	9-18
	6-9	Stratified silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	85-100	28-44	9-18
	9-33	Stratified loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	85-100	21-40	6-17
	33-43	Silt loam	CL, CL-ML, MH	A-4, A-6, A-7	0	0	100	100	95-100	80-100	29-43	9-17
	43-53	Silt loam	CL, CL-ML, MH	A-4, A-6, A-7	0	0	100	100	95-100	80-100	26-39	9-17
	53-67	Very fine sandy loam	CL, CL-ML, MH	A-4, A-6, A-7	0	0	100	100	95-100	80-100	0-33	NP-12
	67-80	Silt loam	CL, CL-ML, MH	A-4, A-6, A-7	0	0	100	100	95-100	80-100	26-40	9-17
3568:												
Holder---------	0-5	Loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	98-100	90-100	20-40	2-16
	5-8	Loam	CL	A-4, A-6	0	0	100	100	98-100	95-100	20-40	2-16
	8-16	Loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	98-100	90-100	20-40	2-16
	16-24	Silt loam	CL-ML, ML, CL	A-4, A-6	0	0	100	100	98-100	90-100	20-40	2-16
	24-32	Silty clay loam	CL	A-6, A-7	0	0	100	100	98-100	95-100	35-50	12-25
	32-37	Silty clay loam	CL, ML	A-4, A-6, A-7	0	0	100	100	95-100	90-100	35-50	8-25
	37-42	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	90-100	20-40	2-16
	42-80	Silt loam	CL, ML	A-6, A-4	0	0	100	100	95-100	90-100	20-40	2-16
3570:												
Holder---------	0-5	Silt loam	ML, CL, CL-ML	A-4, A-6	0	0	100	100	98-100	90-100	20-40	2-16
	5-10	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	98-100	90-100	20-40	2-16
	10-14	Silty clay loam	CL	A-6, A-7	0	0	100	100	98-100	95-100	35-50	12-25
	14-20	Silty clay loam	CL	A-6, A-7	0	0	100	100	98-100	95-100	35-50	12-25
	20-30	Silty clay loam	CL	A-6, A-7	0	0	100	100	98-100	95-100	35-50	12-25
	30-41	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	90-100	20-40	5-20
	41-57	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	90-100	20-40	5-20
	57-80	Silt loam	CL, ML	A-6, A-4	0	0	100	100	95-100	90-100	20-40	5-20

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
3571:												
Holder	0-6	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	98-100	90-100	20-40	2-16
	6-10	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	98-100	90-100	20-40	2-16
	10-14	Silty clay loam	CL	A-6, A-7	0	0	100	100	98-100	95-100	30-45	12-25
	14-28	Silty clay loam	CL	A-6, A-7	0	0	100	100	98-100	95-100	35-50	12-25
	28-36	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	90-100	20-40	5-20
	36-52	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	90-100	20-40	5-20
	52-80	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	90-100	20-40	5-20
3578:												
Holder	0-4	Silty clay loam	CL	A-6, A-7	0	0	100	100	98-100	95-100	38-45	19-21
	4-17	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	98-100	90-100	33-38	17-19
	17-31	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	98-100	90-100	33-38	17-19
3580:												
Holder	0-4	Silty clay loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	98-100	90-100	38-49	19-25
	4-10	Silty clay loam	CL	A-6, A-7	0	0	100	100	98-100	95-100	38-49	19-25
	10-15	Silty clay loam	CL	A-6, A-7	0	0	100	100	98-100	95-100	38-49	19-25
	15-20	Silty clay loam	ML, CL	A-7, A-4, A-6	0	0	100	100	95-100	90-100	37-46	19-25
	20-50	Silt loam	CL, ML	A-6, A-4	0	0	100	100	95-100	90-100	31-42	13-21
	50-80	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	90-100	31-42	13-21
3598:												
Holdrege	0-6	Silty clay loam	CL, CL-ML, ML	A-6, A-7	0	0	100	100	95-100	85-100	37-47	17-21
	6-13	Silty clay loam	CH, CL	A-6, A-7	0	0	100	100	98-100	90-100	36-45	17-21
	13-21	Silt loam	CH, CL	A-6, A-4	0	0	100	100	98-100	90-100	28-43	12-21
	21-31	Silt loam	CL	A-4, A-6	0	0	100	100	95-100	95-100	27-40	12-21
	31-80	Silt loam	CL	A-4, A-6	0	0	100	100	95-100	95-100	27-40	12-21
3616:												
Holdrege	0-6	Silt loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0	100	100	95-100	85-100	35-47	13-19
	6-12	Silt loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0	100	100	95-100	85-100	35-47	13-19
	12-17	Silt loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0	100	100	95-100	85-100	35-47	13-19
	17-22	Silty clay loam	CH, CL	A-6, A-7	0	0	100	100	98-100	90-100	39-51	19-25
	22-28	Silty clay loam	CH, CL	A-6, A-7	0	0	100	100	98-100	90-100	38-49	19-25
	28-34	Silty clay loam	CH, CL	A-6, A-7	0	0	100	100	98-100	90-100	32-42	13-19
	34-65	Silt loam	CL	A-4, A-6	0	0	100	100	95-100	95-100	29-42	12-21
	65-80	Silt loam	CL	A-4, A-6	0	0	100	100	95-100	95-100	29-42	12-21
3770:												
Hord	0-7	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	85-100	30-45	11-18
	7-14	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	85-100	30-45	11-18
	14-22	Silt loam	CL	A-4, A-6	0	0	100	100	98-100	85-100	31-43	13-18
	22-32	Silt loam	CL	A-4, A-6	0	0	100	100	98-100	85-100	31-43	13-18
	32-43	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	100	85-100	28-39	12-19
	43-59	Very fine sandy loam	CL, CL-ML	A-4, A-6	0	0	100	100	100	85-100	20-32	6-13
	59-80	Very fine sandy loam	CL, CL-ML	A-4, A-6	0	0	100	100	100	85-100	20-32	6-13
3771:												
Hord	0-10	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	85-100	30-45	11-18
	10-16	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	85-100	30-45	11-18
	16-20	Silt loam	CL	A-4, A-6	0	0	100	100	98-100	85-100	30-40	13-20
	20-30	Silt loam	CL	A-4, A-6	0	0	100	100	98-100	85-100	30-40	13-20
	30-32	Silt loam	CL	A-4, A-6	0	0	100	100	98-100	85-100	30-39	13-19
	32-46	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	100	85-100	27-40	12-21
	46-80	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	100	85-100	27-40	12-21

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
3772:												
Hord-----------	0-8	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	85-100	30-45	11-18
	8-13	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	85-100	30-45	11-18
	13-20	Silt loam	CL	A-4, A-6	0	0	100	100	98-100	85-100	30-40	13-20
	20-30	Silt loam	CL	A-4, A-6	0	0	100	100	98-100	85-100	30-40	13-20
	30-32	Silt loam	CL	A-4, A-6	0	0	100	100	98-100	85-100	30-39	13-19
	32-46	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	100	85-100	27-40	12-21
	46-80	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	100	85-100	27-40	12-21
3782:												
Hord-----------	0-7	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	95-100	29-45	9-18
	7-18	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	95-100	29-45	9-18
	18-22	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	37-52	17-24
	22-44	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	36-51	17-24
	44-54	Loam	CL	A-6, A-4	0	0	100	100	95-100	95-100	27-43	9-18
	54-57	Loamy sand	CL, CL-ML	A-2	0	0	100	100	90-100	5-30	0-25	NP-7
	57-80	Stratified coarse sand to fine sand to sand	CL, CL-ML	A-2, A-3	0	0	100	100	50-95	5-35	0-23	NP-6
3869:												
Inavale--------	0-5	Loamy fine sand	SC-SM, SM, SP-SM	A-3, A-2	0	0	100	95-100	85-95	5-35	0-24	NP-6
	5-9	Loamy fine sand	SC-SM, SM, SP-SM	A-2, A-3	0	0	100	95-100	85-95	5-35	0-24	NP-6
	9-50	Stratified loamy fine sand to very fine sandy loam to fine sandy loam	SC-SM, SM, SP-SM	A-2, A-3	0	0	100	95-100	65-85	5-30	0-23	NP-6
	50-70	Loamy fine sand	SC-SM, SM, SP-SM	A-2, A-3	0	0	100	90-100	70-90	5-30	0-23	NP-6
	70-80	Coarse sand	SP-SM, SC-SM, SM	A-3, A-2	0	0	95-100	85-100	70-90	2-30	0-19	NP-2
3875:												
Inavale--------	0-5	Loamy sand	SC-SM, SM, SP-SM	A-2, A-3	0	0	100	95-100	85-95	5-35	0-24	NP-6
	5-40	Sand	SC-SM, SM, SP-SM	A-2, A-3	0	0	100	90-100	70-90	5-30	0-23	NP-6
	40-57	Stratified very fine sandy loam to fine sandy loam	SC-SM, SM, SP-SM	A-2, A-3	0	0	100	95-100	65-85	5-30	0-23	NP-6
	57-65	Loamy fine sand	SC-SM, SM, SP-SM	A-2, A-3	0	0	100	90-100	70-90	5-30	0-23	NP-6
	65-80	Sand	SC-SM, SM, SP-SM	A-3, A-2	0	0	95-100	85-100	70-90	2-30	0-19	NP-2
3927:												
Ipage----------	0-5	Loamy fine sand	SM, SP-SM	A-2-4	0	0	100	100	50-100	5-30	0-26	NP-6
	5-9	Loamy fine sand	SM, SP-SM	A-2-4	0	0	100	100	50-100	5-30	0-26	NP-6
	9-38	Fine sand	SM, SP, SP-SM	A-2-4	0	0	100	95-100	50-100	2-30	0-19	NP-2
	38-54	Loamy fine sand	SM, SP, SP-SM	A-2-4	0	0	100	95-100	50-100	2-30	0-23	NP-6
	54-58	Loamy fine sand	SM, SP, SP-SM	A-2-4	0	0	100	95-100	50-100	2-30	0-24	NP-6
	58-80	Loamy fine sand	SM, SP, SP-SM	A-2-4	0	0	100	95-100	50-100	2-30	0-23	NP-6

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
3948:												
Ipage----------	0-5	Fine sand	SM, SP, SP-SM	A-2-4	0	0	100	95-100	50-100	2-30	0-22	NP-2
	5-18	Fine sand	SP-SM, SM, SP	A-2-4	0	0	100	95-100	50-100	2-30	0-19	NP-2
	18-36	Fine sand	SP, SP-SM, SM	A-2-4	0	0	100	95-100	50-100	2-30	0-19	NP-2
	36-78	Fine sand	SM, SP, SP-SM	A-2-4	0	0	100	95-100	50-100	2-30	0-19	NP-2
	78-80	Silty clay loam	CL, CL-ML	A-6	0	0	100	100	85-100	60-95	37-46	19-25
Tryon----------	0-5	Loamy fine sand	SM, SP-SM	A-2-4	0	0	100	90-100	60-100	5-30	0-38	NP-4
	5-9	Fine sand	SM, SP-SM	A-2-4	0	0	100	90-100	60-100	5-30	0-27	NP-4
	9-42	Fine sand	SM, SP-SM	A-2-4	0	0	100	90-100	60-100	5-30	0-21	NP-4
	42-47	Fine sandy loam	SM, SC-SM	A-4	0	0	100	100	70-100	30-45	18-33	2-10
	47-80	Silty clay loam	CH, CL	A-7-6	0	0	100	95-100	90-100	85-95	37-46	19-25
3993:												
Jansen---------	0-7	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-4	0	0	100	100	60-100	30-65	17-35	1-12
	7-13	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-4	0	0	100	100	60-100	30-65	17-35	1-12
	13-17	Loam	ML	A-4	0	0	95-100	95-100	85-95	50-75	29-43	12-18
	17-27	Clay loam	CL, SC	A-6, A-7	0	0	100	100	80-95	40-80	37-47	19-25
	27-32	Clay loam	CL, SC	A-7, A-6	0	0	100	100	80-95	40-80	34-46	16-25
	32-38	Coarse sandy loam	SC, SC-SM	A-4	0	0	95-100	95-100	60-75	30-50	20-32	6-13
	38-80	Stratified gravelly coarse sand to coarse sand	SP, SP-SM	A-1, A-2, A-3	0	0	55-90	50-75	25-55	2-12	0-20	NP-3
4019:												
Janude---------	0-6	Sandy loam	SC-SM, SM	A-4	0	0	100	100	70-85	40-50	20-35	2-10
	6-21	Sandy loam	SC-SM, SM	A-4	0	0	100	100	70-85	40-50	17-31	2-10
	21-31	Sandy loam	ML	A-4	0	0	100	100	85-95	60-75	19-35	3-13
	31-42	Loam	ML	A-4	0	0	100	100	85-95	60-75	19-35	3-13
	42-57	Stratified very fine sandy loam to silty clay loam	CL, ML, SC, SM	A-4, A-6	0	0	100	100	70-100	40-100	19-42	3-19
	57-70	Loamy sand	SC-SM, SM	A-2, A-4	0	0	95-100	95-100	70-100	30-50	0-30	NP-12
	70-80	Very fine sandy loam	CL, ML, SC, SM	A-4, A-6	0	0	100	100	70-100	40-100	18-30	3-12
4020:												
Janude---------	0-5	Loam	ML	A-4	0	0	100	100	85-95	60-75	25-39	6-13
	5-14	Loam	ML	A-4	0	0	100	100	85-95	60-75	25-39	6-13
	14-23	Sandy loam	SC-SM, SM	A-4	0	0	100	100	70-85	40-50	18-35	2-10
	23-39	Sandy loam	ML	A-4	0	0	100	100	85-95	60-75	19-35	3-13
	39-46	Loam	CL, ML, SC, SM	A-4, A-6	0	0	100	100	70-100	40-100	18-32	3-13
	46-65	Loamy sand	SC-SM, SM	A-4, A-2	0	0	95-100	95-100	70-100	30-50	0-32	NP-13
	65-80	Coarse sand	CL, ML, SC, SM	A-4	0	0	100	100	70-100	40-100	0-32	NP-13
4417:												
Lamo-----------	0-6	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	85-100	70-90	31-43	13-18
	6-17	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	85-100	70-90	31-43	13-18
	17-29	Silty clay loam	CH, CL	A-6, A-7	0	0	100	100	95-100	85-95	39-49	19-25
	29-36	Silty clay loam	CH, CL	A-6, A-7	0	0	100	100	95-100	85-95	39-49	19-25
	36-43	Clay loam	CH, CL	A-6, A-7	0	0	100	100	95-100	85-95	38-47	19-25
	43-54	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	95-100	95-100	70-100	30-50	0-30	NP-12
	54-80	Fine sand	SC-SM, SM	A-4, A-2	0	0	95-100	95-100	70-100	30-50	0-23	NP-6

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
4586:												
Lex------------	0-8	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	95-100	95-100	85-100	60-95	27-43	9-18
	8-20	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	95-100	95-100	85-100	60-95	27-43	9-18
	20-23	Loam	CL, CL-ML, ML	A-4, A-6	0	0	95-100	95-100	85-100	60-95	27-43	9-18
	23-31	Loam	CL, CL-ML, ML	A-4, A-6	0	0	95-100	95-100	85-100	60-95	26-39	9-19
	31-34	Stratified very fine sandy loam to loamy sand to sand	SM	A-2, A-4	0	0	95-100	95-100	70-100	15-40	0-33	NP-13
	34-80	Stratified coarse sand to sand	SM, SP, SP-SM	A-1, A-2, A-3	0	0	60-100	50-95	30-65	3-14	0-19	NP-2
4613:												
Libory---------	0-6	Loamy fine sand	SM, SP-SM	A-2, A-3	0	0	100	100	50-100	5-30	0-29	NP-6
	6-10	Loamy fine sand	SM	A-2, A-4	0	0	100	100	65-85	15-45	0-30	NP-7
	10-25	Loamy fine sand	SM, SP-SM	A-2	0	0	100	100	55-80	12-35	0-26	NP-7
	25-31	Silty clay loam	CL-ML, CL	A-4, A-6	0	0	100	100	85-100	60-95	35-44	18-25
	31-38	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	85-100	60-95	24-38	9-19
	38-44	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	85-100	60-95	24-38	9-19
	44-80	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	85-100	60-95	24-38	9-19
4650:												
Lockton--------	0-5	Loam	CL, CL-ML	A-4, A-6	0	0	95-100	95-100	85-100	60-95	29-45	9-18
	5-12	Loam	CL, CL-ML	A-4, A-6	0	0	95-100	95-100	85-100	60-95	29-45	9-18
	12-21	Loam	CL, CL-ML	A-4, A-6	0	0	95-100	95-100	85-100	60-95	29-45	9-18
	21-25	Loam	CL, CL-ML	A-4, A-6	0	0	95-100	95-100	85-100	60-95	27-43	9-18
	25-33	Coarse sandy loam	CL, CL-ML, ML	A-4, A-6	0	0	95-100	95-100	85-100	60-95	26-35	9-13
	33-41	Loamy coarse sand	SM, SP, SP-SM	A-1, A-2, A-3	0	0	85-95	65-95	30-65	3-14	0-23	NP-6
	41-80	Coarse sand	SM, SP, SP-SM	A-1, A-2, A-3	0	0	85-95	65-95	30-65	3-14	0-19	NP-2
4744:												
Loup-----------	0-7	Fine sandy loam	SM, SC-SM	A-2, A-4	0	0	100	100	70-100	30-45	25-44	2-9
	7-11	Loamy fine sand	SM, SP-SM	A-2, A-3	0	0	100	90-100	60-100	5-30	0-29	NP-4
	11-23	Loamy fine sand	SM, SP-SM	A-2, A-3	0	0	100	90-100	60-100	5-30	0-22	NP-4
	23-26	Fine sandy loam	SM, SC-SM	A-2, A-4	0	0	100	100	70-100	30-45	17-28	2-10
	26-48	Fine sand	SM, SP-SM	A-2, A-3	0	0	100	90-100	60-100	5-30	0-21	NP-4
	48-65	Loamy fine sand	SM, SP-SM	A-2, A-3	0	0	100	90-100	60-100	5-30	0-21	NP-4
	65-80	Silty clay loam	CH, CL	A-7	0	0	100	95-100	90-100	85-95	45-56	25-33
4932:												
Marlake--------	0-8	Loamy fine sand	SM, SP-SM	A-2, A-3, A-4	0	0	100	100	50-85	5-50	0-38	NP-4
	8-13	Loamy fine sand	SM, SP-SM	A-2, A-3, A-4	0	0	100	100	50-85	5-50	0-22	NP-4
	13-34	Fine sand	SM, SP-SM	A-2, A-3, A-4	0	0	100	100	50-85	5-50	0-21	NP-4
	34-41	Loamy fine sand	SM, SP-SM	A-2, A-3, A-4	0	0	100	100	50-85	5-50	0-21	NP-4
	41-55	Fine sand	SM, SP-SM	A-2, A-3, A-4	0	0	100	100	50-85	5-50	0-21	NP-4
	55-60	Fine sandy loam	SM, SC-SM	A-2, A-4	0	0	100	100	70-100	30-45	16-27	2-10
	60-80	Clay loam	CH, CL	A-7	0	0	100	95-100	90-100	85-95	37-46	19-25
5705:												
O'Neill--------	0-6	Loam	CL, CL-ML, ML	A-4, A-6	0	0	95-100	95-100	85-95	60-70	22-43	6-18
	6-14	Loam	CL, CL-ML, ML	A-4, A-6	0	0	95-100	95-100	85-95	60-70	22-43	6-18
	14-19	Loam	SC, SC-SM	A-2, A-4	0	0	95-100	95-100	60-75	30-50	22-43	6-18
	19-22	Loam	SC, SC-SM	A-2, A-4	0	0	95-100	95-100	60-75	30-50	21-39	6-19
	22-26	Coarse sandy loam	SC, SC-SM	A-2, A-4	0	0	95-100	95-100	60-75	30-50	0-33	NP-13
	26-35	Sand	SP, SP-SM	A-1, A-2, A-3	0	0	95-100	95-100	25-60	0-5	0-17	NP-1
	35-80	Coarse sand	SP, SP-SM	A-1, A-2, A-3	0	0	95-100	95-100	25-60	0-5	0-17	NP-1

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
5705:												
Pivot----------	0-7	Loam	CL, CL-ML, ML	A-4, A-6	0	0	95-100	95-100	85-95	60-70	22-35	6-13
	7-15	Sandy loam	SM	A-2, A-4	0	0	95-100	90-100	60-85	30-40	19-33	3-12
	15-23	Loamy coarse sand	SM, SP-SM, SW-SM	A-2, A-3	0	0	100	95-100	50-85	5-30	0-24	NP-6
	23-27	Loamy coarse sand	SM, SP, SP-SM, SW-SM	A-2, A-3	0	0	95-100	95-100	50-70	3-15	0-21	NP-4
	27-32	Gravelly coarse sand	GP, GP-GM, SP, SP-SM	A-1, A-2, A-3	0	0	50-100	50-90	20-54	2-12	0-21	NP-4
	32-80	Stratified coarse sand to gravelly coarse sand	GP, GP-GM, SP, SP-SM	A-1, A-2, A-3	0	0	50-100	50-90	20-54	2-12	0-21	NP-4
5713:												
O'Neill--------	0-6	Sandy loam	ML, CL, CL-ML	A-4, A-6	0	0	95-100	95-100	85-95	60-70	22-41	6-17
	6-14	Sandy loam	CL, CL-ML, ML	A-4, A-6	0	0	95-100	95-100	85-95	60-70	22-41	6-17
	14-24	Sandy loam	SC, SC-SM	A-4, A-2	0	0	95-100	95-100	60-75	30-50	22-41	6-17
	24-28	Loamy coarse sand	SC, SC-SM	A-2, A-4	0	0	95-100	95-100	60-75	30-50	0-33	NP-13
	28-37	Coarse sand	SP-SM, SP	A-1, A-2, A-3	0	0	95-100	90-100	25-60	0-5	0-17	NP-1
	37-80	Gravelly coarse sand	SP, SP-SM	A-1, A-2, A-3	0	0	70-100	50-90	25-60	0-5	0-17	NP-1
5905:												
Ortello--------	0-6	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-4, A-2	0	0	100	100	60-100	30-65	22-33	6-12
	6-12	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-4, A-2	0	0	100	100	60-100	30-65	22-33	6-12
	12-27	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-4	0	0	100	100	70-95	35-65	21-31	6-12
	27-39	Loamy fine sand	SC-SM, SM, SP-SM	A-3, A-2	0	0	100	100	50-95	5-35	0-25	NP-7
	39-55	Fine sandy loam	SC-SM, SM	A-4	0	0	100	100	70-85	40-50	20-30	6-12
	55-62	Loam	ML, SC-SM, SM, CL-ML	A-4	0	0	100	100	70-95	35-65	29-43	12-18
	62-78	Silty clay loam	CL	A-6, A-7	0	0	100	100	98-100	95-100	38-47	19-25
	78-80	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	29-38	13-19
5909:												
Ortello--------	0-8	Fine sandy loam	SM, ML	A-4	0	0	100	100	70-95	40-55	15-20	NP-5
	8-14	Fine sandy loam	ML, SM	A-4	0	0	100	100	70-95	40-55	15-20	NP-5
	14-19	Sandy loam	SM, SP-SM	A-2, A-3	0	0	100	100	50-70	5-35	15-20	NP-5
	19-24	Coarse sandy loam	SM, SP-SM	A-2, A-3	0	0	100	100	80-90	30-45	15-20	NP-5
	24-29	Sandy loam	SM, SP-SM	A-4, A-6	0	0	100	100	60-85	30-40	15-20	NP-5
	29-35	Coarse sandy loam	SM, SP-SM	A-2, A-3	---	0	100	100	80-90	30-45	15-20	NP-5
	35-43	Loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	15-20	NP-5
	43-80	Silt loam	CL, ML	A-4, A-6	0	0	100	100	90-100	70-90	15-20	4-20
Holder---------	0-5	Loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	98-100	90-100	20-40	2-16
	5-8	Loam	CL	A-6, A-4	0	0	100	100	98-100	95-100	20-40	2-16
	8-16	Loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	98-100	90-100	20-40	2-16
	16-24	Silt loam	CL-ML, ML, CL	A-4, A-6	0	0	100	100	98-100	90-100	20-40	2-16
	24-32	Silty clay loam	CL	A-6, A-7	0	0	100	100	98-100	95-100	35-50	12-25
	32-37	Silt loam, silty clay loam	CL, ML	A-4, A-6, A-7	0	0	100	100	95-100	90-100	35-50	9-25
	37-42	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	90-100	20-40	2-16
	42-80	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	90-100	20-40	2-16

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
5914:												
Ortello--------	0-6	Loam	CL-ML, ML	A-4	0	0	100	100	85-100	60-75	24-35	7-13
	6-11	Loam	CL-ML, ML	A-4	0	0	100	100	85-100	60-75	24-35	7-13
	11-16	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-4	0	0	100	100	70-95	35-65	21-31	6-12
	16-29	Fine sandy loam	SM, CL-ML, ML, SC-SM	A-4	0	0	100	100	70-95	35-65	21-31	6-12
	29-50	Loamy sand	SC-SM, SM	A-2	0	0	100	100	50-80	15-35	16-23	2-6
	50-61	Very fine sandy loam	CL, CL-ML	A-4, A-6	0	0	100	100	85-100	60-95	24-42	9-22
	61-80	Coarse sand	SC-SM, SM, SP, SP-SM	A-1, A-2, A-3	0	0	90-100	65-100	30-95	2-15	0-17	NP-1
5985:												
Ovina----------	0-5	Fine sandy loam	ML, SM	A-4	0	0	100	100	70-85	40-60	21-35	4-12
	5-8	Fine sandy loam	ML, SM	A-4	0	0	100	100	70-85	40-60	21-35	4-12
	8-13	Fine sandy loam	ML, SM	A-4	0	0	100	100	70-85	40-60	20-33	4-12
	13-21	Loamy fine sand	SM, SP-SM	A-2, A-3	0	0	100	100	60-100	5-30	0-25	NP-4
	21-38	Loam	CL, CL-ML, ML	A-4	0	0	100	100	85-95	60-80	29-43	12-18
	38-58	Loam	CL, CL-ML, ML	A-4	0	0	100	100	85-95	60-80	28-39	12-19
	58-77	Clay loam	CL, SC	A-4, A-6	0	0	100	100	70-100	35-75	37-46	19-25
	77-80	Silty clay loam	CL, SC	A-4, A-6	0	0	100	100	70-100	35-75	37-46	19-25
6136:												
Platte---------	0-6	Loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	75-95	30-80	22-43	6-18
	6-16	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	90-100	70-90	18-43	2-18
	16-80	Stratified coarse sand to gravelly coarse sand	SM, SP, SP-SM	A-1, A-2, A-3	0	0	70-100	50-95	25-65	0-15	0-17	NP-1
Alda-----------	0-10	Loam	ML	A-4	0	0	100	100	85-100	70-95	27-43	9-18
	10-15	Silt loam	SC-SM, SM	A-2, A-4	0	0	95-100	95-100	70-100	30-50	0-41	NP-19
	15-26	Stratified very fine sandy loam to sand	SC-SM, SM	A-2, A-4	0	0	95-100	95-100	70-100	30-50	0-31	NP-12
	26-36	Coarse sand	SC-SM, SM, SP, SP-SM	A-1, A-2, A-3	0	0	90-100	85-100	30-95	2-15	0-17	NP-1
	36-80	Stratified coarse sand to gravelly coarse sand	SC-SM, SM, SP, SP-SM	A-1, A-2, A-3	0	0	70-100	65-100	30-95	2-15	0-17	NP-1
6139:												
Platte---------	0-6	Loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	75-95	30-80	22-37	6-13
	6-9	Stratified sandy loam to loam	CL, ML, SC, SM	A-2, A-4	0	0	100	90-100	50-90	10-50	18-37	2-13
	9-13	Stratified very fine sandy loam to loamy fine sand	SC-SM, SM, SP	A-2-4, A-4	0	0	100	90-100	70-100	20-50	0-30	NP-12
	13-80	Stratified coarse sand to gravelly coarse sand	SM, SP, SP-SM	A-1, A-2, A-3	0	0	95-100	85-98	25-65	0-15	0-19	NP-2

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
6139:												
Bolent	0-6	Fine sandy loam	SM, SC-SM	A-2, A-4	0	0	100	100	85-95	20-40	21-33	4-12
	6-9	Fine sandy loam	SM, SC-SM	A-2, A-4	0	0	100	100	85-95	20-40	21-33	4-12
	9-17	Very fine sandy loam	SC-SM, SM	A-4	0	0	100	100	85-100	50-75	18-30	4-12
	17-28	Stratified sand to very fine sandy loam	SC-SM, SM, SP, SP-SM	A-3, A-1, A-2	0	0	95-100	90-100	40-70	3-30	0-30	NP-12
	28-39	Sand	SC-SM, SM, SP, SP-SM	A-1, A-2, A-3	0	0	90-100	80-100	40-70	2-30	0-19	NP-2
	39-80	Coarse sand	SM, SP, SP-SM	A-1, A-2, A-3	0	0	70-100	50-95	25-65	0-15	0-19	NP-2
6143:												
Platte	0-6	Loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	75-95	30-80	22-37	6-13
	6-10	Stratified loamy fine sand to loam	CL, ML, SC, SM	A-2, A-4	0	0	100	90-100	50-90	10-50	18-37	2-13
	10-80	Coarse sand	SM, SP, SP-SM	A-1, A-2, A-3	0	0	95-100	85-98	25-65	0-15	0-19	NP-2
Inavale	0-9	Loamy fine sand	SC-SM, SM, SP-SM	A-2, A-3	0	0	100	95-100	85-95	5-35	0-24	NP-6
	9-39	Fine sand	SC-SM, SM, SP-SM	A-2, A-3	0	0	100	90-100	70-90	5-30	0-23	NP-6
	39-53	Stratified fine sand to very fine sandy loam to fine sandy loam	SC-SM, SM, SP-SM	A-2, A-3	0	0	100	95-100	65-85	5-30	0-23	NP-6
	53-65	Loamy fine sand	SP-SM, SC-SM, SM	A-2, A-3	0	0	100	90-100	70-90	5-30	0-23	NP-6
	65-80	Stratified sand to coarse sand	SC-SM, SM, SP-SM	A-3, A-2	0	0	95-100	85-100	70-90	2-30	0-19	NP-2
6800:												
Scott	0-9	Silty clay loam	CL, CL-ML, ML	A-6, A-7	0	0	100	100	100	95-100	35-45	15-20
	9-12	Silty clay	CH, CL	A-7	0	0	100	100	100	95-100	53-70	29-40
	12-26	Clay	CL, CH	A-7	0	0	100	100	100	95-100	53-74	29-44
	26-37	Clay	CH, CL	A-7	0	0	100	100	100	95-100	53-74	29-44
	37-45	Silty clay loam	CH, CL	A-7	0	0	100	100	100	95-100	35-60	20-40
	45-59	Silty clay loam	CH, CL	A-7	0	0	100	100	100	95-100	35-45	15-24
	59-80	Silt loam	CH, CL	A-7	0	0	100	100	100	95-100	20-45	8-20
6956:												
Silver Creek	0-6	Fine sandy loam	ML, SM	A-4	0	0	100	100	70-85	40-60	21-35	4-12
	6-10	Fine sandy loam	ML, SM	A-4	0	0	100	100	70-85	40-60	21-35	4-12
	10-18	Silty clay	CL	A-6, A-7	0	0	100	100	95-100	85-100	45-57	25-33
	18-36	Silty clay	CL	A-6, A-7	0	0	100	100	95-100	85-100	45-57	25-33
	36-48	Clay loam	CH, CL	A-7	0	0	100	95-100	90-100	85-95	37-46	19-25
	48-60	Loam	CL, ML	A-6, A-4	0	0	100	100	95-100	65-80	31-39	13-19
	60-80	Fine sand	SM, SP-SM	A-2, A-3, A-4	0	0	100	100	50-85	5-50	0-21	NP-4
6957:												
Silver Creek	0-6	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	85-100	31-45	11-18
	6-11	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	85-100	31-45	11-18
	11-19	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	85-100	46-59	25-33
	19-24	Clay loam	CL	A-6, A-7	0	0	100	100	95-100	85-100	46-57	25-33
	24-44	Clay loam	CL	A-4, A-6, A-7	0	0	100	100	95-100	85-100	37-46	19-25
	44-50	Clay loam	CL	A-4, A-6, A-7	0	0	100	100	95-100	85-100	39-51	19-25
	50-65	Silty clay	CL	A-6, A-7	0	0	100	100	95-100	85-100	46-59	25-33
	65-80	Silty clay loam	CL	A-4, A-6, A-7	0	0	100	100	95-100	85-100	37-46	19-25

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification Unified	Classification AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
6957:												
Silver Creek---	0-3	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	85-100	29-43	12-18
	3-5	Silty clay loam	CH, CL	A-6, A-7	0	0	100	100	100	95-100	47-57	25-29
	5-11	Silty clay	CH, CL	A-7	0	0	100	100	95-100	95-100	46-62	25-36
	11-14	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	85-100	29-43	12-18
	14-22	Silty clay	CH, CL	A-7	0	0	100	100	95-100	95-100	46-62	25-36
	22-50	Clay loam	CH, CL	A-6, A-7	0	0	100	100	100	95-100	37-46	19-25
	50-65	Stratified loamy sand to fine sandy loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0	100	100	70-85	40-55	17-32	3-13
	65-80	Very fine sandy loam	CL-ML, ML	A-4	0	0	100	100	95-100	70-85	16-32	2-13
6978:												
Simeon---------	0-8	Sandy loam	SM	A-2, A-4	0	0	95-100	90-100	60-85	30-40	18-31	3-12
	8-15	Loamy coarse sand	SM, SP, SP-SM	A-3, A-1, A-2	0	0	90-100	80-100	35-95	0-30	0-23	NP-6
	15-80	Stratified coarse sand to gravelly coarse sand	GP, GP-GM, SP, SP-SM	A-1, A-2, A-3	0	0	50-100	50-90	20-54	2-12	0-21	NP-4
7225:												
Thurman--------	0-5	Fine sandy loam	SC-SM, SM	A-4	0	0	100	100	70-85	40-50	20-31	3-10
	5-12	Fine sandy loam	SC-SM, SM	A-4	0	0	100	100	70-85	40-50	20-31	3-10
	12-19	Fine sandy loam	SC-SM, SM	A-4	0	0	100	100	70-85	40-50	20-31	3-10
	19-36	Loamy fine sand	SC-SM, SM, SP-SM	A-3, A-2	0	0	100	100	50-95	5-35	0-20	NP-4
	36-62	Stratified loamy sand to sand	SC-SM, SM, SP-SM	A-3, A-2	0	0	100	100	50-95	5-35	0-20	NP-4
	62-80	Stratified fine sandy loam to loamy sand to very fine sandy loam	SM, SC-SM	A-2, A-4	0	0	100	100	70-100	30-45	16-27	2-10
7249:												
Thurman--------	0-12	Loamy fine sand	SP, SP-SM, SM	A-2, A-3	0	0	100	100	70-100	2-25	0-27	NP-7
	12-21	Loamy sand	SP-SM, SM, SP	A-2, A-3	0	0	100	100	70-100	2-25	0-25	NP-7
	21-54	Sand	SM, SP, SP-SM	A-3, A-2	0	0	100	100	70-100	2-25	0-25	NP-7
	54-61	Sandy loam	SM	A-4, A-2-4	0	0	100	100	65-85	30-40	0-36	NP-13
	61-68	Sandy loam	SP, SP-SM, SM	A-4, A-2-4	0	0	100	100	70-100	30-40	0-32	NP-13
	68-80	Fine sandy loam	SM, SC-SM	A-4, A-2-4	0	0	100	100	65-85	30-40	0-32	NP-13
7250:												
Thurman--------	0-6	Loamy sand	SP, SP-SM, SM	A-2, A-3	0	0	100	100	70-100	2-25	0-25	NP-3
	6-12	Loamy sand	SP-SM, SM, SP	A-2, A-3	0	0	100	100	70-100	2-25	0-25	NP-3
	12-26	Loamy sand	SM, SP, SP-SM	A-2, A-3	0	0	100	100	70-100	2-25	0-22	NP-3
	26-42	Loamy sand	SP, SP-SM, SM	A-2, A-3	0	0	100	100	70-100	2-25	0-22	NP-3
	42-50	Sandy loam	SM	A-2, A-4	---	---	---	100	85-100	75-100	0-37	NP-13
	50-55	Sandy loam	SM	A-2, A-4	---	---	---	100	85-100	75-100	0-34	NP-13
	55-80	Sandy loam	SM	A-2, A-4	---	---	---	100	85-100	75-100	0-32	NP-13
7429:												
Uly------------	0-5	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	29-43	12-18
	5-10	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	30-41	13-21
	10-80	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	27-38	12-19

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
7436:												
Uly------------	0-6	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	28-43	11-18
	6-15	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	31-45	13-21
	15-31	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	27-38	12-19
	31-80	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	27-38	12-19
Coly-----------	0-6	Silt loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0	100	100	85-100	85-100	29-38	12-16
	6-9	Silt loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0	100	100	85-100	85-100	29-38	12-16
	9-21	Silt loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0	100	100	85-100	85-100	29-38	12-16
	21-35	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	85-100	85-100	28-36	12-16
	35-80	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	85-100	85-100	28-36	12-16
7438:												
Uly------------	0-5	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	29-43	12-18
	5-16	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	30-41	13-21
	16-42	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	27-38	12-19
	42-80	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	27-38	12-19
7439:												
Uly------------	0-8	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	28-43	11-18
	8-16	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	31-45	13-21
	16-35	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	27-38	12-19
	35-80	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	27-38	12-19
Coly-----------	0-4	Silt loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0	100	100	85-100	85-100	29-37	12-16
	4-9	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	85-100	85-100	28-36	12-16
	9-39	Silt loam	ML, CL, CL-ML	A-4, A-6	0	0	100	100	85-100	85-100	28-36	12-16
	39-80	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	85-100	85-100	28-36	12-16
7440:												
Uly------------	0-7	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	28-43	11-18
	7-13	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	31-45	13-21
	13-24	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	27-38	12-19
	24-80	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	27-38	12-19
Hobbs----------	0-12	Stratified silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	85-100	29-45	9-18
	12-21	Stratified silt loam	CL, CL-ML, MH	A-4, A-6, A-7	0	0	100	100	95-100	80-100	28-46	9-21
	21-35	Stratified silt loam	CL, CL-ML, MH	A-4, A-6, A-7	0	0	100	100	95-100	80-100	28-46	9-21
	35-59	Silt loam	CL, CL-ML, MH	A-4, A-6, A-7	0	0	100	100	95-100	80-100	29-47	9-21
	59-80	Stratified silt loam	CL, CL-ML, MH	A-4, A-6, A-7	0	0	100	100	95-100	80-100	27-43	9-21
7652:												
Valentine------	0-5	Fine sand	SM, SP, SP-SM	A-2, A-3	0	0	100	100	70-100	2-25	0-21	NP-3
	5-19	Fine sand	SP, SP-SM, SM	A-2, A-3	0	0	100	100	70-100	2-25	0-20	NP-3
	19-80	Fine sand	SP, SP-SM, SM	A-2, A-3	0	0	100	100	70-100	2-25	0-20	NP-3
7656:												
Valentine------	0-5	Fine sand	SM, SP, SP-SM	A-2, A-3	0	0	100	100	70-100	2-25	0-21	NP-3
	5-12	Fine sand	SP-SM, SM, SP	A-2, A-3	0	0	100	100	70-100	2-25	0-20	NP-3
	12-48	Fine sand	SM, SP, SP-SM	A-2, A-3	0	0	100	100	70-100	2-25	0-20	NP-3
	48-80	Fine sand	SP, SP-SM, SM	A-2, A-3	0	0	100	100	70-100	2-25	0-20	NP-3
7659:												
Valentine, rolling-------	0-6	Fine sand	SM, SP, SP-SM	A-2, A-3	0	0	100	100	70-100	2-25	0-21	NP-3
	6-16	Fine sand	SP-SM, SM, SP	A-2, A-3	0	0	100	100	70-100	2-25	0-20	NP-3
	16-31	Fine sand	SP-SM, SM, SP	A-2, A-3	0	0	100	100	70-100	2-25	0-20	NP-3
	31-80	Fine sand	SM, SP, SP-SM	A-2, A-3	0	0	100	100	70-100	2-25	0-20	NP-3

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
7659:												
Valentine, hilly---------	0-7	Fine sand	SM, SP, SP-SM	A-2, A-3	0	0	100	100	70-100	2-25	0-21	NP-3
	7-12	Fine sand	SM, SP, SP-SM	A-2, A-3	0	0	100	100	70-100	2-25	0-20	NP-3
	12-80	Fine sand	SP, SP-SM, SM	A-2, A-3	0	0	100	100	70-100	2-25	0-20	NP-3
7662:												
Valentine------	0-4	Loamy fine sand	SM, SP, SP-SM	A-2, A-3	0	0	100	100	70-100	2-25	0-21	NP-3
	4-7	Loamy fine sand	SP-SM, SM, SP	A-2, A-3	0	0	100	100	70-100	2-25	0-20	NP-3
	7-40	Fine sand	SP-SM, SM, SP	A-2, A-3	0	0	100	100	70-100	2-25	0-20	NP-3
	40-60	Fine sand	SM, SP, SP-SM	A-2, A-3	0	0	100	100	70-100	2-25	0-20	NP-3
	60-80	Fine sand	SM, SP, SP-SM	A-2, A-3	0	0	100	100	70-100	2-25	0-20	NP-3
7664:												
Valentine------	0-6	Fine sand	SM, SP, SP-SM	A-2, A-3	0	0	100	100	70-100	2-25	0-21	NP-3
	6-16	Fine sand	SP-SM, SM, SP	A-2, A-3	0	0	100	100	70-100	2-25	0-20	NP-3
	16-31	Fine sand	SP-SM, SM, SP	A-2, A-3	0	0	100	100	70-100	2-25	0-20	NP-3
	31-80	Fine sand	SP-SM, SM, SP	A-2, A-3	0	0	100	100	70-100	2-25	0-20	NP-3
7669:												
Valentine------	0-5	Loamy fine sand	SM, SP, SP-SM	A-3, A-2	0	0	100	100	70-100	2-25	0-21	NP-3
	5-8	Loamy fine sand	SM, SP, SP-SM	A-3, A-2	0	0	100	100	70-100	2-25	0-21	NP-3
	8-22	Fine sand	SM, SP, SP-SM	A-2, A-3	0	0	100	100	70-100	2-25	0-20	NP-3
	22-56	Stratified fine sand to loamy coarse sand to sand	SP, SP-SM, SM	A-2, A-3	0	0	100	100	70-100	2-25	0-20	NP-3
	56-70	Clay loam	CL	A-6, A-7	0	0	95-100	90-100	80-100	50-80	30-47	12-23
	70-80	Sandy loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0	85-100	75-95	45-80	25-55	16-30	2-12
7721:												
Valentine------	0-4	Fine sand	SM, SP, SP-SM	A-2, A-3	0	0	100	100	70-100	2-25	0-21	NP-3
	4-8	Fine sand	SP-SM, SM, SP	A-2, A-3	0	0	100	100	70-100	2-25	0-20	NP-3
	8-16	Fine sand	SM, SP, SP-SM	A-2, A-3	0	0	100	100	70-100	2-25	0-20	NP-3
	16-80	Fine sand	SP, SP-SM, SM	A-2, A-3	0	0	100	100	70-100	2-25	0-20	NP-3
Libory---------	0-6	Loamy fine sand	SM, SP-SM	A-2	0	0	100	100	55-80	12-35	0-30	NP-7
	6-11	Loamy fine sand	SM, SP-SM	A-2	0	0	100	100	55-80	12-35	0-30	NP-7
	11-28	Loamy fine sand	SM, SP-SM	A-2	0	0	100	100	55-80	12-35	0-26	NP-7
	28-38	Loamy fine sand	SM, SP-SM	A-2	0	0	100	100	55-80	12-35	0-26	NP-7
	38-46	Silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	85-100	60-95	37-46	19-25
	46-62	Silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	85-100	60-95	37-46	19-25
	62-80	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	85-100	60-95	24-38	9-19
7748:												
Valentine------	0-4	Fine sand	SM, SP, SP-SM	A-2, A-3	0	0	100	100	70-100	2-25	0-21	NP-3
	4-16	Fine sand	SM, SP, SP-SM	A-2, A-3	0	0	100	100	70-100	2-25	0-20	NP-3
	16-80	Fine sand	SP, SP-SM, SM	A-2, A-3	0	0	100	100	70-100	2-25	0-20	NP-3
Tryon----------	0-7	Loamy fine sand	SM, SP-SM	A-3, A-2	0	0	100	90-100	60-100	5-30	0-40	NP-6
	7-12	Loamy fine sand	SM, SP-SM	A-2, A-3	0	0	100	90-100	60-100	5-30	0-24	NP-6
	12-44	Fine sand	SM, SP-SM	A-2, A-3	0	0	100	90-100	60-100	5-30	0-22	NP-4
	44-80	Silty clay loam	CH, CL	A-7	0	0	100	95-100	90-100	85-95	37-46	19-25

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
7924:												
Wann-----------	0-8	Loam	CL, CL-ML, ML	A-4	0	0	95-100	95-100	85-100	50-75	25-45	6-18
	8-12	Fine sandy loam	SC-SM, SM	A-4, A-2	0	0	95-100	75-100	60-100	20-50	0-31	NP-12
	12-15	Loamy fine sand	SC-SM, SM	A-4, A-2	0	0	95-100	95-100	70-100	30-50	0-32	NP-13
	15-26	Loam	CL	A-6	0	0	100	100	90-100	80-90	30-39	13-19
	26-39	Sandy loam	SC-SM, SM	A-4, A-2	0	0	95-100	75-100	60-100	20-50	0-31	NP-12
	39-46	Loamy sand	SC-SM, SM	A-4, A-2	0	0	95-100	95-100	70-100	30-50	0-32	NP-13
	46-61	Stratified very fine sandy loam to loamy sand	SC-SM, SM	A-4, A-2	0	0	95-100	95-100	70-100	30-50	0-32	NP-13
	61-80	Stratified coarse sand to very fine sandy loam to sand	SM	A-2, A-4	0	0	95-100	95-100	70-100	15-40	0-32	NP-13
7927:												
Wann-----------	0-12	Sandy loam	SC-SM, SM	A-2, A-4	0	0	95-100	95-100	70-100	30-50	18-33	2-10
	12-24	Loamy fine sand	SC-SM, SM	A-4, A-2	0	0	95-100	95-100	70-100	30-50	0-25	NP-7
	24-31	Sandy loam	SC-SM, SM	A-2, A-4	0	0	95-100	95-100	70-100	30-50	0-35	NP-12
	31-54	Sandy loam	SC-SM, SM	A-4, A-2	0	0	95-100	75-100	60-100	20-50	0-31	NP-12
	54-80	Gravelly coarse sand	SM	A-2, A-4	0	0	95-100	95-100	70-100	15-40	0-19	NP-2
8020:												
Wood River-----	0-7	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	95-100	31-45	11-18
	7-13	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	95-100	31-45	11-18
	13-19	Silty clay loam	CH, CL	A-7	0	0	100	100	95-100	95-100	46-55	25-29
	19-29	Silty clay loam	CH, CL	A-7	0	0	100	100	95-100	95-100	46-53	25-29
	29-36	Silty clay loam	CH, CL	A-7	0	0	100	100	95-100	95-100	45-52	25-29
	36-56	Clay loam	CH, CL, CL-ML	A-4, A-6, A-7	0	0	100	100	95-100	95-100	37-46	19-25
	56-80	Stratified coarse sand to gravelly coarse sand	SM, SP, SP-SM	A-1, A-2, A-3	0	0	70-100	50-95	25-65	0-15	0-17	NP-1
8022:												
Wood River-----	0-8	Fine sandy loam	ML, SM	A-4	0	0	100	100	70-85	40-55	22-35	6-12
	8-15	Fine sandy loam	ML, SM	A-4	0	0	100	100	70-85	40-55	22-35	6-12
	15-20	Silty clay loam	CH, CL	A-7	0	0	100	100	95-100	95-100	46-59	25-33
	20-25	Silty clay loam	CH, CL	A-7	0	0	100	100	95-100	95-100	46-57	25-33
	25-30	Silty clay loam	CH, CL	A-7	0	0	100	100	95-100	95-100	45-56	25-33
	30-37	Silty clay loam	CH, CL	A-7	0	0	100	100	95-100	95-100	45-56	25-33
	37-46	Silty clay loam	CH, CL, CL-ML	A-4, A-6, A-7	0	0	100	100	95-100	95-100	37-46	19-25
	46-84	Silt loam	CH, CL, CL-ML	A-4, A-6	0	0	100	100	95-100	95-100	28-38	12-19
	84-85	Loamy sand	SP, SP-SM	A-2, A-3	0	0	100	95-100	65-85	2-12	0-19	NP-2
Silver Creek---	0-6	Fine sandy loam	ML, SM	A-4	0	0	100	100	70-85	40-60	21-35	4-12
	6-11	Fine sandy loam	ML, SM	A-4	0	0	100	100	70-85	40-60	21-35	4-12
	11-16	Silty clay loam	CH, CL	A-7	0	0	100	100	95-100	95-100	46-53	25-29
	16-30	Silty clay loam	CH, CL	A-7	0	0	100	100	95-100	95-100	45-52	25-29
	30-40	Silty clay loam	CH, CL, CL-ML	A-4, A-6, A-7	0	0	100	100	95-100	95-100	37-46	19-25
	40-58	Silt loam	CH, CL, CL-ML	A-4, A-6	0	0	100	100	95-100	95-100	28-38	12-19
	58-65	Silt loam	CH, CL, CL-ML	A-4, A-6	0	0	100	100	95-100	95-100	28-38	12-19
	65-80	Loamy sand	SP, SP-SM	A-2, A-3	0	0	100	95-100	65-85	2-12	0-19	NP-2

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
8023:												
Wood River-----	0-6	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	95-100	31-45	11-18
	6-12	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	41-53	19-25
	12-20	Silty clay loam	CL, CH	A-7	0	0	100	100	95-100	95-100	46-55	25-29
	20-36	Silty clay loam	CH, CL	A-7	0	0	100	100	95-100	95-100	46-53	25-29
	36-50	Silty clay loam	CH, CL	A-7	0	0	100	100	95-100	95-100	45-52	25-29
	50-60	Clay loam	CH, CL, CL-ML	A-4, A-6, A-7	0	0	100	100	95-100	95-100	37-46	19-25
	60-80	Coarse sand	SM, SP, SP-SM	A-1, A-2, A-3	0	0	90-100	85-100	25-65	0-15	0-17	NP-1
Silver Creek---	0-8	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	85-100	33-45	13-18
	8-14	Silty clay loam	CL	A-4, A-6, A-7	0	0	100	100	95-100	85-100	39-53	19-25
	14-18	Silty clay	CL	A-6, A-7	0	0	100	100	95-100	85-100	46-59	25-33
	18-30	Silty clay	CL	A-7, A-6	0	0	100	100	95-100	85-100	46-57	25-33
	30-41	Silty clay	CL	A-6, A-7	0	0	100	100	95-100	85-100	46-57	25-33
	41-48	Silty clay	CL	A-6, A-7	0	0	100	100	95-100	85-100	46-59	25-33
	48-59	Clay loam	CL	A-4, A-6, A-7	0	0	100	100	95-100	85-100	37-46	19-25
	59-64	Stratified fine sandy loam to loamy sand to loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0	100	100	70-85	40-55	20-35	6-16
	64-80	Gravelly coarse sand	SM, SP, SP-SM	A-1, A-2, A-3	0	0	70-100	50-95	25-65	0-15	0-17	NP-1
9975:												
Sanitary landfill.												
9985:												
Gravel pits----	0-60	Gravelly sand	GP-GM, SM, SP, SP-SM	A-1, A-2, A-3	---	0-5	45-100	40-100	0-80	0-40	0-14	NP
9995:												
Miscellaneous water, sewage lagoons.												
9998:												
Water.												

Table 17.--Physical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer.)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
1102:														
Alda, rarely flooded------	0-6	52-80	10-50	2-12	1.40-1.60	2.00-3.97	0.13-0.15	0.0-2.9	2.0-4.0	.20	.20	4	3	86
	6-12	52-80	10-50	2-18	1.40-1.60	2.00-3.97	0.13-0.15	0.0-2.9	2.0-4.0	.20	.20			
	12-15	52-98	10-50	2-18	1.40-1.60	2.00-6.00	0.17-0.19	0.0-2.9	0.0-1.0	.32	.32			
	15-33	52-98	10-50	2-18	1.40-1.60	2.00-19.98	0.17-0.19	0.0-2.9	0.0-1.0	.10	.15			
	33-44	88-98	1-12	0-3	1.50-1.70	19.98-99.90	0.02-0.04	0.0-2.9	0.0-0.5	.10	.15			
	44-80	88-98	1-12	0-3	1.50-1.70	19.98-99.90	0.02-0.04	0.0-2.9	0.0-0.5	.10	.15			
1104:														
Alda, rarely flooded------	0-6	26-52	28-50	10-27	1.40-1.60	0.60-2.00	0.20-0.22	0.0-2.9	2.0-4.0	.28	.28	4	5	56
	6-16	26-80	28-50	5-27	1.40-1.60	0.60-2.00	0.20-0.22	0.0-2.9	2.0-4.0	.28	.28			
	16-20	52-80	10-50	5-18	1.40-1.60	2.00-6.00	0.12-0.17	0.0-2.9	0.5-1.0	.20	.20			
	20-27	52-80	10-50	3-18	1.40-1.60	2.00-6.00	0.12-0.14	0.0-2.9	0.0-1.0	.20	.20			
	27-34	52-98	3-50	2-12	1.40-1.60	5.95-19.98	0.09-0.11	0.0-2.9	0.0-1.0	.10	.20			
	34-39	52-98	1-50	0-12	1.40-1.60	5.95-19.98	0.05-0.08	0.0-2.9	0.0-1.0	.10	.15			
	39-80	88-98	1-12	0-3	1.50-1.70	19.98-99.90	0.02-0.04	0.0-2.9	0.0-0.5	.10	.15			
1166:														
Almeria-------	0-4	72-88	5-20	3-10	1.35-1.55	5.95-19.98	0.10-0.12	0.0-2.9	0.5-4.0	.17	.17	5	8	0
	4-14	72-85	10-25	1-10	1.55-1.80	5.95-19.98	0.05-0.12	0.0-2.9	0.0-0.5	.15	.17			
	14-22	88-98	1-5	1-10	1.55-1.80	5.95-19.98	0.05-0.12	0.0-2.9	0.0-0.5	.15	.17			
	22-33	88-98	1-5	1-10	1.55-1.80	5.95-19.98	0.05-0.12	0.0-2.9	0.0-0.5	.15	.17			
	33-80	88-98	1-5	1-10	1.55-1.80	5.95-19.98	0.05-0.12	0.0-2.9	0.0-0.5	.15	.17			
1348:														
Barney, frequently flooded------	0-2	2-20	50-70	27-35	1.40-1.50	0.20-0.60	0.21-0.23	0.0-2.9	2.0-4.0	.28	.28	5	8	0
	2-6	2-20	45-70	27-35	1.40-1.50	0.20-0.60	0.21-0.23	0.0-2.9	2.0-4.0	.28	.28			
	6-12	52-88	11-35	4-18	1.50-1.70	2.00-6.00	0.17-0.22	0.0-2.9	0.0-0.5	.28	.28			
	12-16	60-98	1-35	0-18	1.70-1.90	5.95-19.98	0.06-0.08	0.0-2.9	0.0-0.5	.10	.10			
	16-80	86-98	1-12	0-5	1.70-1.90	19.98-19.98	0.02-0.04	0.0-2.9	0.0-0.5	.10	.10			
Barney, wet, channeled----	0-4	26-52	28-50	10-27	1.40-1.50	0.60-2.00	0.20-0.24	0.0-2.9	2.0-4.0	.28	.28	5	8	0
	4-11	20-52	28-50	27-35	1.40-1.50	0.20-0.60	0.17-0.19	0.0-2.9	2.0-4.0	.28	.28			
	11-18	20-52	28-50	27-35	1.40-1.50	0.20-0.60	0.15-0.19	0.0-2.9	0.0-2.0	.28	.28			
	18-80	86-98	1-12	0-5	1.70-1.90	19.98-99.90	0.02-0.04	0.0-2.9	0.0-0.5	.10	.10			
1354:														
Barney, frequently flooded------	0-6	2-20	50-70	27-35	1.40-1.50	0.20-0.60	0.21-0.23	0.0-2.9	2.0-4.0	.28	.28	5	8	0
	6-10	52-88	3-45	4-18	1.50-1.70	2.00-6.00	0.17-0.22	0.0-2.9	0.0-0.5	.28	.28			
	10-18	2-98	1-80	0-29	1.70-1.90	0.20-19.98	0.06-0.08	0.0-2.9	0.0-0.5	.10	.10			
	18-80	86-98	1-12	0-5	1.70-1.90	19.98-99.90	0.02-0.04	0.0-2.9	0.0-0.5	.10	.10			
Bolent, occasionally flooded------	0-8	26-52	28-50	15-25	1.30-1.40	0.60-2.00	0.20-0.24	0.0-2.9	1.0-3.0	.28	.28	5	4L	86
	8-14	52-88	10-50	8-18	1.50-1.70	2.00-6.00	0.17-0.22	0.0-2.9	0.0-0.5	.28	.28			
	14-26	52-99	3-50	1-18	1.50-1.80	5.95-19.98	0.05-0.10	0.0-2.9	0.0-0.5	.15	.17			
	26-30	85-99	1-10	1-5	1.50-1.80	5.95-19.99	0.05-0.08	0.0-2.9	0.0-0.5	.15	.17			
	30-36	85-99	1-10	0-5	1.55-1.70	19.98-99.90	0.02-0.04	0.0-2.9	0.0-0.5	.05	.10			
	36-80	85-99	0-10	0-5	1.55-1.70	19.98-99.90	0.05-0.08	0.0-2.9	0.0-0.5	.05	.10			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										K	Kf	T		
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
1547:														
Blendon-------	0-5	26-52	28-50	15-25	1.20-1.30	0.60-2.00	0.20-0.22	0.0-2.9	2.0-4.0	.28	.28	5	5	56
	5-15	26-52	28-50	15-25	1.20-1.30	0.60-2.00	0.17-0.22	0.0-2.9	2.0-4.0	.28	.28			
	15-20	26-52	28-50	10-20	1.20-1.30	0.60-2.00	0.17-0.19	0.0-2.9	1.0-2.0	.28	.28			
	20-32	52-80	10-50	10-15	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	0.5-2.0	.20	.20			
	32-45	72-88	5-15	5-15	1.30-1.45	5.95-19.98	0.08-0.11	0.0-2.9	0.0-0.8	.17	.17			
	45-66	72-88	5-15	5-15	1.30-1.45	5.95-19.98	0.08-0.10	0.0-2.9	0.0-0.5	.17	.17			
	66-80	88-98	0-10	2-7	1.50-1.70	5.95-19.98	0.05-0.07	0.0-2.9	0.0-0.5	.15	.15			
1669:														
Boelus, sandy substratum---	0-6	72-88	5-15	4-12	1.35-1.55	5.95-19.98	0.10-0.12	0.0-2.9	1.0-3.0	.17	.17	5	2	134
	6-12	72-88	5-15	4-12	1.35-1.55	5.95-19.98	0.10-0.12	0.0-2.9	1.0-3.0	.17	.17			
	12-37	72-88	5-20	2-10	1.40-1.60	5.95-19.98	0.08-0.11	0.0-2.9	0.2-0.8	.17	.17			
	37-45	26-52	28-50	18-27	1.40-1.60	0.60-2.00	0.17-0.19	0.0-2.9	1.0-2.0	.28	.28			
	45-55	26-52	25-50	18-27	1.40-1.60	0.60-2.00	0.17-0.19	0.0-2.9	0.5-1.0	.28	.28			
	55-65	52-80	10-80	7-20	1.60-1.80	2.00-6.00	0.11-0.13	0.0-2.9	0.5-1.0	.17	.17			
	65-80	72-98	5-20	1-8	1.50-1.70	19.98-19.98	0.02-0.04	0.0-2.9	0.0-0.5	.05	.10			
O'Neill-------	0-6	26-52	28-50	10-27	1.40-1.60	0.60-2.00	0.20-0.22	0.0-2.9	1.0-3.0	.28	.28	4	5	56
	6-13	26-52	28-50	10-27	1.40-1.60	0.60-2.00	0.20-0.22	0.0-2.9	1.0-3.0	.28	.28			
	13-18	52-80	10-50	7-20	1.60-1.80	2.00-6.00	0.11-0.13	0.0-2.9	0.5-2.0	.20	.20			
	18-27	52-80	10-50	7-20	1.60-1.80	2.00-6.00	0.12-0.17	0.0-2.9	0.5-1.0	.20	.20			
	27-38	72-88	5-20	3-9	1.50-1.70	6.00-20.00	0.05-0.07	0.0-2.9	0.0-0.5	.17	.17			
	38-80	88-98	3-15	0-3	1.50-1.70	19.98-19.98	0.02-0.04	0.0-2.9	0.0-0.5	.10	.10			
Pivot, loamy surface------	0-7	52-80	10-50	6-18	1.30-1.50	2.00-6.00	0.16-0.18	0.0-2.9	1.0-2.0	.20	.20	5	3	86
	7-12	52-80	10-50	6-18	1.30-1.50	2.00-6.00	0.16-0.18	0.0-2.9	1.0-2.0	.20	.20			
	12-17	52-80	10-50	6-18	1.30-1.50	2.00-6.00	0.12-0.14	0.0-2.9	1.0-2.0	.20	.20			
	17-25	72-88	5-20	2-10	1.40-1.70	5.95-19.98	0.09-0.11	0.0-2.9	0.5-1.0	.17	.17			
	25-34	72-88	5-20	1-8	1.50-1.70	5.95-19.98	0.03-0.11	0.0-2.9	0.0-0.5	.15	.15			
	34-80	88-98	3-15	0-3	1.50-1.70	19.98-19.98	0.02-0.05	0.0-2.9	0.0-0.5	.10	.15			
1678:														
Bolent, occasionally flooded------	0-6	26-52	28-50	15-25	1.30-1.40	0.60-2.00	0.20-0.24	0.0-2.9	1.0-3.0	.28	.28	5	4L	86
	6-9	26-52	28-50	15-25	1.30-1.40	0.60-2.00	0.20-0.24	0.0-2.9	1.0-3.0	.28	.28			
	9-16	52-88	10-50	8-18	1.50-1.70	2.00-6.00	0.17-0.22	0.0-2.9	0.0-0.5	.28	.28			
	16-27	52-98	0-10	1-18	1.50-1.80	5.95-19.98	0.05-0.10	0.0-2.9	0.0-0.5	.15	.17			
	27-80	85-98	1-10	0-5	1.55-1.70	19.98-99.90	0.02-0.04	0.0-2.9	0.0-0.5	.05	.10			
1680:														
Bolent, occasionally flooded------	0-8	52-80	10-50	8-18	1.50-1.70	2.00-6.00	0.16-0.18	0.0-2.9	1.0-3.0	.24	.24	5	4L	86
	8-12	52-80	10-50	8-18	1.50-1.70	2.00-6.00	0.16-0.18	0.0-2.9	0.5-1.0	.24	.24			
	12-26	72-98	15-25	1-8	1.45-1.65	5.95-19.98	0.09-0.11	0.0-2.9	0.0-0.5	.17	.17			
	26-33	52-98	10-50	1-18	1.50-1.80	2.00-6.00	0.17-0.19	0.0-2.9	0.0-0.5	.28	.28			
	33-40	85-98	0-10	1-5	1.50-1.80	6.00-19.98	0.05-0.08	0.0-2.9	0.0-0.5	.15	.17			
	40-80	85-98	3-10	0-5	1.55-1.70	19.98-99.90	0.02-0.04	0.0-2.9	0.0-0.5	.05	.10			
1688:														
Bolent, occasionally flooded------	0-4	52-80	5-25	2-12	1.50-1.70	5.95-19.98	0.10-0.12	0.0-2.9	0.8-2.5	.17	.17	5	2	134
	4-8	52-80	5-25	2-12	1.50-1.70	5.95-19.98	0.10-0.12	0.0-2.9	1.0-3.0	.17	.17			
	8-20	72-98	0-10	1-8	1.45-1.65	5.95-19.98	0.07-0.09	0.0-2.9	0.8-2.0	.15	.15			
	20-31	72-98	0-10	1-8	1.45-1.65	5.95-19.98	0.07-0.09	0.0-2.9	0.5-1.5	.15	.15			
	31-80	85-98	0-10	1-5	1.50-1.80	6.00-19.98	0.05-0.17	0.0-2.9	0.0-0.5	.15	.17			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
1704:														
Bolent, occasionally flooded------	0-6	26-52	28-50	15-25	1.30-1.40	0.60-2.00	0.20-0.24	0.0-2.9	1.0-3.0	.28	.28	5	4L	86
	6-9	52-80	10-50	8-18	1.50-1.70	2.00-6.00	0.16-0.18	0.0-2.9	1.0-3.0	.20	.20			
	9-27	52-98	3-50	1-18	1.50-1.80	5.95-19.98	0.05-0.10	0.0-2.9	0.0-0.5	.15	.17			
	27-38	85-98	0-10	1-5	1.50-1.80	6.00-19.98	0.05-0.08	0.0-2.9	0.0-0.5	.15	.17			
	38-80	85-98	1-10	0-5	1.55-1.70	19.98-99.90	0.02-0.04	0.0-2.9	0.0-0.5	.05	.10			
Calamus, rarely flooded------	0-8	72-88	5-25	2-10	1.45-1.65	5.95-19.98	0.10-0.12	0.0-2.9	0.5-1.0	.17	.17	5	2	134
	8-33	72-98	0-25	1-8	1.45-1.65	5.95-19.98	0.07-0.18	0.0-2.9	0.0-0.5	.15	.15			
	33-44	52-98	5-35	1-18	1.45-1.65	5.95-19.98	0.07-0.18	0.0-2.9	0.0-0.5	.15	.15			
	44-80	85-98	1-10	0-5	1.55-1.70	19.98-19.98	0.02-0.04	0.0-2.9	0.0-0.5	.05	.10			
1796:														
Brocksburg----	0-6	26-52	28-50	10-25	1.30-1.50	0.60-2.00	0.20-0.22	0.0-2.9	1.0-3.0	.28	.28	4	5	56
	6-20	26-52	28-50	10-25	1.30-1.50	0.60-2.00	0.20-0.22	0.0-2.9	1.0-3.0	.28	.28			
	20-24	26-52	28-50	10-25	1.30-1.50	0.60-2.00	0.17-0.19	0.0-2.9	1.0-3.0	.28	.28			
	24-28	20-45	20-50	27-35	1.30-1.50	0.20-0.60	0.17-0.19	3.0-5.9	1.0-2.0	.37	.37			
	28-32	45-75	4-28	20-35	1.30-1.50	0.20-0.60	0.17-0.19	3.0-5.9	0.8-1.5	.37	.37			
	32-35	52-80	10-50	2-17	1.30-1.50	2.00-6.00	0.11-0.13	0.0-2.9	0.8-1.5	.10	.17			
	35-41	88-98	1-15	0-5	1.50-1.70	19.98-19.98	0.02-0.04	0.0-2.9	0.0-0.5	.10	.15			
	41-80	8-98	1-15	0-5	1.50-1.70	19.98-19.98	0.02-0.04	0.0-2.9	0.0-0.5	.10	.10			
1930:														
Butler--------	0-8	2-12	60-80	18-27	1.20-1.60	0.60-2.00	0.20-0.23	3.0-5.9	2.0-4.0	.37	.37	4	6	48
	8-15	2-12	60-80	18-27	1.20-1.60	0.60-2.00	0.20-0.23	3.0-5.9	2.0-4.0	.37	.37			
	15-24	2-12	40-60	40-55	1.25-1.45	0.01-0.06	0.11-0.13	9.0-12.0	1.0-2.0	.37	.37			
	24-31	2-12	40-60	40-55	1.25-1.45	0.01-0.06	0.11-0.13	9.0-12.0	1.0-2.0	.37	.37			
	31-36	2-12	40-60	40-55	1.25-1.45	0.01-0.06	0.11-0.13	9.0-12.0	1.0-2.0	.37	.37			
	36-45	2-10	50-70	30-40	1.25-1.45	0.06-0.20	0.14-0.16	3.0-8.9	0.5-1.0	.37	.37			
	45-80	2-12	60-80	20-27	1.25-1.45	0.60-2.00	0.20-0.23	3.0-8.9	0.0-0.5	.37	.37			
1942:														
Calamus, rarely flooded------	0-9	72-88	5-25	2-10	1.45-1.65	5.95-19.98	0.10-0.12	0.0-2.9	0.5-1.0	.17	.17	5	2	134
	9-21	72-98	0-25	1-8	1.45-1.65	5.95-19.98	0.07-0.18	0.0-2.9	0.0-0.5	.15	.15			
	21-43	52-98	5-35	1-18	1.45-1.65	5.95-19.98	0.07-0.18	0.0-2.9	0.0-0.5	.15	.15			
	43-54	85-98	5-25	1-8	1.45-1.65	19.98-59.94	0.02-0.07	0.0-2.9	0.0-0.5	.10	.10			
	54-80	85-98	1-10	0-5	1.55-1.70	19.98-59.94	0.02-0.04	0.0-2.9	0.0-0.5	.05	.10			
2020:														
Caruso, rarely flooded------	0-7	26-52	28-50	18-27	1.30-1.40	0.60-2.00	0.19-0.23	0.0-2.9	1.0-4.0	.28	.28	5	4L	86
	7-13	26-52	28-50	18-27	1.30-1.40	0.60-2.00	0.19-0.23	0.0-2.9	1.0-4.0	.28	.28			
	13-26	52-80	10-50	8-18	1.50-1.70	2.00-6.00	0.17-0.22	0.0-2.9	0.0-0.5	.43	.43			
	26-41	20-45	20-50	27-35	1.20-1.35	0.20-0.60	0.18-0.20	3.0-5.9	0.5-1.0	.37	.37			
	41-54	52-80	10-50	3-18	1.45-1.65	2.00-6.00	0.11-0.17	0.0-2.9	0.5-1.0	.43	.43			
	54-72	26-88	28-50	7-27	1.40-1.60	0.60-2.00	0.17-0.19	0.0-2.9	0.5-1.0	.37	.37			
	72-80	88-98	5-20	1-5	1.50-1.80	19.98-19.98	0.05-0.08	0.0-2.9	0.0-0.5	.15	.15			
2168:														
Coly----------	0-5	2-40	50-80	18-24	1.30-1.50	0.60-2.00	0.20-0.24	0.0-2.9	1.0-2.0	.32	.32	5	4L	86
	5-9	2-40	50-80	18-24	1.30-1.50	0.60-2.00	0.20-0.24	0.0-2.9	0.8-1.5	.32	.32			
	9-18	2-40	50-80	15-24	1.30-1.50	0.60-2.00	0.17-0.22	0.0-2.9	0.5-1.0	.43	.43			
	18-80	2-40	50-80	18-24	1.30-1.50	0.60-2.00	0.17-0.22	0.0-2.9	0.5-1.0	.43	.43			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
2223:														
Cozad---------	0-12	26-52	28-50	11-25	1.30-1.40	0.60-2.00	0.20-0.22	0.0-2.9	1.0-2.0	.28	.28	5	5	56
	12-18	26-52	28-50	10-18	1.30-1.40	0.60-2.00	0.17-0.19	0.0-2.9	0.5-1.0	.28	.28			
	18-26	26-52	28-50	10-18	1.30-1.40	0.60-2.00	0.17-0.19	0.0-2.9	0.5-1.0	.37	.37			
	26-30	26-52	28-50	10-18	1.30-1.40	0.60-2.00	0.17-0.19	0.0-2.9	0.5-1.0	.37	.37			
	30-39	26-52	28-50	11-25	1.30-1.40	0.60-2.00	0.20-0.22	0.0-2.9	1.0-2.0	.28	.28			
	39-55	26-52	28-50	10-18	1.30-1.40	0.60-2.00	0.17-0.19	0.0-2.9	0.5-1.0	.37	.37			
	55-75	2-10	50-70	26-34	1.20-1.50	0.60-2.00	0.15-0.19	0.0-2.9	0.0-0.5	.43	.43			
	75-80	88-98	1-10	1-7	1.30-1.50	6.00-20.00	0.02-0.04	0.0-2.9	0.0-0.5	.10	.10			
2238:														
Cozad, sandy substratum---	0-5	28-52	28-50	10-19	1.30-1.40	0.60-2.00	0.20-0.23	0.0-2.9	2.0-4.0	.28	.28	5	5	56
	5-10	28-52	28-50	10-19	1.30-1.40	0.60-2.00	0.20-0.23	0.0-2.9	2.0-4.0	.28	.28			
	10-13	28-52	28-50	10-20	1.35-1.45	0.60-2.00	0.17-0.20	0.0-2.9	1.0-3.0	.37	.37			
	13-31	52-80	28-50	10-18	1.30-1.50	0.60-2.00	0.17-0.20	0.0-2.9	0.5-1.0	.43	.43			
	31-41	28-80	10-50	8-17	1.30-1.50	0.60-2.00	0.16-0.18	0.0-2.9	0.0-0.5	.43	.43			
	41-80	52-88	10-50	7-12	1.30-1.50	6.00-20.00	0.08-0.10	0.0-2.9	0.0-0.5	.15	.15			
2240:														
Cozad, sandy substratum---	0-8	2-12	60-80	17-25	1.30-1.40	0.60-2.00	0.20-0.23	0.0-2.9	2.0-4.0	.32	.32	5	5	56
	8-13	2-12	60-80	17-25	1.30-1.40	0.60-2.00	0.20-0.23	0.0-2.9	2.0-4.0	.32	.32			
	13-22	2-12	60-80	15-24	1.35-1.45	0.60-2.00	0.17-0.20	0.0-2.9	1.0-3.0	.43	.43			
	22-42	2-12	60-80	15-24	1.30-1.50	0.60-2.00	0.17-0.20	0.0-2.9	0.5-1.0	.43	.43			
	42-80	72-88	5-15	7-12	1.30-1.50	6.00-20.00	0.08-0.10	0.0-2.9	0.0-0.5	.17	.17			
Hobbs, occasionally flooded------	0-7	2-30	50-80	18-27	1.20-1.40	0.60-2.00	0.20-0.23	0.0-2.9	2.0-4.0	.32	.32	5	6	48
	7-24	2-30	50-80	20-27	1.20-1.40	0.60-2.00	0.20-0.23	0.0-2.9	2.0-4.0	.32	.32			
	24-49	2-30	50-80	19-27	1.20-1.40	0.60-2.00	0.18-0.20	0.0-2.9	2.0-4.0	.43	.43			
	49-59	2-30	50-80	15-27	1.20-1.40	0.60-2.00	0.18-0.20	0.0-2.9	1.0-3.0	.43	.43			
	59-69	2-30	50-80	15-27	1.20-1.40	0.60-2.00	0.18-0.20	0.0-2.9	0.8-1.5	.43	.43			
	69-80	72-88	5-15	5-12	1.30-1.50	6.00-20.00	0.08-0.10	0.0-2.9	0.5-1.0	.17	.17			
2371:														
Cullison------	0-5	52-80	10-50	5-15	1.30-1.50	2.00-6.00	0.16-0.18	0.0-2.9	4.0-8.0	.20	.20	5	8	0
	5-10	52-80	10-50	5-15	1.30-1.50	2.00-6.00	0.16-0.18	0.0-2.9	4.0-8.0	.20	.20			
	10-13	72-88	5-20	0-8	1.50-1.60	5.95-19.98	0.09-0.11	0.0-2.9	0.0-1.0	.17	.17			
	13-20	52-80	10-50	8-18	1.30-1.50	2.00-6.00	0.15-0.17	0.0-2.9	1.0-4.0	.28	.28			
	20-24	52-80	10-50	8-18	1.30-1.50	2.00-6.00	0.15-0.17	0.0-2.9	0.0-1.0	.28	.28			
	24-29	52-80	10-50	8-18	1.30-1.50	2.00-6.00	0.15-0.17	0.0-2.9	0.0-1.0	.28	.28			
	29-51	52-80	10-50	5-15	1.40-1.60	2.00-6.00	0.14-0.16	0.0-2.9	0.0-1.0	.28	.28			
	51-80	2-10	50-70	27-35	1.20-1.40	0.20-0.60	0.18-0.20	3.0-5.9	0.0-1.0	.43	.43			
2415:														
Darr, very rarely flooded------	0-6	52-80	10-50	5-12	1.40-1.70	2.00-6.00	0.16-0.18	0.0-2.9	2.0-4.0	.20	.20	4	3	86
	6-12	52-80	10-50	5-18	1.50-1.70	2.00-6.00	0.12-0.17	0.0-2.9	0.5-2.0	.20	.20			
	12-31	52-80	10-50	5-18	1.50-1.70	2.00-6.00	0.12-0.17	0.0-2.9	0.5-1.0	.17	.17			
	31-50	88-98	5-15	1-6	1.50-1.70	19.98-19.98	0.02-0.04	0.0-2.9	0.0-0.5	.05	.10			
	50-58	88-98	5-15	1-6	1.50-1.70	19.98-19.98	0.02-0.04	0.0-2.9	0.0-0.5	.05	.10			
	58-80	88-98	5-10	1-6	1.50-1.70	19.98-19.98	0.02-0.04	0.0-2.9	0.0-0.5	.05	.10			
2430:														
Detroit-------	0-7	2-40	50-80	22-27	1.25-1.50	0.60-2.00	0.20-0.22	0.0-2.9	2.0-4.0	.37	.37	5	6	48
	7-12	2-40	50-80	22-27	1.25-1.50	0.60-2.00	0.20-0.22	0.0-2.9	2.0-4.0	.37	.37			
	12-17	2-20	50-70	30-40	1.35-1.50	0.20-0.60	0.17-0.20	6.0-8.9	1.0-2.0	.37	.37			
	17-26	2-20	40-60	35-45	1.35-1.50	0.01-0.06	0.11-0.16	6.0-8.9	1.0-2.0	.32	.32			
	26-33	2-20	40-60	35-45	1.35-1.50	0.01-0.06	0.11-0.16	6.0-8.9	1.0-2.0	.32	.32			
	33-46	2-20	40-70	30-40	1.30-1.50	0.20-0.60	0.17-0.20	3.0-5.9	0.0-0.5	.43	.43			
	46-65	2-40	50-80	18-27	1.30-1.50	0.60-2.00	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
	65-80	2-40	50-80	18-27	1.30-1.50	0.60-2.00	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
2731:														
Els-----------	0-5	72-88	5-20	3-12	1.40-1.60	5.95-19.98	0.10-0.12	0.0-2.9	0.5-3.0	.17	.17	5	2	134
	5-9	72-88	5-20	3-12	1.50-1.60	5.95-19.98	0.10-0.12	0.0-2.9	0.5-3.0	.17	.17			
	9-11	72-88	5-20	3-12	1.50-1.60	5.95-19.98	0.10-0.12	0.0-2.9	0.0-0.5	.17	.17			
	11-17	72-88	5-20	3-12	1.50-1.60	5.95-19.98	0.09-0.12	0.0-2.9	0.0-0.5	.17	.17			
	17-45	88-98	0-10	0-8	1.50-1.60	5.95-19.98	0.05-0.08	0.0-2.9	0.0-0.5	.15	.15			
	45-60	52-80	10-50	10-18	1.40-1.50	2.00-6.00	0.12-0.16	0.0-2.9	0.5-3.0	.28	.28			
	60-80	72-88	5-20	0-8	1.50-1.60	5.95-19.98	0.08-0.10	0.0-2.9	0.0-0.5	.17	.17			
Tryon---------	0-4	52-80	10-50	10-18	1.40-1.50	2.00-6.00	0.16-0.18	0.0-2.9	4.0-8.0	.20	.20	5	8	0
	4-7	52-80	10-50	10-18	1.40-1.50	2.00-6.00	0.16-0.18	0.0-2.9	4.0-8.0	.20	.20			
	7-13	72-88	5-15	3-12	1.50-1.60	5.95-19.98	0.10-0.12	0.0-2.9	0.0-0.5	.17	.17			
	13-30	72-88	5-15	3-12	1.50-1.60	5.95-19.98	0.09-0.12	0.0-2.9	0.0-0.5	.17	.17			
	30-47	88-98	0-10	0-8	1.50-1.60	5.95-19.98	0.05-0.08	0.0-2.9	0.0-0.5	.15	.15			
	47-55	52-80	10-50	10-18	1.40-1.50	2.00-6.00	0.12-0.16	0.0-2.9	0.5-3.0	.28	.28			
	55-80	72-88	5-20	0-8	1.50-1.60	5.95-19.98	0.08-0.10	0.0-2.9	0.0-0.5	.17	.17			
2846:														
Fillmore------	0-5	2-10	50-70	27-35	1.20-1.40	0.20-0.60	0.21-0.24	0.0-2.9	2.0-4.0	.37	.37	3	7	38
	5-9	2-10	50-70	27-35	1.20-1.40	0.20-0.60	0.21-0.24	0.0-2.9	2.0-4.0	.37	.37			
	9-11	2-12	40-80	18-27	1.20-1.40	0.60-2.00	0.20-0.24	0.0-2.9	0.5-1.0	.37	.37			
	11-35	2-12	40-60	40-55	1.20-1.30	0.01-0.06	0.11-0.16	9.0-12.0	1.0-2.0	.37	.37			
	35-45	2-12	40-60	40-55	1.10-1.30	0.01-0.06	0.11-0.16	9.0-12.0	1.0-2.0	.37	.37			
	45-50	2-12	50-70	27-40	1.20-1.40	0.06-0.20	0.18-0.20	3.0-5.9	0.5-1.0	.37	.37			
	50-80	2-12	60-80	18-27	1.30-1.50	0.60-2.00	0.18-0.20	0.0-3.0	0.0-0.5	.43	.43			
2918:														
Gates---------	0-5	2-40	50-80	13-18	1.20-1.40	0.60-2.00	0.20-0.22	0.0-2.9	0.5-1.0	.37	.37	5	5	56
	5-17	2-40	50-80	13-18	1.20-1.40	0.60-2.00	0.18-0.20	0.0-2.9	0.0-1.0	.37	.37			
	17-30	52-80	10-50	7-17	1.20-1.40	0.60-2.00	0.16-0.18	0.0-2.9	0.0-0.5	.43	.43			
	30-80	52-80	10-50	7-17	1.20-1.40	0.60-2.00	0.16-0.18	0.0-2.9	0.0-0.5	.43	.43			
2920:														
Gates---------	0-6	2-40	50-80	13-18	1.20-1.40	0.60-2.00	0.20-0.22	0.0-2.9	0.5-1.0	.37	.37	5	5	56
	6-13	2-40	50-80	13-18	1.20-1.40	0.60-2.00	0.17-0.19	0.0-2.9	0.0-1.0	.37	.37			
	13-80	2-40	50-80	14-17	1.20-1.40	0.60-2.00	0.17-0.19	0.0-2.9	0.0-0.5	.43	.43			
2924:														
Gates---------	0-5	2-40	50-80	14-17	1.20-1.40	0.60-2.00	0.20-0.23	0.0-2.9	0.5-1.0	.37	.37	5	5	56
	5-9	2-40	50-80	13-15	1.20-1.40	0.60-2.00	0.20-0.23	0.0-2.9	0.0-0.5	.37	.37			
	9-19	52-80	10-50	14-17	1.20-1.40	0.60-2.00	0.16-0.18	0.0-2.9	0.0-0.5	.43	.43			
	19-80	52-80	10-50	14-17	1.20-1.40	0.60-2.00	0.16-0.18	0.0-2.9	0.0-0.5	.43	.43			
2925:														
Gates, eroded-	0-5	2-40	50-80	14-17	1.20-1.40	0.60-2.00	0.20-0.23	0.0-2.9	0.5-1.0	.43	.43	5	4L	86
	5-30	52-80	10-50	14-17	1.20-1.40	0.60-2.00	0.16-0.18	0.0-2.9	0.0-0.5	.43	.43			
	30-80	52-80	10-50	14-17	1.20-1.40	0.60-2.00	0.16-0.18	0.0-2.9	0.0-0.5	.43	.43			
2927:														
Gates---------	0-7	2-40	50-80	18-27	1.20-1.40	0.60-2.00	0.20-0.22	0.0-2.9	0.5-1.0	.37	.37	5	5	56
	7-13	2-40	50-80	18-27	1.20-1.40	0.60-2.00	0.20-0.22	0.0-2.9	0.5-1.0	.37	.37			
	13-22	2-40	50-80	18-27	1.20-1.40	0.60-2.00	0.18-0.20	0.0-2.9	0.5-1.0	.32	.43			
	22-29	2-40	50-80	18-27	1.20-1.40	0.60-2.00	0.18-0.20	0.0-2.9	0.5-1.0	.43	.43			
	29-35	2-40	50-80	18-27	1.20-1.40	0.60-2.00	0.18-0.20	0.0-2.9	0.0-1.0	.43	.43			
	35-46	2-40	50-80	18-27	1.20-1.40	0.60-2.00	0.18-0.20	0.0-2.9	0.0-1.0	.43	.43			
	46-51	2-40	50-80	18-27	1.20-1.40	0.60-2.00	0.18-0.20	0.0-2.9	0.0-1.0	.43	.43			
	51-80	2-40	50-80	18-27	1.20-1.40	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.43	.43			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
										K	Kf	T		
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
2940:														
Gates,														
overblown----	0-4	52-80	10-50	8-16	1.30-1.60	2.00-6.00	0.16-0.18	0.0-2.9	0.5-1.0	.24	.24	5	3	86
	4-8	52-80	10-50	14-18	1.30-1.60	2.00-6.00	0.16-0.18	0.0-2.9	0.5-1.0	.24	.24			
	8-13	52-80	10-50	14-18	1.30-1.60	2.00-6.00	0.15-0.18	0.0-2.9	0.5-1.0	.24	.24			
	13-42	26-52	28-50	14-27	1.20-1.40	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.37	.37			
	42-60	26-52	28-50	14-27	1.20-1.40	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.37	.37			
	60-80	26-52	28-50	14-27	1.20-1.40	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.37	.37			
2972:														
Gayville------	0-3	26-52	28-50	15-27	1.20-1.30	0.60-2.00	0.20-0.22	0.0-2.9	2.0-3.0	.37	.37	2	6	48
	3-6	26-52	28-50	27-35	1.50-1.60	0.20-0.60	0.19-0.22	3.0-5.9	2.0-3.0	.32	.32			
	6-28	2-20	40-70	27-35	1.50-1.60	0.20-0.60	0.18-0.23	3.0-5.9	0.1-2.0	.32	.32			
	28-34	2-40	50-80	8-27	1.20-1.40	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.43	.43			
	34-54	2-40	50-80	8-18	1.20-1.40	2.00-6.00	0.18-0.20	0.0-2.9	0.0-0.5	.43	.43			
	54-65	2-40	50-80	8-18	1.20-1.40	2.00-6.00	0.18-0.20	0.0-2.9	0.0-0.5	.43	.43			
	65-80	72-88	5-20	7-12	1.30-1.50	6.00-20.00	0.08-0.10	0.0-2.9	0.0-0.5	.15	.15			
3023:														
Gibbon, rarely														
flooded------	0-7	2-40	50-80	20-27	1.20-1.40	0.60-2.00	0.21-0.23	0.0-2.9	2.0-4.0	.32	.32	5	4L	86
	7-23	2-40	50-80	20-27	1.20-1.40	0.60-2.00	0.21-0.23	0.0-2.9	2.0-4.0	.32	.32			
	23-36	2-20	40-70	27-35	1.20-1.35	0.20-0.60	0.18-0.20	3.0-5.9	0.5-1.0	.43	.43			
	36-42	2-20	40-70	27-35	1.20-1.35	0.20-0.60	0.18-0.20	3.0-5.9	0.5-1.0	.43	.43			
	42-46	2-40	50-80	20-27	1.30-1.50	0.60-2.00	0.18-0.22	3.0-5.9	0.5-1.0	.43	.43			
	46-62	52-98	9-50	2-18	1.40-1.60	2.00-6.00	0.08-0.20	0.0-2.9	0.0-0.5	.17	.17			
	62-76	26-52	28-50	20-27	1.30-1.50	0.60-2.00	0.18-0.22	3.0-5.9	0.5-1.0	.28	.28			
	76-80	88-98	0-10	0-5	1.50-1.70	19.98-19.98	0.02-0.06	0.0-2.9	0.0-0.5	.05	.10			
3045:														
Gibbon,														
saline,														
rarely														
flooded------	0-7	20-45	28-50	20-27	1.20-1.40	0.60-2.00	0.20-0.22	0.0-2.9	2.0-4.0	.28	.28	5	4L	86
	7-23	0-45	28-50	20-27	1.30-1.40	0.60-2.00	0.17-0.22	0.0-2.9	0.5-1.0	.28	.28			
	23-34	2-20	40-70	27-35	1.20-1.35	0.20-0.60	0.18-0.20	3.0-5.9	2.0-4.0	.43	.43			
	34-48	2-20	40-70	27-35	1.20-1.35	0.20-0.60	0.18-0.20	3.0-5.9	0.5-1.0	.43	.43			
	48-52	20-45	28-50	27-35	1.20-1.35	0.20-0.60	0.14-0.16	3.0-5.9	1.0-3.0	.37	.37			
	52-62	20-45	28-50	27-35	1.20-1.35	0.20-0.60	0.14-0.16	3.0-5.9	0.5-1.0	.37	.37			
	62-80	52-98	8-50	2-18	1.40-1.60	6.00-20.00	0.02-0.19	0.0-2.9	0.0-0.5	.17	.17			
3140:														
Gothenburg,														
frequently														
flooded------	0-4	26-52	28-50	10-20	1.23-1.45	0.60-2.00	0.20-0.24	0.0-2.9	1.0-3.0	.28	.28	2	8	0
	4-5	70-88	5-20	0-8	1.55-1.70	19.98-19.98	0.04-0.06	0.0-2.9	0.0-1.0	.05	.10			
	5-80	85-98	1-10	0-3	1.55-1.70	19.98-99.90	0.02-0.04	0.0-2.9	0.0-0.5	.05	.10			
3290:														
Hall----------	0-7	2-40	50-80	15-27	1.30-1.40	0.60-2.00	0.20-0.24	3.0-5.9	2.0-4.0	.32	.32	5	6	48
	7-14	2-40	50-80	15-27	1.30-1.40	0.60-2.00	0.20-0.24	3.0-5.9	2.0-4.0	.32	.32			
	14-21	2-20	40-70	27-40	1.30-1.50	0.20-0.60	0.18-0.20	3.0-5.9	1.0-3.0	.43	.43			
	21-30	2-20	40-70	27-40	1.30-1.50	0.20-0.60	0.18-0.20	3.0-5.9	1.0-3.0	.43	.43			
	30-37	2-20	40-70	27-40	1.30-1.50	0.20-0.60	0.18-0.20	3.0-5.9	1.0-2.0	.43	.43			
	37-47	2-40	50-80	15-32	1.30-1.40	0.60-2.00	0.18-0.22	3.0-5.9	0.5-1.0	.43	.43			
	47-67	2-40	50-80	12-30	1.40-1.60	0.57-5.95	0.14-0.20	0.0-2.9	0.0-0.5	.43	.43			
	67-80	2-10	50-75	12-30	1.40-1.60	0.60-2.00	0.14-0.20	0.0-2.9	0.0-0.5	.43	.43			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
3293:														
Hall, eroded--	0-7	2-40	50-80	15-27	1.30-1.40	0.60-2.00	0.20-0.24	3.0-5.9	2.0-4.0	.32	.32	5	6	48
	7-10	2-40	50-80	25-30	1.30-1.40	0.60-2.00	0.20-0.24	3.0-5.9	2.0-4.0	.37	.37			
	10-17	2-20	40-70	32-37	1.30-1.50	0.20-0.60	0.18-0.20	3.0-5.9	1.0-2.0	.43	.43			
	17-21	2-20	40-70	27-35	1.30-1.50	0.20-0.60	0.18-0.20	3.0-5.9	0.8-1.5	.43	.43			
	21-28	2-40	50-80	25-30	1.30-1.40	0.60-2.00	0.18-0.22	3.0-5.9	0.5-1.0	.43	.43			
	28-80	2-40	50-80	12-27	1.40-1.60	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.43	.43			
3294:														
Hall, eroded--	0-9	2-40	50-80	15-27	1.30-1.40	0.60-2.00	0.20-0.24	0.0-2.9	2.0-4.0	.32	.32	5	6	48
	9-15	2-20	40-70	27-35	1.30-1.40	0.20-0.60	0.20-0.24	3.0-5.9	2.0-4.0	.37	.37			
	15-22	2-20	40-70	27-37	1.30-1.50	0.20-0.60	0.18-0.20	3.0-5.9	1.0-2.0	.43	.43			
	22-26	2-20	40-70	25-35	1.30-1.50	0.20-0.60	0.18-0.20	3.0-5.9	1.0-2.0	.43	.43			
	26-30	2-40	50-80	15-30	1.30-1.40	0.60-2.00	0.18-0.20	0.0-2.9	0.5-1.0	.43	.43			
	30-39	2-40	50-80	12-30	1.40-1.60	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.43	.43			
	39-80	2-40	50-80	12-30	1.40-1.60	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.43	.43			
3300:														
Hall, sandy substratum---	0-7	2-40	50-80	15-27	1.30-1.40	0.60-2.00	0.20-0.24	3.0-5.9	2.0-4.0	.32	.32	5	6	48
	7-18	2-40	50-80	15-27	1.30-1.40	0.60-2.00	0.20-0.24	3.0-5.9	2.0-4.0	.32	.32			
	18-30	2-20	40-70	27-40	1.30-1.50	0.20-0.60	0.18-0.20	3.0-5.9	1.0-3.0	.43	.43			
	30-47	2-20	40-70	27-40	1.30-1.50	0.20-0.60	0.18-0.20	3.0-5.9	1.0-3.0	.43	.43			
	47-60	52-80	10-50	15-25	1.30-1.50	0.60-2.00	0.16-0.18	0.0-2.9	0.0-0.5	.43	.43			
	60-80	88-98	3-15	5-12	1.30-1.50	6.00-20.00	0.08-0.10	0.0-2.9	0.0-0.5	.15	.15			
3301:														
Hall, eroded--	0-8	2-40	50-80	15-27	1.30-1.40	0.60-2.00	0.20-0.24	0.0-2.9	2.0-4.0	.32	.32	5	6	48
	8-12	2-20	40-70	27-35	1.30-1.40	0.20-0.60	0.20-0.24	0.0-2.9	2.0-4.0	.37	.37			
	12-24	2-20	40-70	27-35	1.30-1.50	0.20-0.60	0.18-0.20	3.0-5.9	1.0-2.0	.43	.43			
	24-37	2-20	40-70	27-35	1.30-1.50	0.20-0.60	0.18-0.20	3.0-5.9	1.0-2.0	.43	.43			
	37-41	2-20	50-80	15-27	1.30-1.40	0.60-2.00	0.18-0.20	0.0-2.9	0.5-1.0	.43	.43			
	41-80	2-40	50-80	12-30	1.40-1.60	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.43	.43			
Hobbs, occasionally flooded------	0-6	2-12	50-80	15-27	1.20-1.40	0.60-2.00	0.20-0.23	0.0-2.9	2.0-4.0	.32	.32	5	6	48
	6-13	2-12	50-80	15-27	1.20-1.40	0.60-2.00	0.20-0.23	0.0-2.9	2.0-4.0	.43	.43			
	13-30	2-12	50-80	15-27	1.20-1.40	0.60-2.00	0.20-0.23	0.0-2.9	2.0-4.0	.43	.43			
	30-36	2-12	50-80	15-27	1.20-1.40	0.60-2.00	0.20-0.23	0.0-2.9	2.0-4.0	.32	.32			
	36-47	2-12	50-80	15-27	1.20-1.40	0.60-2.00	0.18-0.20	0.0-2.9	1.0-3.0	.43	.43			
	47-73	2-12	50-80	15-27	1.20-1.40	0.60-2.00	0.18-0.20	0.0-2.9	0.5-1.0	.43	.43			
	73-80	2-12	50-80	15-27	1.20-1.40	0.60-2.00	0.18-0.20	0.0-2.9	0.5-1.0	.43	.43			
3330:														
Hastings------	0-5	2-30	50-80	15-35	1.20-1.40	0.60-2.00	0.20-0.24	3.0-5.9	2.0-4.0	.32	.32	5	6	48
	5-14	2-30	50-80	18-27	1.20-1.40	0.20-0.60	0.21-0.23	3.0-5.9	2.0-4.0	.37	.37			
	14-18	2-20	40-70	27-40	1.30-1.40	0.20-0.60	0.11-0.18	6.0-8.9	0.5-1.0	.37	.37			
	18-26	2-20	40-70	35-42	1.30-1.40	0.06-0.20	0.11-0.18	6.0-8.9	0.5-1.0	.43	.43			
	26-30	2-20	40-70	40-58	1.30-1.40	0.01-0.06	0.11-0.18	9.0-12.0	0.5-1.0	.43	.43			
	30-35	2-20	40-70	25-38	1.20-1.40	0.20-0.60	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
	35-42	2-20	40-70	25-38	1.20-1.40	0.20-0.60	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
	42-80	2-30	50-80	15-25	1.20-1.40	0.60-2.00	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
3331:														
Hastings------	0-5	2-30	50-80	15-35	1.20-1.40	0.60-2.00	0.20-0.24	3.0-5.9	2.0-4.0	.32	.32	5	6	48
	5-13	2-30	50-80	18-27	1.20-1.40	0.20-0.60	0.21-0.23	3.0-5.9	2.0-4.0	.37	.37			
	13-19	2-20	40-70	27-40	1.30-1.40	0.20-0.60	0.11-0.18	6.0-8.9	0.5-1.0	.37	.37			
	19-24	2-30	40-70	35-42	1.30-1.40	0.06-0.20	0.11-0.18	6.0-8.9	0.5-1.0	.43	.43			
	24-35	2-30	40-70	40-58	1.30-1.40	0.01-0.06	0.11-0.18	9.0-12.0	0.5-1.0	.43	.43			
	35-41	2-20	40-70	25-38	1.20-1.40	0.20-0.60	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
	41-46	2-20	40-70	27-30	1.20-1.40	0.20-0.60	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
	46-80	2-30	50-80	15-25	1.20-1.40	0.60-2.00	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
3478:														
Hersh---------	0-6	52-80	10-50	10-18	1.30-1.50	2.00-6.00	0.16-0.18	0.0-2.9	0.5-2.0	.24	.24	5	3	86
	6-17	52-80	10-50	10-18	1.20-1.50	2.00-6.00	0.16-0.18	0.0-2.9	0.0-0.5	.28	.28			
	17-47	52-80	10-50	10-18	1.60-1.80	2.00-6.00	0.12-0.16	0.0-2.9	0.0-0.5	.28	.28			
	47-80	2-40	50-80	14-17	1.20-1.40	0.60-2.00	0.17-0.19	0.0-2.9	0.0-0.5	.43	.43			
3532:														
Hobbs, occasionally flooded------	0-6	2-12	50-80	15-27	1.20-1.40	0.60-2.00	0.20-0.23	0.0-2.9	2.0-4.0	.32	.32	5	6	48
	6-13	2-12	50-80	15-27	1.20-1.40	0.60-2.00	0.20-0.23	0.0-2.9	2.0-4.0	.43	.43			
	13-30	2-12	50-80	15-27	1.20-1.40	0.60-2.00	0.20-0.23	0.0-2.9	2.0-4.0	.43	.43			
	30-36	2-12	50-80	15-27	1.20-1.40	0.60-2.00	0.20-0.23	0.0-2.9	2.0-4.0	.32	.32			
	36-47	2-12	50-80	15-27	1.20-1.40	0.60-2.00	0.18-0.20	0.0-2.9	1.0-3.0	.43	.43			
	47-73	2-12	50-80	15-27	1.20-1.40	0.60-2.00	0.18-0.20	0.0-2.9	0.5-1.0	.43	.43			
	73-80	2-12	0-80	15-27	1.20-1.40	0.60-2.00	0.18-0.20	0.0-2.9	0.5-1.0	.43	.43			
3537:														
Hobbs, frequently flooded------	0-6	2-12	50-80	15-27	1.20-1.40	0.60-2.00	0.21-0.24	0.0-2.9	2.0-4.0	.32	.32	5	6	48
	6-9	2-12	50-80	15-27	1.20-1.40	0.60-2.00	0.21-0.24	0.0-2.9	1.5-3.5	.32	.32			
	9-33	26-52	28-50	10-25	1.20-1.40	0.60-2.00	0.18-0.20	0.0-2.9	0.5-2.5	.43	.43			
	33-43	2-12	50-80	15-25	1.20-1.40	0.60-2.00	0.18-0.20	0.0-2.9	2.0-4.0	.43	.43			
	43-53	2-12	50-80	15-25	1.20-1.40	0.60-2.00	0.18-0.20	0.0-2.9	0.5-2.0	.43	.43			
	53-67	52-80	10-52	2-18	1.20-1.40	2.00-6.00	0.16-0.18	0.0-2.9	0.5-2.0	.43	.43			
	67-80	2-12	50-80	15-25	1.20-1.40	0.60-2.00	0.18-0.20	0.0-2.9	0.5-2.5	.43	.43			
3568:														
Holder, overblown----	0-5	26-52	28-52	18-25	1.20-1.45	0.60-2.00	0.20-0.22	0.0-2.9	2.0-4.0	.28	.28	5	6	48
	5-8	26-52	28-52	18-25	1.20-1.40	0.60-2.00	0.20-0.22	0.0-2.9	2.0-4.0	.28	.28			
	8-16	26-52	28-52	15-25	1.20-1.45	0.60-2.00	0.17-0.19	0.0-2.9	1.0-3.0	.28	.28			
	16-24	2-40	50-80	18-25	1.20-1.45	0.60-2.00	0.18-0.20	0.0-2.9	2.0-4.0	.32	.32			
	24-32	2-20	40-70	28-40	1.20-1.40	0.20-0.60	0.18-0.20	3.0-5.9	0.5-2.0	.32	.32			
	32-37	2-20	40-70	28-40	1.40-1.60	0.20-0.60	0.18-0.20	3.0-5.9	0.0-0.5	.32	.32			
	37-42	2-40	50-80	20-30	1.40-1.60	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.32	.32			
	42-80	2-40	50-80	20-30	1.40-1.60	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.43	.43			
3570:														
Holder--------	0-5	2-40	50-80	20-27	1.20-1.45	0.60-2.00	0.22-0.24	0.0-2.9	2.0-4.0	.32	.32	5	6	48
	5-10	2-40	50-80	20-27	1.20-1.45	0.60-2.00	0.22-0.24	0.0-2.9	2.0-4.0	.32	.32			
	10-14	2-20	40-70	27-32	1.20-1.40	0.20-0.57	0.18-0.20	3.0-5.9	0.5-2.0	.43	.43			
	14-20	2-20	40-70	28-35	1.20-1.40	0.20-0.60	0.18-0.20	3.0-5.9	0.5-2.0	.43	.43			
	20-30	2-20	40-70	28-35	1.20-1.40	0.20-0.60	0.18-0.20	3.0-5.9	0.5-2.0	.43	.43			
	30-41	2-40	50-80	24-27	1.40-1.60	0.60-1.98	0.18-0.20	0.0-2.9	0.0-0.5	.43	.43			
	41-57	2-40	50-80	20-27	1.40-1.60	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.43	.43			
	57-80	2-40	50-80	20-27	1.40-1.60	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.43	.43			
3571:														
Holder--------	0-6	2-40	50-80	20-27	1.20-1.45	0.60-2.00	0.22-0.24	0.0-2.9	2.0-4.0	.32	.32	5	6	48
	6-10	2-40	50-80	20-27	1.20-1.45	0.60-2.00	0.22-0.24	0.0-2.9	2.0-4.0	.32	.32			
	10-14	2-20	40-70	27-32	1.20-1.40	0.60-2.00	0.18-0.20	0.0-2.9	0.5-2.0	.43	.43			
	14-28	2-20	40-70	28-35	1.20-1.40	0.20-0.60	0.18-0.20	3.0-5.9	0.5-2.0	.43	.43			
	28-36	2-40	50-80	20-30	1.40-1.60	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.43	.43			
	36-52	2-40	50-80	20-30	1.40-1.60	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.43	.43			
	52-80	2-40	0-80	20-30	1.40-1.60	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.43	.43			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
3578: Holder, severely eroded-------	0-4	2-20	40-70	28-30	1.05-1.25	0.20-0.60	0.21-0.23	3.0-5.9	0.5-2.0	.37	.37	5	7	38
	4-17	2-40	50-80	25-27	1.40-1.65	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.43	.43			
	17-31	2-40	50-80	25-28	1.40-1.65	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.43	.43			
3580: Holder, eroded	0-4	2-20	40-70	28-35	1.20-1.45	0.20-0.60	0.21-0.23	3.0-6.0	0.5-2.0	.37	.37	4	7	38
	4-10	2-20	40-70	28-35	1.20-1.40	0.20-0.60	0.21-0.23	3.0-5.9	0.5-2.0	.43	.43			
	10-15	2-20	40-70	28-35	1.20-1.40	0.20-0.60	0.18-0.20	3.0-5.9	0.5-2.0	.43	.43			
	15-20	2-20	40-70	27-35	1.40-1.60	0.20-0.60	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
	20-50	2-40	50-80	20-30	1.40-1.60	0.60-2.00	0.18-0.20	3.0-6.0	0.0-0.5	.43	.43			
	50-80	2-40	50-80	20-30	1.40-1.60	0.60-2.00	0.18-0.20	3.0-6.0	0.0-0.5	.43	.43			
3598: Holdrege, eroded-------	0-6	2-20	40-70	25-30	1.40-1.60	0.20-0.60	0.22-0.24	3.0-5.9	1.0-3.0	.37	.37	5	7	38
	6-13	2-20	40-70	25-30	1.20-1.40	0.20-0.60	0.18-0.20	3.0-5.9	0.5-2.0	.43	.43			
	13-21	2-40	50-80	18-30	1.20-1.40	0.60-2.00	0.18-0.20	0.0-3.0	0.5-2.0	.43	.43			
	21-31	2-40	50-80	18-30	1.30-1.50	0.60-2.00	0.17-0.20	0.0-3.0	0.0-0.5	.43	.43			
	31-80	2-40	50-80	18-30	1.30-1.50	0.60-2.00	0.17-0.20	0.0-3.0	0.0-0.5	.43	.43			
3616: Holdrege, overblown----	0-6	2-40	50-80	20-27	1.40-1.60	0.60-2.00	0.22-0.24	3.0-5.9	2.0-4.0	.32	.32	5	6	48
	6-12	2-40	50-80	20-27	1.40-1.60	0.60-2.00	0.22-0.24	3.0-5.9	2.0-4.0	.32	.32			
	12-17	2-40	50-80	20-27	1.40-1.60	0.60-2.00	0.22-0.24	3.0-5.9	2.0-4.0	.32	.32			
	17-22	2-20	40-70	28-35	1.20-1.40	0.60-2.00	0.18-0.20	3.0-5.9	1.0-3.0	.43	.43			
	22-28	2-20	40-70	28-35	1.20-1.40	0.60-2.00	0.18-0.20	3.0-5.9	0.5-2.0	.43	.43			
	28-34	2-40	50-80	20-27	1.20-1.40	0.60-2.00	0.18-0.20	3.0-5.9	0.5-2.0	.43	.43			
	34-65	2-40	50-80	18-30	1.30-1.50	0.60-2.00	0.17-0.20	3.0-5.9	0.0-0.5	.43	.43			
	65-80	2-40	50-80	18-30	1.30-1.50	0.60-2.00	0.17-0.20	3.0-5.9	0.0-0.5	.43	.43			
3770: Hord----------	0-7	2-40	50-80	17-27	1.30-1.40	0.60-2.00	0.20-0.23	0.0-2.9	2.0-4.0	.32	.32	5	6	48
	7-14	2-40	50-80	17-27	1.30-1.40	0.60-2.00	0.20-0.23	0.0-2.9	2.0-4.0	.32	.32			
	14-22	2-40	50-80	20-27	1.35-1.45	0.60-2.00	0.17-0.20	0.0-2.9	1.0-3.0	.32	.32			
	22-32	2-40	50-80	20-27	1.35-1.45	0.60-2.00	0.17-0.20	0.0-2.9	1.0-3.0	.43	.43			
	32-43	2-40	50-80	18-27	1.30-1.50	0.60-2.00	0.17-0.20	0.0-2.9	0.5-1.0	.43	.43			
	43-59	52-80	10-50	10-20	1.30-1.50	2.00-6.00	0.16-0.18	0.0-2.9	0.0-0.5	.43	.43			
	59-80	52-80	10-50	10-20	1.30-1.50	2.00-6.00	0.16-0.18	0.0-2.9	0.0-0.5	.43	.43			
3771: Hord----------	0-10	2-40	50-80	17-27	1.30-1.40	0.60-2.00	0.20-0.23	0.0-2.9	2.0-4.0	.32	.32	5	6	48
	10-16	2-40	50-80	17-27	1.30-1.40	0.60-2.00	0.20-0.23	0.0-2.9	2.0-4.0	.32	.32			
	16-20	2-40	50-80	20-29	1.35-1.45	0.60-2.00	0.18-0.20	0.0-2.9	0.5-1.0	.32	.32			
	20-30	2-40	50-80	20-29	1.35-1.45	0.60-2.00	0.18-0.20	0.0-2.9	0.5-1.0	.32	.32			
	30-32	2-40	50-80	20-27	1.35-1.45	0.60-2.00	0.18-0.20	0.0-2.9	0.5-1.0	.43	.43			
	32-46	2-40	50-80	18-30	1.30-1.50	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.43	.43			
	46-80	2-40	50-80	18-30	1.30-1.50	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.32	.32			
3772: Hord----------	0-8	2-40	50-80	17-27	1.30-1.40	0.60-2.00	0.20-0.23	0.0-2.9	2.0-4.0	.32	.32	5	6	48
	8-13	2-40	50-80	17-27	1.30-1.40	0.60-2.00	0.20-0.23	0.0-2.9	2.0-4.0	.32	.32			
	13-20	2-40	50-80	20-29	1.35-1.45	0.60-2.00	0.18-0.20	0.0-2.9	0.5-1.0	.32	.32			
	20-30	2-40	50-80	20-29	1.35-1.45	0.60-2.00	0.18-0.20	0.0-2.9	0.5-1.0	.32	.32			
	30-32	2-40	50-80	20-27	1.35-1.45	0.60-2.00	0.18-0.20	0.0-2.9	0.5-1.0	.43	.43			
	32-46	2-40	50-80	18-30	1.30-1.50	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.43	.43			
	46-80	2-40	50-80	18-30	1.30-1.50	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.32	.32			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
3782:														
Hord, sandy substratum---	0-7	2-40	50-80	15-27	1.30-1.40	0.60-2.00	0.20-0.24	0.0-2.9	2.0-4.0	.32	.32	5	6	48
	7-18	2-40	50-80	15-27	1.30-1.40	0.60-2.00	0.20-0.24	0.0-2.9	2.0-4.0	.32	.32			
	18-22	2-40	50-80	25-35	1.30-1.50	0.06-0.20	0.18-0.20	0.0-2.9	2.0-4.0	.32	.32			
	22-44	2-40	50-80	25-35	1.30-1.50	0.06-0.20	0.18-0.20	0.0-2.9	1.5-3.5	.32	.32			
	44-54	26-50	28-50	15-27	1.30-1.50	0.60-2.00	0.18-0.20	0.0-2.9	1.0-3.0	.37	.37			
	54-57	72-88	5-20	2-12	1.30-1.50	6.00-20.00	0.08-0.10	0.0-2.9	0.0-0.5	.17	.17			
	57-80	88-98	0-10	2-10	1.30-1.50	6.00-20.00	0.02-0.04	0.0-2.9	0.0-0.5	.10	.10			
3869:														
Inavale, very rarely flooded------	0-5	70-88	5-20	2-10	1.50-1.60	5.95-19.98	0.10-0.12	0.0-2.9	0.5-1.0	.17	.17	5	2	134
	5-9	70-88	5-20	2-10	1.50-1.60	5.95-19.98	0.10-0.12	0.0-2.9	0.5-1.0	.17	.17			
	9-50	52-98	5-50	2-10	1.50-1.60	5.95-19.98	0.09-0.11	0.0-2.9	0.0-0.5	.17	.17			
	50-70	70-98	5-20	2-10	1.50-1.60	5.95-19.98	0.08-0.10	0.0-2.9	0.0-0.5	.15	.15			
	70-80	85-98	3-15	0-5	1.50-1.60	19.98-99.90	0.02-0.06	0.0-2.9	0.0-0.5	.15	.15			
3875:														
Inavale, very rarely flooded------	0-5	70-88	5-20	2-10	1.50-1.60	5.95-19.98	0.10-0.12	0.0-2.9	0.5-1.0	.17	.17	5	2	134
	5-40	70-98	1-10	2-10	1.50-1.60	5.95-19.98	0.08-0.10	0.0-2.9	0.0-0.5	.15	.15			
	40-57	52-98	5-50	2-10	1.50-1.60	5.95-19.98	0.09-0.11	0.0-2.9	0.0-0.5	.17	.17			
	57-65	70-98	5-20	2-10	1.50-1.60	5.95-19.98	0.08-0.10	0.0-2.9	0.0-0.5	.15	.15			
	65-80	85-98	1-10	0-5	1.50-1.60	5.95-19.98	0.05-0.08	0.0-2.9	0.0-0.5	.15	.15			
3927:														
Ipage---------	0-5	70-90	5-20	3-10	1.40-1.50	5.95-19.98	0.10-0.12	0.0-2.9	0.5-2.0	.17	.17	5	2	134
	5-9	70-90	5-20	3-10	1.40-1.50	5.95-19.98	0.10-0.12	0.0-2.9	0.5-2.0	.17	.17			
	9-38	97-98	0-10	1-5	1.50-1.60	5.95-19.98	0.06-0.08	0.0-2.9	0.0-0.5	.15	.15			
	38-54	70-98	5-18	1-10	1.50-1.60	5.95-19.98	0.05-0.08	0.0-2.9	0.0-0.5	.17	.17			
	54-58	70-98	5-18	1-10	1.50-1.60	5.95-19.98	0.05-0.08	0.0-2.9	0.0-1.0	.17	.17			
	58-80	70-98	5-18	2-10	1.50-1.60	5.95-19.98	0.05-0.08	0.0-2.9	0.0-0.5	.17	.17			
3948:														
Ipage, silty substratum---	0-5	86-97	0-4	1-5	1.50-1.60	5.95-19.98	0.07-0.09	0.0-2.9	0.5-2.0	.15	.15	5	1	220
	5-18	97-98	1-3	1-5	1.50-1.60	5.95-19.98	0.06-0.09	0.0-2.9	0.0-0.5	.15	.15			
	18-36	93-98	0-2	1-5	1.50-1.60	5.95-19.98	0.06-0.08	0.0-2.9	0.0-0.5	.15	.15			
	36-78	90-98	0-1	1-5	1.50-1.60	5.95-19.98	0.05-0.07	0.0-2.9	0.0-0.5	.15	.15			
	78-80	2-20	40-70	27-35	1.20-1.40	0.20-0.60	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
Tryon, silty substratum, wet----------	0-5	72-88	5-20	0-8	1.60-1.70	5.95-19.98	0.10-0.12	0.0-2.9	4.0-8.0	.17	.17	5	8	0
	5-9	88-98	0-10	0-8	1.60-1.70	5.95-19.98	0.07-0.09	0.0-2.9	1.0-3.0	.15	.15			
	9-42	88-98	0-10	0-8	1.60-1.70	5.95-19.98	0.05-0.09	0.0-2.9	0.0-0.5	.15	.15			
	42-47	52-80	10-50	5-15	1.30-1.50	2.00-6.00	0.14-0.16	0.0-2.9	1.0-3.0	.28	.28			
	47-80	2-10	50-70	27-35	1.20-1.40	0.20-0.60	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
3993:														
Jansen, overblown----	0-7	52-80	10-50	4-18	1.30-1.60	2.00-5.95	0.16-0.18	0.0-2.9	1.0-3.0	.20	.20	4	3	86
	7-13	52-80	10-50	4-18	1.30-1.60	2.00-5.95	0.13-0.18	0.0-2.9	1.0-3.0	.20	.20			
	13-17	26-52	28-50	18-27	1.40-1.60	0.60-2.00	0.17-0.19	0.0-2.9	1.0-3.0	.28	.28			
	17-27	20-45	20-50	27-35	1.60-1.75	0.20-0.60	0.16-0.19	3.0-5.9	0.2-0.8	.37	.37			
	27-32	20-45	20-50	24-35	1.60-1.75	0.20-0.60	0.16-0.19	3.0-5.9	0.0-0.5	.37	.37			
	32-38	52-80	10-50	10-20	1.60-1.80	2.00-6.00	0.11-0.14	0.0-2.9	0.0-0.5	.17	.17			
	38-80	88-98	5-15	0-6	1.50-1.70	19.98-99.90	0.02-0.04	0.0-2.9	0.0-0.5	.05	.10			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										K	Kf	T		
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
4019: Janude, sandy substratum, very rarely flooded------	0-6	52-80	10-50	5-15	1.40-1.70	2.00-6.00	0.12-0.17	0.0-2.9	2.0-4.0	.20	.20	5	3	86
	6-21	52-80	10-50	5-15	1.40-1.70	2.00-6.00	0.12-0.17	0.0-2.9	0.5-2.0	.20	.20			
	21-31	52-80	10-50	7-20	1.50-1.60	2.02-6.00	0.12-0.14	0.0-2.9	0.5-2.0	.20	.20			
	31-42	26-52	28-50	7-20	1.50-1.60	0.60-2.00	0.17-0.19	0.0-2.9	0.5-2.0	.20	.20			
	42-57	2-80	10-70	7-28	1.60-1.70	0.57-5.95	0.17-0.19	0.0-2.9	0.5-2.0	.20	.20			
	57-70	52-98	8-50	2-18	1.40-1.60	5.95-19.99	0.08-0.20	0.0-2.9	0.0-0.5	.17	.17			
	70-80	52-98	10-50	7-18	1.60-1.70	1.98-5.95	0.17-0.19	0.0-2.9	0.0-0.5	.20	.20			
4020: Janude, calcareous, very rarely flooded------	0-5	26-52	28-50	10-20	1.30-1.50	0.60-2.00	0.20-0.22	0.0-2.9	2.0-4.0	.28	.28	5	5	56
	5-14	26-52	28-50	10-20	1.30-1.50	0.60-2.00	0.20-0.22	0.0-2.9	2.0-4.0	.28	.28			
	14-23	52-80	10-50	5-15	1.40-1.70	2.00-6.00	0.12-0.17	0.0-2.9	1.0-4.0	.20	.20			
	23-39	52-80	10-50	7-20	1.50-1.60	2.00-6.00	0.12-0.14	0.0-2.9	0.5-2.0	.20	.20			
	39-46	26-52	28-50	7-20	1.60-1.70	0.57-2.00	0.17-0.19	0.0-2.9	0.0-0.5	.20	.20			
	46-65	52-98	8-50	2-20	1.40-1.60	6.00-19.99	0.08-0.10	0.0-2.9	0.0-0.5	.20	.20			
	65-80	85-98	4-15	0-20	1.60-1.70	19.98-99.90	0.02-0.04	0.0-2.9	0.0-0.5	.20	.20			
4417: Lamo, sand substratum, rarely flooded------	0-6	2-12	60-80	20-27	1.20-1.40	0.60-2.00	0.22-0.24	0.0-2.9	1.0-3.0	.32	.32	5	4L	86
	6-17	2-12	60-80	20-27	1.20-1.40	0.60-2.00	0.22-0.24	0.0-2.9	1.0-3.0	.32	.32			
	17-29	2-20	40-70	27-35	1.20-1.35	0.20-0.60	0.18-0.20	3.0-5.9	1.0-2.0	.37	.37			
	29-36	2-20	0-70	27-35	1.20-1.35	0.20-0.60	0.18-0.20	3.0-5.9	1.0-2.0	.43	.43			
	36-43	20-45	20-50	27-35	1.20-1.35	0.20-0.60	0.14-0.16	3.0-5.9	0.5-1.0	.37	.37			
	43-54	52-98	10-50	2-18	1.40-1.60	2.00-6.00	0.14-0.16	0.0-2.9	0.0-0.5	.28	.28			
	54-80	52-98	0-50	2-10	1.40-1.60	6.00-20.00	0.05-0.07	0.0-2.9	0.0-0.5	.15	.15			
4586: Lex, rarely flooded------	0-8	2-40	50-80	15-27	1.20-1.45	0.60-2.00	0.22-0.24	0.0-2.9	1.0-3.0	.32	.32	4	4L	86
	8-20	2-40	50-80	15-27	1.25-1.45	0.60-2.00	0.22-0.24	0.0-2.9	1.0-3.0	.32	.32			
	20-23	26-50	28-50	15-27	1.25-1.45	0.60-2.00	0.20-0.22	0.0-2.9	1.0-3.0	.28	.28			
	23-31	26-50	28-50	15-27	1.25-1.45	0.60-2.00	0.20-0.22	0.0-2.9	0.5-1.0	.28	.28			
	31-34	26-88	5-50	3-20	1.50-1.70	2.00-6.00	0.06-0.19	0.0-2.9	0.5-1.0	.28	.28			
	34-80	88-98	0-10	0-5	1.50-1.70	19.98-19.98	0.02-0.05	0.0-2.9	0.0-0.5	.05	.10			
4613: Libory--------	0-6	86-95	3-7	1-10	1.40-1.50	5.95-19.98	0.07-0.09	0.0-2.9	0.5-3.0	.17	.17	5	2	134
	6-10	72-88	5-20	2-12	1.50-1.70	5.95-19.98	0.10-0.12	0.0-2.9	0.5-3.0	.17	.17			
	10-25	72-88	5-20	2-12	1.50-1.70	5.95-19.98	0.09-0.12	0.0-2.9	0.5-1.0	.17	.17			
	25-31	2-10	50-70	27-35	1.20-1.40	0.20-0.60	0.18-0.20	0.0-2.9	0.0-0.5	.43	.43			
	31-38	2-12	60-80	15-27	1.20-1.40	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.43	.43			
	38-44	2-12	60-80	15-27	1.20-1.40	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.43	.43			
	44-80	2-12	60-80	15-27	1.20-1.40	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.43	.43			
4650: Lockton-------	0-5	26-52	28-50	15-27	1.30-1.50	0.60-2.00	0.20-0.22	0.0-2.9	2.0-4.0	.28	.28	4	6	48
	5-12	26-52	28-50	15-27	1.30-1.50	0.60-2.00	0.20-0.22	0.0-2.9	2.0-4.0	.28	.28			
	12-21	26-52	28-50	15-27	1.30-1.50	0.60-2.00	0.17-0.19	0.0-2.9	2.0-4.0	.28	.28			
	21-25	26-52	28-50	15-27	1.30-1.50	0.60-2.00	0.17-0.19	0.0-2.9	1.0-3.0	.28	.28			
	25-33	52-80	10-50	15-20	1.40-1.60	2.00-6.00	0.12-0.14	0.0-2.9	0.5-2.0	.17	.17			
	33-41	72-88	5-15	2-10	1.50-1.70	19.98-59.94	0.02-0.05	0.0-2.9	0.0-0.5	.10	.15			
	41-80	88-98	5-15	0-5	1.50-1.70	19.98-59.94	0.02-0.04	0.0-2.9	0.0-0.5	.10	.15			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
4744:														
Loup, loamy substratum---	0-7	52-80	10-50	5-15	1.30-1.50	2.00-6.00	0.16-0.18	0.0-2.9	4.0-8.0	.20	.20	5	8	0
	7-11	72-88	5-20	0-8	1.60-1.70	5.95-19.98	0.09-0.11	0.0-2.9	1.0-4.0	.17	.17			
	11-23	72-88	5-20	0-8	1.60-1.70	5.95-19.98	0.09-0.11	0.0-2.9	0.5-1.0	.17	.17			
	23-26	52-80	10-50	5-15	1.30-1.50	2.00-6.00	0.15-0.17	0.0-2.9	0.5-1.0	.28	.28			
	26-48	88-98	0-10	0-8	1.60-1.70	5.95-19.98	0.06-0.08	0.0-2.9	0.0-0.5	.15	.15			
	48-65	72-88	5-20	0-8	1.60-1.70	5.95-19.98	0.08-0.10	0.0-2.9	0.0-0.5	.17	.17			
	65-80	2-40	40-70	35-45	1.20-1.40	0.06-0.20	0.18-0.20	6.0-8.9	0.0-0.5	.43	.43			
4932:														
Marlake-------	0-8	72-88	5-20	3-8	1.50-1.60	5.95-19.98	0.10-0.12	0.0-2.9	4.0-8.0	.17	.17	5	8	0
	8-13	72-88	5-20	3-8	1.50-1.60	5.95-19.98	0.09-0.12	0.0-2.9	0.5-1.0	.17	.17			
	13-34	88-98	0-10	1-8	1.50-1.60	5.95-19.98	0.06-0.08	0.0-2.9	0.0-0.5	.15	.15			
	34-41	72-88	5-20	1-8	1.50-1.60	5.95-19.98	0.08-0.11	0.0-2.9	0.0-0.5	.17	.17			
	41-55	88-98	0-10	1-8	1.50-1.60	5.95-19.98	0.05-0.07	0.0-2.9	0.0-0.5	.15	.15			
	55-60	50-80	10-50	5-15	1.30-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.0-0.5	.28	.28			
	60-80	20-45	20-50	27-35	1.20-1.40	0.20-0.60	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
5705:														
O'Neill-------	0-6	26-52	28-50	10-27	1.40-1.60	0.60-2.00	0.20-0.22	0.0-2.9	1.0-3.0	.28	.28	4	5	56
	6-14	26-52	28-50	10-27	1.40-1.60	0.60-2.00	0.20-0.22	0.0-2.9	1.0-3.0	.28	.28			
	14-19	26-52	28-50	10-27	1.60-1.80	0.60-2.00	0.17-0.19	0.0-2.9	1.0-3.0	.28	.28			
	19-22	26-52	28-50	10-27	1.60-1.80	0.60-2.00	0.17-0.19	0.0-2.9	0.5-1.0	.28	.28			
	22-26	52-80	10-50	2-20	1.60-1.80	2.00-6.00	0.11-0.13	0.0-2.9	0.5-1.0	.17	.17			
	26-35	88-98	1-15	0-3	1.50-1.70	19.98-19.98	0.05-0.07	0.0-2.9	0.0-0.5	.15	.15			
	35-80	88-98	1-15	0-3	1.50-1.70	19.98-19.98	0.02-0.04	0.0-2.9	0.0-0.5	.10	.10			
Pivot, loamy surface------	0-7	26-52	28-50	10-20	1.40-1.60	2.00-6.00	0.20-0.22	0.0-2.9	1.0-2.0	.28	.28	5	5	56
	7-15	52-80	10-50	6-18	1.30-1.50	2.00-6.00	0.12-0.15	0.0-2.9	1.0-2.0	.20	.20			
	15-23	72-88	5-20	2-10	1.40-1.70	5.95-19.98	0.03-0.11	0.0-2.9	0.5-1.0	.15	.15			
	23-27	72-88	5-20	1-8	1.50-1.70	5.95-19.98	0.03-0.11	0.0-2.9	0.0-0.5	.15	.15			
	27-32	88-98	5-15	1-8	1.50-1.70	19.98-99.90	0.03-0.05	0.0-2.9	0.0-0.5	.10	.15			
	32-80	88-98	2-10	1-8	1.50-1.70	19.98-19.98	0.02-0.05	0.0-2.9	0.0-0.5	.10	.15			
5713:														
O'Neill-------	0-6	52-80	10-50	10-25	1.40-1.60	0.60-2.00	0.20-0.22	0.0-2.9	1.0-3.0	.20	.20	4	3	86
	6-14	52-80	10-50	10-25	1.40-1.60	0.60-2.00	0.20-0.22	0.0-2.9	1.0-3.0	.20	.20			
	14-24	52-80	10-50	10-25	1.60-1.80	0.60-2.00	0.17-0.19	0.0-2.9	1.0-3.0	.20	.20			
	24-28	52-88	10-50	2-20	1.60-1.80	2.00-6.00	0.11-0.13	0.0-2.9	0.5-1.0	.15	.15			
	28-37	88-98	1-15	0-3	1.50-1.70	6.00-20.00	0.05-0.07	0.0-2.9	0.0-0.5	.10	.10			
	37-80	88-98	1-15	0-3	1.50-1.70	19.98-19.98	0.02-0.04	0.0-2.9	0.0-0.5	.10	.10			
5905:														
Ortello, silty substratum---	0-6	52-80	10-50	10-18	1.30-1.60	2.00-6.00	0.16-0.18	0.0-2.9	1.0-2.0	.20	.20	5	3	86
	6-12	52-80	10-50	10-18	1.30-1.60	2.00-6.00	0.16-0.18	0.0-2.9	1.0-2.0	.20	.20			
	12-27	52-80	10-50	10-18	1.40-1.60	2.00-6.00	0.15-0.17	0.0-2.9	0.5-1.0	.28	.28			
	27-39	72-88	5-15	2-12	1.50-1.70	5.95-19.98	0.09-0.11	0.0-2.9	0.0-0.5	.17	.17			
	39-55	52-80	10-50	10-18	1.40-1.60	2.00-6.00	0.12-0.16	0.0-2.9	0.0-0.5	.28	.28			
	55-62	28-52	26-50	18-27	1.40-1.60	0.60-2.00	0.17-0.19	0.0-2.9	1.0-3.0	.28	.28			
	62-78	2-10	50-70	27-35	1.20-1.40	0.20-0.60	0.18-0.20	3.0-5.9	0.5-1.0	.43	.43			
	78-80	2-12	60-80	20-27	1.30-1.50	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.43	.43			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
5909: Ortello, silty substratum---	0-8	52-80	10-50	8-15	1.40-1.60	2.00-6.00	0.13-0.18	0.0-2.9	1.0-2.0	.20	.20	5	3	86
	8-14	52-80	10-50	8-15	1.40-1.60	2.00-6.00	0.12-0.17	0.0-2.9	1.0-2.0	.20	.20			
	14-19	52-80	10-50	8-15	1.50-1.70	2.00-6.00	0.12-0.17	0.0-2.9	1.0-2.0	.28	.28			
	19-24	52-88	10-50	8-15	1.30-1.50	1.98-5.95	0.12-0.14	0.0-2.9	0.5-1.0	.17	.17			
	24-29	52-80	10-50	8-15	1.30-1.60	2.00-6.00	0.12-0.17	0.0-2.9	0.5-1.0	.28	.28			
	29-35	52-88	10-50	8-15	1.30-1.50	1.98-5.95	0.12-0.14	0.0-2.9	0.5-1.0	.17	.17			
	35-43	25-52	28-50	10-27	1.25-1.50	0.60-2.00	0.12-0.14	0.0-2.9	0.5-1.0	.37	.37			
	43-80	2-12	60-80	18-27	1.20-1.45	0.60-2.00	0.18-0.20	0.0-2.9	0.5-1.0	.43	.43			
Holder, loamy overblown----	0-5	28-80	28-50	18-25	1.20-1.45	0.60-2.00	0.20-0.22	0.0-2.9	2.0-4.0	.28	.28	5	6	48
	5-8	28-80	28-50	18-25	1.20-1.40	0.60-2.00	0.20-0.22	0.0-2.9	2.0-4.0	.28	.28			
	8-16	28-80	28-50	15-25	1.20-1.45	0.60-2.00	0.17-0.19	0.0-2.9	1.0-3.0	.28	.28			
	16-24	2-12	60-80	18-25	1.20-1.45	0.60-2.00	0.18-0.20	0.0-2.9	2.0-4.0	.43	.43			
	24-32	2-10	50-70	28-40	1.20-1.40	0.20-0.60	0.18-0.20	3.0-5.9	0.5-2.0	.43	.43			
	32-37	2-10	50-70	22-29	1.40-1.60	0.20-0.60	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
	37-42	2-12	60-80	20-30	1.40-1.60	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.43	.43			
	42-80	2-12	60-80	20-30	1.40-1.60	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.43	.43			
5914: Ortello-------	0-6	26-52	28-50	12-20	1.30-1.40	0.57-5.95	0.20-0.22	0.0-2.9	1.0-2.0	.28	.28	5	5	56
	6-11	26-52	28-50	12-20	1.30-1.40	0.57-5.95	0.20-0.22	0.0-2.9	1.0-2.0	.28	.28			
	11-16	52-80	10-50	10-18	1.40-1.60	2.00-6.00	0.15-0.19	0.0-2.9	0.5-1.0	.28	.28			
	16-29	52-80	10-50	10-18	1.40-1.60	2.00-6.00	0.15-0.19	0.0-2.9	0.5-1.0	.28	.28			
	29-50	72-88	5-15	5-10	1.50-1.75	5.95-19.98	0.05-0.10	0.0-2.9	0.0-0.5	.17	.17			
	50-61	52-80	10-50	15-32	1.20-1.40	0.60-2.00	0.17-0.22	0.0-2.9	0.0-0.5	.43	.43			
	61-80	88-98	1-12	0-3	1.50-1.70	19.98-99.90	0.02-0.04	0.0-2.9	0.0-0.5	.10	.10			
5985: Ovina---------	0-5	52-80	10-50	8-18	1.30-1.50	2.00-6.00	0.16-0.18	0.0-2.9	1.0-3.0	.20	.20	5	3	86
	5-8	52-80	10-50	8-18	1.30-1.50	2.00-6.00	0.16-0.18	0.0-2.9	1.0-3.0	.20	.20			
	8-13	52-80	10-50	8-18	1.30-1.50	2.00-6.00	0.15-0.17	0.0-2.9	0.5-2.0	.28	.28			
	13-21	72-88	5-20	0-8	1.50-1.60	5.95-19.98	0.09-0.11	0.0-2.9	0.5-2.0	.17	.17			
	21-38	26-52	28-50	18-27	1.40-1.60	0.60-2.00	0.17-0.19	0.0-2.9	1.0-3.0	.28	.28			
	38-58	26-52	28-50	18-27	1.40-1.60	0.60-2.00	0.17-0.19	0.0-2.9	0.5-1.0	.28	.28			
	58-77	20-52	20-50	27-35	1.30-1.50	0.20-0.60	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	77-80	2-10	50-70	27-35	1.30-1.50	0.20-0.60	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
6136: Platte, frequently flooded------	0-6	26-52	28-50	10-27	1.23-1.45	0.60-2.00	0.20-0.22	0.0-2.9	1.0-3.0	.28	.28	3	4L	86
	6-16	0-46	45-80	5-27	1.20-1.40	0.60-2.00	0.22-0.24	0.0-2.9	1.0-3.0	.32	.32			
	16-80	85-98	3-10	0-3	1.55-1.70	19.98-99.90	0.02-0.04	0.0-2.9	0.0-0.5	.05	.10			
Alda, frequently flooded------	0-10	26-52	28-50	15-27	1.30-1.40	0.60-2.00	0.20-0.22	0.0-2.9	1.0-3.0	.28	.28	4	5	56
	10-15	0-80	10-55	2-27	1.40-1.60	0.60-2.00	0.20-0.22	0.0-2.9	0.0-2.0	.28	.28			
	15-26	52-95	10-50	2-18	1.40-1.60	2.00-6.00	0.17-0.19	0.0-2.9	0.0-1.0	.28	.28			
	26-36	88-98	1-12	0-3	1.50-1.70	19.98-99.90	0.02-0.04	0.0-2.9	0.0-0.5	.10	.15			
	36-80	88-98	1-12	0-3	1.50-1.70	19.98-99.90	0.02-0.04	0.0-2.9	0.0-0.5	.10	.15			
6139: Platte, occasionally flooded------	0-6	26-52	28-50	10-20	1.23-1.45	0.60-2.00	0.20-0.22	0.0-2.9	1.0-3.0	.28	.28	3	4L	86
	6-9	26-88	10-50	5-20	1.45-1.65	2.00-6.00	0.12-0.17	0.0-2.9	1.0-3.0	.20	.20			
	9-13	52-98	2-25	2-18	1.50-1.70	2.00-19.99	0.17-0.22	0.0-2.9	0.0-0.5	.28	.28			
	13-80	85-98	3-10	0-5	1.55-1.70	19.98-99.90	0.05-0.08	0.0-2.9	0.0-0.5	.05	.10			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
6139:														
Bolent, occasionally flooded------	0-6	52-80	10-50	8-18	1.50-1.70	2.00-6.00	0.16-0.18	0.0-2.9	1.0-2.0	.24	.24	5	3	86
	6-9	52-80	10-50	8-18	1.50-1.70	2.00-6.00	0.16-0.18	0.0-2.9	1.0-2.0	.20	.20			
	9-17	52-80	10-50	8-18	1.50-1.70	2.00-6.00	0.17-0.22	0.0-2.9	0.0-0.5	.20	.20			
	17-28	52-98	0-6	1-18	1.50-1.80	5.95-19.98	0.05-0.10	0.0-2.9	0.0-0.5	.15	.17			
	28-39	85-98	0-6	1-5	1.50-1.80	19.98-99.90	0.05-0.08	0.0-2.9	0.0-0.5	.15	.17			
	39-80	85-98	0-6	0-5	1.55-1.70	19.98-99.90	0.02-0.04	0.0-2.9	0.0-0.5	.05	.10			
6143:														
Platte, occasionally flooded------	0-6	26-52	28-50	10-20	1.23-1.45	0.60-2.00	0.20-0.22	0.0-2.9	1.0-3.0	.28	.28	3	4L	86
	6-10	26-88	10-50	5-20	1.45-1.65	2.00-19.99	0.13-0.19	0.0-2.9	1.0-3.0	.20	.20			
	10-80	85-98	1-10	0-5	1.55-1.70	19.98-99.90	0.02-0.04	0.0-2.9	0.0-0.5	.05	.10			
Inavale, very rarely flooded------	0-9	70-88	5-20	2-10	1.50-1.60	5.95-19.98	0.10-0.12	0.0-2.9	0.5-1.0	.17	.17	5	2	134
	9-39	70-98	1-10	2-10	1.50-1.60	5.95-19.98	0.08-0.10	0.0-2.9	0.0-0.5	.15	.15			
	39-53	52-98	1-10	2-10	1.50-1.60	5.95-19.98	0.09-0.11	0.0-2.9	0.0-0.5	.17	.17			
	53-65	70-98	5-20	2-10	1.50-1.60	5.95-19.98	0.08-0.10	0.0-2.9	0.0-0.5	.15	.15			
	65-80	85-98	3-15	0-5	1.50-1.60	19.98-99.90	0.05-0.08	0.0-2.9	0.0-0.5	.15	.15			
6800:														
Scott----------	0-9	2-15	60-80	27-32	1.25-1.40	0.20-0.60	0.17-0.20	3.0-5.9	2.0-4.0	.37	.37	3	7	38
	9-12	2-20	35-58	40-55	1.20-1.40	0.06-0.20	0.13-0.17	9.0-12.0	1.0-2.0	.37	.37			
	12-26	5-20	20-45	40-60	1.20-1.40	0.01-0.06	0.10-0.15	9.0-12.0	1.0-2.0	.37	.37			
	26-37	5-20	20-45	40-60	1.20-1.40	0.01-0.06	0.10-0.15	9.0-12.0	1.0-2.0	.37	.37			
	37-45	2-20	50-74	27-40	1.20-1.40	0.06-0.20	0.18-0.20	6.0-8.9	1.0-2.0	.43	.43			
	45-59	2-15	60-80	27-35	1.20-1.40	0.20-0.60	0.18-0.20	1.0-3.0	0.0-0.5	.43	.43			
	59-80	2-15	60-80	18-27	1.20-1.40	0.60-2.00	0.18-0.20	1.0-3.0	0.0-0.5	.43	.43			
6956:														
Silver Creek, overblown, ponded--------	0-6	52-80	10-50	8-18	1.30-1.50	2.00-6.00	0.16-0.18	0.0-2.9	1.0-3.0	.24	.24	3	3	86
	6-10	52-80	10-50	8-18	1.30-1.50	2.00-6.00	0.16-0.18	0.0-2.9	1.0-3.0	.24	.24			
	10-18	2-20	40-60	35-45	1.35-1.45	0.01-0.06	0.11-0.17	6.0-8.9	0.0-1.0	.37	.37			
	18-36	2-20	40-60	35-45	1.35-1.45	0.01-0.06	0.10-0.16	6.0-8.9	0.0-1.0	.37	.37			
	36-48	20-45	20-50	27-35	1.20-1.40	0.20-0.60	0.16-0.18	3.0-5.9	0.0-0.5	.37	.37			
	48-60	26-52	28-50	20-27	1.30-1.40	0.60-2.00	0.17-0.19	3.0-5.9	0.0-0.5	.37	.37			
	60-80	88-98	0-15	1-8	1.50-1.60	5.95-19.98	0.05-0.07	0.0-2.9	0.0-0.5	.15	.15			
6957:														
Silver Creek, alkali--------	0-6	2-40	50-80	18-27	1.15-1.20	0.60-2.00	0.20-0.23	0.0-2.9	2.0-4.0	.37	.37	3	4L	86
	6-11	2-40	50-80	18-27	1.15-1.20	0.60-2.00	0.20-0.23	0.0-2.9	2.0-4.0	.37	.37			
	11-19	2-20	40-70	35-45	1.35-1.45	0.00-0.06	0.16-0.20	6.0-8.9	0.5-2.0	.37	.37			
	19-24	20-45	20-50	35-45	1.35-1.45	0.00-0.06	0.15-0.17	6.0-8.9	0.5-1.0	.37	.37			
	24-44	20-45	20-50	27-35	1.30-1.40	0.20-0.60	0.16-0.19	3.0-5.9	0.0-0.5	.37	.37			
	44-50	20-45	20-50	27-35	1.30-1.40	0.20-0.60	0.16-0.18	3.0-5.9	1.0-3.0	.37	.37			
	50-65	2-40	20-60	35-45	1.35-1.45	0.01-0.06	0.10-0.13	6.0-8.9	0.5-2.0	.37	.37			
	65-80	2-20	40-70	27-35	1.30-1.40	0.20-0.60	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
6957:														
Silver Creek, saline, alkali-------	0-3	2-40	50-80	18-27	1.15-1.20	0.60-2.00	0.20-0.23	0.0-2.9	1.0-3.0	.37	.37	3	6	48
	3-5	2-20	40-70	35-40	1.30-1.40	0.06-0.20	0.16-0.20	6.0-8.9	1.0-3.0	.37	.37			
	5-11	2-20	40-60	35-50	1.20-1.45	0.00-0.06	0.11-0.18	6.0-8.9	0.5-1.0	.37	.37			
	11-14	2-40	50-80	18-27	1.15-1.20	0.60-2.00	0.20-0.23	0.0-2.9	1.0-3.0	.37	.37			
	14-22	2-20	40-60	35-50	1.20-1.45	0.00-0.06	0.11-0.18	6.0-8.9	0.5-1.0	.37	.37			
	22-50	20-45	20-50	27-35	1.30-1.40	0.20-0.60	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	50-65	52-88	10-50	6-20	1.35-1.70	2.00-20.00	0.12-0.16	0.0-2.9	0.0-0.5	.28	.28			
	65-80	52-88	10-50	5-20	1.35-1.50	2.00-6.00	0.15-0.17	0.0-2.9	0.0-0.5	.43	.43			
6978:														
Simeon--------	0-8	52-80	10-50	6-18	1.30-1.50	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.20	.20	5	3	86
	8-15	72-88	5-20	2-10	1.50-1.70	5.95-19.98	0.05-0.10	0.0-2.9	0.0-0.5	.15	.15			
	15-80	88-98	5-15	1-8	1.50-1.70	19.98-19.98	0.02-0.05	0.0-2.9	0.0-0.5	.10	.15			
7225:														
Thurman-------	0-5	52-80	10-50	7-15	1.35-1.55	2.00-6.00	0.10-0.15	0.0-2.9	1.0-2.0	.20	.20	5	3	86
	5-12	52-80	10-50	7-15	1.35-1.55	2.00-6.00	0.10-0.15	0.0-2.9	1.0-2.0	.20	.20			
	12-19	52-80	10-50	7-15	1.35-1.55	2.00-6.00	0.10-0.15	0.0-2.9	1.0-2.0	.28	.28			
	19-36	72-88	5-25	2-7	1.50-1.70	5.95-19.98	0.05-0.10	0.0-2.9	0.0-0.5	.17	.17			
	36-62	72-95	5-25	2-7	1.50-1.70	5.95-19.98	0.05-0.10	0.0-2.9	0.0-0.5	.17	.17			
	62-80	52-88	5-50	5-15	1.30-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.0-0.5	.28	.28			
7249:														
Thurman, loamy substratum---	0-12	72-88	5-20	0-12	1.40-1.60	5.95-19.98	0.10-0.12	0.0-2.9	0.5-1.5	.17	.17	5	2	134
	12-21	72-88	5-20	0-12	1.60-1.80	5.95-19.98	0.10-0.12	0.0-2.9	0.0-0.5	.17	.17			
	21-54	88-98	1-15	0-12	1.60-1.80	5.95-19.98	0.05-0.07	0.0-2.9	0.0-0.5	.15	.15			
	54-61	52-80	10-50	3-20	1.40-1.60	2.00-6.00	0.12-0.14	0.0-2.9	1.0-2.5	.28	.28			
	61-68	52-80	10-50	3-20	1.40-1.60	2.00-6.00	0.11-0.13	0.0-2.9	0.0-0.5	.28	.28			
	68-80	52-80	10-50	3-20	1.40-1.60	1.98-5.95	0.11-0.13	0.0-2.9	0.0-0.5	.28	.28			
7250:														
Thurman, loamy substratum---	0-6	72-88	5-25	0-6	1.40-1.60	5.95-19.98	0.10-0.12	0.0-2.9	1.0-3.0	.17	.17	5	2	134
	6-12	72-88	5-25	0-6	1.60-1.80	5.95-19.98	0.10-0.12	0.0-2.9	1.0-3.0	.17	.17			
	12-26	72-88	5-25	0-6	1.60-1.80	5.95-19.98	0.09-0.11	0.0-2.9	0.5-1.5	.17	.17			
	26-42	72-88	5-25	0-6	1.60-1.80	5.95-19.98	0.09-0.11	0.0-2.9	0.5-1.5	.17	.17			
	42-50	52-80	10-50	2-20	1.40-1.60	2.00-6.00	0.15-0.17	0.0-2.9	1.0-3.0	.28	.28			
	50-55	52-80	10-50	2-20	1.40-1.60	2.00-6.00	0.11-0.13	0.0-2.9	0.5-1.5	.28	.28			
	55-80	52-80	10-50	2-20	1.40-1.60	2.00-6.00	0.11-0.13	0.0-2.9	0.0-0.8	.28	.28			
7429:														
Uly, eroded---	0-5	2-40	50-88	18-27	1.20-1.45	0.60-2.00	0.20-0.24	0.0-2.9	1.0-3.0	.32	.32	5	6	48
	5-10	2-40	50-88	20-30	1.25-1.45	0.60-2.00	0.18-0.22	0.0-2.9	0.5-1.0	.43	.43			
	10-80	2-80	10-88	18-27	1.25-1.45	0.60-2.00	0.16-0.20	0.0-2.9	0.0-0.5	.43	.43			
7436:														
Uly, eroded---	0-6	2-40	50-88	17-27	1.20-1.45	0.60-2.00	0.20-0.24	0.0-2.9	1.0-3.0	.32	.32	5	6	48
	6-15	2-40	50-88	20-30	1.25-1.45	0.60-2.00	0.20-0.24	0.0-2.9	1.0-3.0	.32	.32			
	15-31	2-80	2-88	18-27	1.25-1.45	0.60-2.00	0.16-0.20	0.0-2.9	0.0-0.5	.43	.43			
	31-80	2-80	2-88	18-27	1.25-1.45	0.60-2.00	0.16-0.20	0.0-2.9	0.0-0.5	.43	.43			
Coly----------	0-6	2-40	50-80	18-24	1.30-1.50	0.60-2.00	0.20-0.24	0.0-2.9	1.0-2.0	.43	.43	5	4L	86
	6-9	2-40	50-80	18-24	1.30-1.50	0.60-2.00	0.20-0.24	0.0-2.9	1.0-2.0	.43	.43			
	9-21	2-40	50-80	18-24	1.30-1.50	0.60-2.00	0.17-0.22	0.0-2.9	1.0-2.0	.43	.43			
	21-35	2-50	10-80	18-24	1.30-1.50	0.60-2.00	0.17-0.22	0.0-2.9	0.5-1.0	.43	.43			
	35-80	2-50	10-80	18-24	1.30-1.50	0.60-2.00	0.17-0.22	0.0-2.9	0.5-1.0	.43	.43			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
7438:														
Uly, eroded---	0-5	2-40	50-88	18-27	1.20-1.45	0.60-2.00	0.20-0.24	0.0-2.9	1.0-3.0	.32	.32	5	6	48
	5-16	2-40	50-88	20-30	1.25-1.45	0.60-2.00	0.18-0.22	0.0-2.9	0.5-1.0	.43	.43			
	16-42	2-80	10-88	18-27	1.25-1.45	0.60-2.00	0.16-0.20	0.0-2.9	0.0-0.5	.43	.43			
	42-80	2-80	10-88	18-27	1.25-1.45	0.60-2.00	0.16-0.20	0.0-2.9	0.0-0.5	.43	.43			
7439:														
Uly, eroded---	0-8	2-40	60-88	17-27	1.20-1.45	0.60-2.00	0.20-0.24	0.0-2.9	1.0-3.0	.32	.32	5	6	48
	8-16	2-40	60-88	20-30	1.25-1.45	0.60-2.00	0.20-0.24	0.0-2.9	1.0-3.0	.32	.32			
	16-35	5-80	10-88	18-27	1.25-1.45	0.60-2.00	0.16-0.20	0.0-2.9	0.0-0.5	.43	.43			
	35-80	5-80	10-88	18-27	1.25-1.45	0.60-2.00	0.16-0.20	0.0-2.9	0.0-0.5	.43	.43			
Coly----------	0-4	2-40	50-80	18-24	1.30-1.50	0.60-2.00	0.20-0.24	0.0-2.9	0.8-1.5	.32	.32	5	4L	86
	4-9	2-40	50-80	18-24	1.30-1.50	0.60-2.00	0.17-0.22	0.0-2.9	0.5-1.0	.43	.43			
	9-39	2-40	50-80	18-24	1.30-1.50	0.60-2.00	0.17-0.22	0.0-2.9	0.5-1.0	.43	.43			
	39-80	2-40	50-80	18-24	1.30-1.50	0.60-2.00	0.17-0.22	0.0-2.9	0.5-1.0	.43	.43			
7440:														
Uly-----------	0-7	2-40	50-88	17-27	1.20-1.45	0.60-2.00	0.20-0.24	0.0-2.9	1.0-3.0	.32	.32	5	6	48
	7-13	2-40	50-88	20-30	1.25-1.45	0.60-2.00	0.20-0.24	0.0-2.9	1.0-3.0	.32	.32			
	13-24	2-80	10-88	18-27	1.25-1.45	0.60-2.00	0.16-0.20	0.0-2.9	0.0-0.5	.43	.43			
	24-80	2-80	10-88	18-27	1.25-1.45	0.60-2.00	0.16-0.20	0.0-2.9	0.0-0.5	.43	.43			
Hobbs, occasionally flooded------	0-12	2-12	50-80	15-27	1.20-1.40	0.60-2.00	0.21-0.24	0.0-2.9	2.0-4.0	.32	.32	5	6	48
	12-21	2-12	50-80	15-30	1.20-1.40	0.60-2.00	0.18-0.22	0.0-2.9	1.5-3.5	.43	.43			
	21-35	2-12	50-80	15-30	1.20-1.40	0.60-2.00	0.18-0.22	0.0-2.9	1.5-3.5	.43	.43			
	35-59	2-12	50-80	15-30	1.20-1.40	0.60-2.00	0.18-0.22	0.0-2.9	2.0-4.0	.43	.43			
	59-80	2-12	50-80	15-30	1.20-1.40	0.60-2.00	0.18-0.22	0.0-2.9	1.0-2.0	.43	.43			
7652:														
Valentine-----	0-5	88-98	0-10	0-6	1.40-1.60	5.95-19.98	0.05-0.08	0.0-2.9	0.5-1.0	.15	.15	5	1	250
	5-19	88-98	0-10	0-6	1.60-1.80	5.95-19.98	0.05-0.08	0.0-2.9	0.0-0.5	.15	.15			
	19-80	88-98	0-10	0-6	1.60-1.80	5.95-19.98	0.05-0.08	0.0-2.9	0.0-0.5	.15	.15			
7656:														
Valentine, rolling------	0-5	88-98	0-10	0-6	1.40-1.60	5.95-19.98	0.05-0.08	0.0-2.9	0.5-1.0	.15	.15	5	1	250
	5-12	88-98	0-10	0-6	1.60-1.80	5.95-19.98	0.05-0.08	0.0-2.9	0.0-0.5	.15	.15			
	12-48	88-98	0-10	0-6	1.60-1.80	5.95-19.98	0.05-0.08	0.0-2.9	0.0-0.5	.15	.15			
	48-80	88-98	0-10	0-6	1.60-1.80	5.95-19.98	0.05-0.08	0.0-2.9	0.0-0.5	.15	.15			
7659:														
Valentine, rolling------	0-6	88-98	0-10	0-6	1.40-1.60	5.95-19.98	0.05-0.08	0.0-2.9	0.5-1.0	.15	.15	5	1	250
	6-16	88-98	0-10	0-6	1.60-1.80	5.95-19.98	0.05-0.08	0.0-2.9	0.0-0.5	.15	.15			
	16-31	88-98	0-10	0-6	1.60-1.80	5.95-19.98	0.05-0.08	0.0-2.9	0.0-0.5	.15	.15			
	31-80	88-98	0-10	0-6	1.60-1.80	5.95-19.98	0.05-0.08	0.0-2.9	0.0-0.5	.15	.15			
Valentine, hilly--------	0-7	88-98	0-10	0-6	1.40-1.60	5.95-19.98	0.05-0.08	0.0-2.9	0.5-1.0	.15	.15	5	1	250
	7-12	88-98	0-10	0-6	1.60-1.80	5.95-19.98	0.05-0.08	0.0-2.9	0.0-0.5	.15	.15			
	12-80	88-98	0-10	0-6	1.60-1.80	5.95-19.98	0.05-0.08	0.0-2.9	0.0-0.5	.15	.15			
7662:														
Valentine-----	0-4	88-98	0-15	0-6	1.40-1.60	5.95-19.98	0.05-0.08	0.0-2.9	0.5-1.0	.17	.17	5	2	134
	4-7	88-98	0-15	0-6	1.60-1.80	5.95-19.98	0.05-0.08	0.0-2.9	0.0-0.5	.17	.17			
	7-40	88-98	0-15	0-6	1.60-1.80	5.95-19.98	0.05-0.08	0.0-2.9	0.0-0.5	.15	.15			
	40-60	88-98	0-15	0-6	1.60-1.80	5.95-19.98	0.05-0.08	0.0-2.9	0.0-0.5	.15	.15			
	60-80	88-98	0-15	0-6	1.60-1.80	5.95-19.98	0.05-0.08	0.0-2.9	0.0-0.5	.15	.15			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
7664:														
Valentine-----	0-6	88-98	0-15	0-6	1.40-1.60	5.95-19.98	0.05-0.08	0.0-2.9	0.5-1.0	.15	.15	5	1	250
	6-16	88-98	0-15	0-6	1.60-1.80	5.95-19.98	0.05-0.08	0.0-2.9	0.0-0.5	.15	.15			
	16-31	88-98	0-15	0-6	1.60-1.80	5.95-19.98	0.05-0.08	0.0-2.9	0.0-0.5	.15	.15			
	31-80	88-98	0-15	0-6	1.60-1.80	5.95-19.98	0.05-0.08	0.0-2.9	0.0-0.5	.15	.15			
7669:														
Valentine, loamy substratum---	0-5	72-88	5-20	0-6	1.40-1.60	5.95-19.98	0.10-0.12	0.0-2.9	0.5-1.0	.17	.17	5	2	134
	5-8	72-88	5-20	0-6	1.40-1.60	5.95-19.98	0.10-0.12	0.0-2.9	0.5-1.0	.17	.17			
	8-22	88-98	0-10	0-6	1.60-1.80	5.95-19.98	0.05-0.08	0.0-2.9	0.0-0.5	.15	.15			
	22-56	88-98	2-10	0-6	1.60-1.80	5.95-19.98	0.05-0.08	0.0-2.9	0.0-0.5	.15	.15			
	56-70	20-45	20-45	18-32	1.30-1.50	0.60-2.00	0.16-0.18	3.0-5.9	0.5-2.0	.37	.37			
	70-80	52-80	10-50	5-18	1.50-1.60	2.00-6.00	0.11-0.13	0.0-2.9	0.0-0.5	.28	.28			
7721:														
Valentine-----	0-4	88-98	0-10	0-6	1.40-1.60	5.95-19.98	0.05-0.08	0.0-2.9	0.5-1.0	.15	.15	5	1	250
	4-8	88-98	0-10	0-6	1.60-1.80	5.95-19.98	0.05-0.08	0.0-2.9	0.0-0.5	.15	.15			
	8-16	88-98	0-10	0-6	1.60-1.80	5.95-19.98	0.05-0.08	0.0-2.9	0.0-0.5	.15	.15			
	16-80	88-98	0-10	0-6	1.60-1.80	5.95-19.98	0.05-0.08	0.0-2.9	0.0-0.5	.15	.15			
Libory--------	0-6	72-88	5-20	2-12	1.50-1.70	5.95-19.98	0.10-0.12	0.0-2.9	1.0-3.0	.17	.17	5	2	250
	6-11	72-88	5-20	2-12	1.50-1.70	5.95-19.98	0.10-0.12	0.0-2.9	1.0-3.0	.17	.17			
	11-28	72-88	5-20	2-12	1.50-1.70	5.95-19.98	0.09-0.12	0.0-2.9	0.5-1.0	.17	.17			
	28-38	72-88	5-20	2-12	1.50-1.70	5.95-19.98	0.08-0.11	0.0-2.9	0.5-1.0	.17	.17			
	38-46	2-10	50-70	27-35	1.20-1.40	0.20-0.60	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
	46-62	2-10	50-70	27-35	1.20-1.40	0.20-0.60	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
	62-80	2-12	60-80	15-27	1.20-1.40	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.43	.43			
7748:														
Valentine-----	0-4	88-98	0-10	0-6	1.40-1.60	5.95-19.98	0.05-0.08	0.0-2.9	0.5-1.0	.15	.15	5	1	250
	4-16	88-98	0-10	0-6	1.60-1.80	5.95-19.98	0.05-0.08	0.0-2.9	0.0-0.5	.15	.15			
	16-80	88-98	0-10	0-6	1.60-1.80	5.95-19.98	0.05-0.08	0.0-2.9	0.0-0.5	.15	.15			
Tryon, silty substratum, wet----------	0-7	72-88	5-20	3-10	1.60-1.70	5.95-19.98	0.10-0.12	0.0-2.9	4.0-8.0	.17	.17	5	8	0
	7-12	72-88	5-20	3-10	1.60-1.70	5.95-19.98	0.10-0.12	0.0-2.9	0.5-1.0	.17	.17			
	12-44	88-98	0-10	1-7	1.60-1.70	5.95-19.98	0.05-0.08	0.0-2.9	0.0-1.0	.15	.15			
	44-80	2-20	50-70	27-35	1.20-1.40	0.20-0.60	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
7924:														
Wann, rarely flooded------	0-8	26-52	28-50	10-27	1.40-1.60	0.60-2.00	0.20-0.22	0.0-2.9	2.0-4.0	.28	.28	5	4L	86
	8-12	52-80	10-50	3-18	1.45-1.65	2.00-6.00	0.11-0.17	0.0-2.9	0.5-1.0	.28	.28			
	12-15	52-98	5-50	2-20	1.40-1.60	2.00-6.00	0.08-0.10	0.0-2.9	0.0-0.5	.17	.17			
	15-26	25-52	30-80	20-27	1.30-1.50	0.60-2.00	0.18-0.22	0.0-2.9	0.5-1.0	.37	.37			
	26-39	52-80	10-50	3-18	1.45-1.65	2.00-6.00	0.11-0.17	0.0-2.9	0.5-1.0	.28	.28			
	39-46	52-98	5-50	2-20	1.40-1.60	2.00-6.00	0.08-0.10	0.0-2.9	0.0-0.5	.17	.17			
	46-61	52-98	8-50	2-20	1.40-1.60	2.00-6.00	0.08-0.10	0.0-2.9	0.0-0.5	.28	.28			
	61-80	26-95	3-50	3-20	1.50-1.70	2.00-6.00	0.05-0.17	0.0-2.9	0.0-0.5	.10	.10			
7927:														
Wann, rarely flooded------	0-12	52-80	10-50	5-15	1.45-1.65	2.00-6.00	0.12-0.17	0.0-2.9	1.0-3.0	.24	.24	5	3	86
	12-24	52-98	5-50	2-12	1.40-1.60	6.00-20.00	0.08-0.10	0.0-2.9	0.0-0.5	.17	.17			
	24-31	52-80	10-50	3-18	1.45-1.65	2.00-6.00	0.12-0.14	0.0-2.9	1.0-3.0	.28	.28			
	31-54	52-80	10-50	3-18	1.45-1.65	2.00-6.00	0.11-0.14	0.0-2.9	0.5-1.0	.28	.28			
	54-80	85-100	5-50	0-5	1.50-1.70	20.00-99.90	0.02-0.04	0.0-2.9	0.0-0.5	.10	.10			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
8020:														
Wood River----	0-7	2-40	50-80	18-27	1.10-1.30	0.60-2.00	0.20-0.23	0.0-2.9	2.0-4.0	.37	.37	3	6	48
	7-13	2-40	50-80	18-27	1.10-1.30	0.60-2.00	0.18-0.23	0.0-2.9	2.0-4.0	.37	.37			
	13-19	2-20	40-70	35-40	1.30-1.40	0.06-0.20	0.16-0.18	6.0-8.9	0.5-2.0	.37	.37			
	19-29	2-20	40-70	35-40	1.30-1.40	0.06-0.20	0.16-0.18	6.0-8.9	0.5-1.0	.37	.37			
	29-36	2-20	40-70	35-40	1.30-1.40	0.06-0.20	0.15-0.17	6.0-8.9	0.0-0.5	.37	.37			
	36-56	20-45	20-50	27-35	1.10-1.30	0.20-0.60	0.16-0.18	3.0-5.9	0.0-0.5	.37	.37			
	56-80	85-98	3-15	0-3	1.55-1.70	19.98-19.98	0.02-0.07	0.0-2.9	0.0-0.5	.05	.10			
8022:														
Wood River, overblown----	0-8	52-80	10-50	10-18	1.10-1.30	2.00-6.00	0.16-0.18	0.0-2.9	1.0-3.0	.24	.24	3	3	86
	8-15	52-80	10-50	10-18	1.10-1.30	2.00-6.00	0.16-0.18	0.0-2.9	1.0-3.0	.24	.24			
	15-20	2-20	40-70	35-45	1.30-1.40	0.06-0.20	0.11-0.20	6.0-8.9	0.5-2.0	.37	.37			
	20-25	2-20	40-70	35-45	1.30-1.40	0.06-0.20	0.11-0.20	6.0-8.9	0.5-1.0	.37	.37			
	25-30	2-20	40-70	35-45	1.30-1.40	0.06-0.20	0.11-0.20	6.0-8.9	0.0-0.5	.37	.37			
	30-37	2-20	40-70	35-45	1.30-1.40	0.06-0.20	0.11-0.20	6.0-8.9	0.0-0.5	.37	.37			
	37-46	2-20	40-70	27-35	1.10-1.30	0.20-0.60	0.18-0.22	3.0-5.9	0.0-0.5	.43	.43			
	46-84	2-40	50-80	19-27	1.10-1.30	0.60-2.00	0.18-0.22	0.0-2.9	0.0-0.5	.43	.43			
	84-85	72-88	5-20	0-5	1.70-1.90	5.95-19.98	0.05-0.07	0.0-2.9	0.0-0.5	.17	.17			
Silver Creek, overblown, alkali-------	0-6	52-80	10-50	8-18	1.30-1.50	2.00-6.00	0.16-0.18	0.0-2.9	1.0-3.0	.24	.24	3	3	86
	6-11	52-80	10-50	8-18	1.30-1.50	2.00-6.00	0.16-0.18	0.0-2.9	1.0-3.0	.24	.24			
	11-16	2-20	40-60	35-40	1.30-1.40	0.06-0.20	0.15-0.19	6.0-8.9	0.5-1.0	.43	.43			
	16-30	2-20	40-60	35-40	1.30-1.40	0.06-0.20	0.16-0.18	6.0-8.9	0.0-0.5	.43	.43			
	30-40	2-20	50-70	27-35	1.10-1.30	0.20-0.60	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
	40-58	2-40	50-80	19-27	1.10-1.30	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.43	.43			
	58-65	2-40	50-80	19-27	1.10-1.30	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.43	.43			
	65-80	72-88	5-25	0-5	1.70-1.90	5.95-19.98	0.05-0.07	0.0-2.9	0.0-0.5	.17	.17			
8023:														
Wood River----	0-6	2-40	50-80	18-27	1.10-1.30	0.60-2.00	0.20-0.23	0.0-2.9	2.0-4.0	.37	.37	3	6	48
	6-12	2-20	40-70	27-35	1.30-1.50	0.20-0.60	0.20-0.23	3.0-5.9	2.0-4.0	.37	.37			
	12-20	2-20	40-70	35-40	1.30-1.40	0.06-0.20	0.16-0.18	6.0-8.9	0.5-2.0	.37	.37			
	20-36	2-20	40-70	35-40	1.30-1.40	0.06-0.20	0.16-0.18	6.0-8.9	0.5-1.0	.37	.37			
	36-50	2-20	40-70	35-40	1.30-1.40	0.06-0.20	0.15-0.17	6.0-8.9	0.0-0.5	.37	.37			
	50-60	20-45	20-50	27-35	1.10-1.30	0.20-0.60	0.16-0.18	3.0-5.9	0.0-0.5	.37	.37			
	60-80	85-98	1-10	0-3	1.55-1.70	19.98-19.98	0.02-0.07	0.0-2.9	0.0-0.5	.05	.10			
Silver Creek, alkali-------	0-8	2-40	50-80	20-27	1.15-1.20	0.60-2.00	0.21-0.23	0.0-2.9	2.0-4.0	.37	.37	3	6	48
	8-14	2-40	50-80	27-35	1.30-1.40	0.20-0.60	0.18-0.23	3.0-5.9	1.0-4.0	.37	.37			
	14-18	2-20	40-60	35-45	1.35-1.45	0.00-0.06	0.11-0.16	6.0-8.9	0.5-2.0	.37	.37			
	18-30	2-20	40-60	35-45	1.35-1.45	0.00-0.06	0.10-0.16	6.0-8.9	0.5-1.0	.37	.37			
	30-41	2-20	40-60	35-45	1.35-1.45	0.00-0.06	0.10-0.16	6.0-8.9	0.5-1.0	.37	.37			
	41-48	2-20	40-60	35-45	1.35-1.45	0.00-0.06	0.10-0.13	6.0-8.9	0.5-2.0	.37	.37			
	48-59	20-45	20-50	27-35	1.30-1.40	0.20-0.60	0.16-0.18	3.0-5.9	0.0-0.5	.37	.37			
	59-64	26-88	5-50	10-24	1.35-1.70	2.00-6.00	0.12-0.16	0.0-2.9	0.0-0.5	.28	.28			
	64-80	85-98	0-10	0-3	1.55-1.70	19.98-19.98	0.02-0.04	0.0-2.9	0.0-0.5	.05	.10			
9985:														
Gravel pits---	0-60	95	1	0-8	1.70-2.00	6.00-20.00	0.02-0.09	0.0-2.9	0.0-0.5	.10	.17	2	8	0

Table 18.--Chemical Properties of the Soils

(Absence of an entry indicates that the data were not estimated.)

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
1102:							
Alda------------	0-6	10-30	6.6-8.4	0-10	0	0.0-4.0	0-9
	6-12	10-30	6.6-8.4	0-10	0	0.0-4.0	0-9
	12-15	5.0-10	6.6-8.4	0-5	0	0.0-4.0	0-9
	15-33	5.0-10	6.6-8.4	0-5	0	0.0-4.0	0-9
	33-44	0.0-5.0	6.6-8.4	0-5	0	0.0-4.0	0-9
	44-80	0.0-5.0	6.6-8.4	0-5	0	0.0-4.0	0-9
1104:							
Alda------------	0-6	10-30	6.6-8.4	0-10	0	0.0-4.0	0-9
	6-16	10-30	6.6-8.4	0-10	0	0.0-4.0	0-9
	16-20	5.0-10	6.6-8.4	0-5	0	0.0-4.0	0-9
	20-27	5.0-10	6.6-8.4	0-5	0	0.0-4.0	0-9
	27-34	5.0-10	6.6-8.4	0-5	0	0.0-4.0	0-9
	34-39	5.0-10	6.6-8.4	0-5	0	0.0-4.0	0-9
	39-80	0.0-5.0	6.6-8.4	0-5	0	0.0-4.0	0-9
1166:							
Almeria---------	0-4	3.0-15	6.1-8.4	0	0	0.0-4.0	0
	4-14	1.0-8.0	5.6-7.3	0	0	0.0-4.0	0
	14-22	1.0-8.0	5.6-7.3	0	0	0.0-4.0	0
	22-33	1.0-8.0	5.6-7.3	0	0	0.0-4.0	0
	33-80	1.0-8.0	5.6-7.3	0	0	0.0-4.0	0
1348:							
Barney, frequently flooded--------	0-2	22-28	6.6-8.4	0-5	0	0	0
	2-6	22-28	6.6-8.4	0-5	0	0	0
	6-12	11-22	6.6-8.4	0-5	0	0	0
	12-16	2.0-7.0	6.6-7.8	0	0	0	0
	16-80	0.0-4.0	6.6-7.8	0	0	0	0
Barney, wet, channeled------	0-4	11-22	6.6-8.4	0-5	0	0	0
	4-11	11-22	6.6-8.4	0-5	0	0	0
	11-18	11-22	6.6-8.4	0-5	0	0	0
	18-80	0.0-4.0	6.6-7.8	0	0	0	0
1354:							
Barney----------	0-6	22-28	6.6-8.4	0-5	0	0	0
	6-10	11-22	6.6-8.4	0-5	0	0	0
	10-18	2.0-7.0	6.6-7.8	0	0	0	0
	18-80	0.0-4.0	6.6-7.8	0	0	0	0
Bolent----------	0-8	13-24	7.4-8.4	0-10	0	0	0
	8-14	8.0-17	7.4-8.4	0-10	0	0	0
	14-26	1.0-10	6.6-8.4	0-2	0	0	0
	26-30	1.0-5.0	6.6-8.4	0-2	0	0	0
	30-36	0.0-5.0	6.6-8.4	0	0	0	0
	36-80	0.0-5.0	6.6-8.4	0	0	0	0
1547:							
Blendon---------	0-5	15-25	5.6-7.3	0	0	0.0-2.0	0
	5-15	15-25	5.6-7.3	0	0	0.0-2.0	0
	15-20	10-20	6.1-7.3	0	0	0.0-2.0	0
	20-32	5.0-10	6.1-8.4	0-5	0	0.0-2.0	0
	32-45	5.0-10	6.1-8.4	0-5	0	0.0-2.0	0
	45-66	5.0-10	6.6-8.4	0-5	0	0.0-2.0	0
	66-80	1.0-5.0	6.6-8.4	0-5	0	0.0-2.0	0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
1669:							
O'Neill---------	0-6	10-20	5.1-6.5	0	0	0	0
	6-13	10-20	5.1-6.5	0	0	0	0
	13-18	5.0-15	5.6-7.3	0	0	0	0
	18-27	5.0-15	5.6-7.3	0	0	0	0
	27-38	0.0-5.0	5.6-7.3	0	0	0	0
	38-80	0.0-5.0	5.6-7.3	0	0	0	0
Boelus----------	0-6	2.0-12	5.1-7.3	0	0	0	0
	6-12	2.0-12	5.1-7.3	0	0	0	0
	12-37	1.0-8.0	5.1-7.3	0	0	0	0
	37-45	10-20	5.6-7.8	0	0	0	0
	45-55	10-20	5.6-7.8	0	0	0	0
	55-65	5.0-15	5.6-7.8	0	0	0	0
	65-80	1.0-6.0	5.6-7.8	0	0	0	0
Pivot-----------	0-7	0.0-10	5.1-7.3	0	0	0	0
	7-12	0.0-10	5.1-7.3	0	0	0	0
	12-17	0.0-10	5.6-7.3	0	0	0	0
	17-25	1.0-8.0	5.6-7.3	0	0	0	0
	25-34	1.0-6.0	5.6-7.3	0	0	0	0
	34-80	1.0-6.0	5.6-7.3	0	0	0	0
1678:							
Bolent----------	0-6	13-24	7.4-8.4	0-10	0	0	0
	6-9	13-24	7.4-8.4	0-10	0	0	0
	9-16	8.0-17	7.4-8.4	0-10	0	0	0
	16-27	1.0-10	6.6-8.4	0-2	0	0	0
	27-80	0.0-5.0	6.6-7.8	0	0	0	0
1680:							
Bolent----------	0-8	8.0-17	7.4-8.4	0-5	0	0	0
	8-12	8.0-17	7.4-8.4	0-5	0	0	0
	12-26	1.0-8.0	6.6-8.4	0-2	0	0	0
	26-33	2.0-14	6.6-8.4	0-2	0	0	0
	33-40	1.0-5.0	6.6-8.4	0-2	0	0	0
	40-80	0.0-5.0	6.6-8.4	0	0	0	0
1688:							
Bolent----------	0-4	8.0-17	7.4-8.4	0	0	0	0
	4-8	8.0-17	7.4-8.4	0	0	0	0
	8-20	1.0-8.0	6.1-7.8	0	0	0	0
	20-31	1.0-8.0	6.1-7.8	0	0	0	0
	31-80	1.0-5.0	6.6-8.4	0	0	0	0
1704:							
Bolent----------	0-6	13-24	7.4-8.4	0-10	0	0	0
	6-9	8.0-17	7.4-8.4	0-5	0	0	0
	9-27	1.0-10	6.6-8.4	0-2	0	0	0
	27-38	1.0-5.0	6.6-8.4	0-2	0	0	0
	38-80	0.0-5.0	6.6-7.8	0	0	0	0
Calamus---------	0-8	3.0-8.0	6.1-7.8	0	0	0	0
	8-33	1.0-8.0	6.1-7.8	0	0	0	0
	33-44	1.0-8.0	6.1-7.8	0	0	0	0
	44-80	0.0-5.0	6.6-7.8	0	0	0	0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
1796:							
Brocksburg------	0-6	10-20	5.6-7.3	0	0	0	0
	6-20	10-20	5.6-7.3	0	0	0	0
	20-24	10-20	5.6-7.3	0	0	0	0
	24-28	15-25	6.0-7.3	0	0	0	0
	28-32	15-25	6.0-7.3	0	0	0	0
	32-35	15-25	6.6-7.8	0	0	0	0
	35-41	0.0-5.0	6.6-7.8	0	0	0	0
	41-80	0.0-5.0	6.0-7.8	0	0	0	0
1930:							
Butler----------	0-8	18-27	5.1-6.5	0	0	0	0
	8-15	18-27	5.1-6.5	0	0	0	0
	15-24	30-40	5.6-7.8	0	0	0	0
	24-31	30-40	5.6-7.8	0	0	0	0
	31-36	30-40	6.6-8.4	0-5	0	0	0
	36-45	20-35	6.6-8.4	0-5	0	0	0
	45-80	20-35	6.6-8.4	0-5	0	0	0
1942:							
Calamus---------	0-9	3.0-8.0	6.1-7.8	0	0	0	0
	9-21	1.0-8.0	6.1-7.8	0	0	0	0
	21-43	1.0-8.0	6.1-7.8	0	0	0	0
	43-54	1.0-8.0	6.1-7.8	0	0	0	0
	54-80	0.0-5.0	6.6-7.8	0	0	0	0
2020:							
Caruso----------	0-7	7.0-19	6.6-8.4	0-5	0	0.0-4.0	0
	7-13	7.0-19	6.6-8.4	0-5	0	0.0-4.0	0
	13-26	8.0-17	7.4-8.4	0-5	0	0.0-4.0	0
	26-41	19-26	7.4-8.4	0-5	0	0.0-4.0	0
	41-54	2.0-14	6.6-8.4	0-5	0	0.0-4.0	0
	54-72	10-20	6.6-8.4	0-5	0	0.0-4.0	0
	72-80	1.0-10	6.6-8.4	0-5	0	0.0-2.0	0
2168:							
Coly------------	0-5	14-19	7.4-8.4	0	0	0	0
	5-9	14-19	7.4-8.4	0	0	0	0
	9-18	13-18	7.4-8.4	5-10	0	0	0
	18-80	13-18	7.4-8.4	5-10	0	0	0
2223:							
Cozad-----------	0-12	9.0-20	6.1-7.3	0	0	0	0
	12-18	8.0-13	6.1-7.8	0-5	0	0	0
	18-26	8.0-13	6.1-7.8	0-5	0	0	0
	26-30	8.0-13	6.1-7.8	0-5	0	0	0
	30-39	9.0-20	6.1-7.3	0	0	0	0
	39-55	8.0-13	6.1-7.8	0-5	0	0	0
	55-75	6.0-13	7.4-8.4	1-10	0	0	0
	75-80	5.0-10	6.6-7.8	0	0	0	0
2238:							
Cozad-----------	0-5	10-20	5.1-7.3	0	0	0	0
	5-10	10-20	6.1-7.3	0	0	0	0
	10-13	10-20	6.1-7.8	0	0	0	0
	13-31	10-20	6.1-7.8	0	0	0	0
	31-41	10-20	6.1-7.8	0-5	0	0	0
	41-80	5.0-10	6.6-7.8	0	0	0	0
2240:							
Cozad-----------	0-8	10-20	5.1-7.3	0	0	0	0
	8-13	10-20	6.1-7.3	0	0	0	0
	13-22	10-20	6.1-7.8	0	0	0	0
	22-42	10-20	6.1-7.8	0	0	0	0
	42-80	5.0-10	6.6-7.8	0	0	0	0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
2240:							
Hobbs-----------	0-7	15-30	6.1-7.8	0	0	0	0
	7-24	15-30	6.1-7.8	0	0	0	0
	24-49	10-20	6.1-7.8	0	0	0	0
	49-59	20-40	6.6-8.4	0	0	0	0
	59-69	20-40	6.6-8.4	0	0	0	0
	69-80	5.0-10	6.6-7.8	0	0	0	0
2371:							
Cullison--------	0-5	10-25	7.4-8.4	5-40	0	0.0-2.0	0-5
	5-10	10-25	7.4-8.4	5-40	0	0.0-2.0	0-5
	10-13	0.0-5.0	7.4-8.4	5-40	0	0.0-2.0	0-2
	13-20	7.0-15	7.4-8.4	5-40	0	0.0-2.0	0-2
	20-24	7.0-15	7.4-8.4	5-40	0	0.0-2.0	0-2
	24-29	7.0-15	7.4-8.4	5-40	0	0.0-2.0	0-2
	29-51	4.0-12	7.4-8.4	0-15	0	0.0-2.0	0-2
	51-80	5.0-10	7.4-8.4	0-15	0	0.0-2.0	0-2
2415:							
Darr------------	0-6	6.0-12	5.6-7.3	0	0	0	0
	6-12	4.0-14	5.6-7.3	0	0	0	0
	12-31	4.0-14	6.1-8.4	0-5	0	0	0
	31-50	1.0-5.0	6.6-8.4	0-5	0	0	0
	50-58	1.0-5.0	6.6-8.4	0-5	0	0	0
	58-80	1.0-5.0	6.6-8.4	0-5	0	0	0
2430:							
Detroit---------	0-7	10-25	5.6-6.0	0	0	0	0
	7-12	10-25	6.1-7.3	0	0	0	0
	12-17	15-30	6.6-7.8	0	0	0	0
	17-26	15-30	6.6-7.8	0	0	0	0
	26-33	15-30	6.6-7.8	0	0	0	0
	33-46	10-20	6.6-8.4	0	0	0	0
	46-65	10-20	6.6-8.4	0-10	0	0	0-1
	65-80	10-20	6.6-8.4	0-10	0	0	0-1
2731:							
Els-------------	0-5	10-25	5.6-7.3	0	0	0	0
	5-9	10-25	5.6-7.3	0	0	0	0
	9-11	0.0-5.0	5.6-7.3	0	0	0	0
	11-17	0.0-5.0	6.1-7.3	0	0	0	0
	17-45	0.0-5.0	6.1-7.3	0	0	0	0
	45-60	10-20	6.1-7.3	0	0	0	0
	60-80	0.0-5.0	6.1-7.8	0	0	0	0
Tryon-----------	0-4	10-20	5.6-8.4	0	0	0	0
	4-7	10-20	5.6-8.4	0	0	0	0
	7-13	0.0-5.0	5.6-8.4	0	0	0	0
	13-30	0.0-5.0	5.6-7.8	0	0	0	0
	30-47	0.0-5.0	5.6-7.8	0	0	0	0
	47-55	10-20	5.6-7.8	0	0	0	0
	55-80	0.0-5.0	5.6-7.8	0	0	0	0
2846:							
Fillmore--------	0-5	15-22	5.1-6.5	0	0	0	0
	5-9	15-22	5.1-6.5	0	0	0	0
	9-11	12-18	5.1-6.5	0	0	0	0
	11-35	32-40	5.6-7.8	0	0	0	0
	35-45	32-40	5.6-7.8	0	0	0	0
	45-50	22-30	6.6-8.4	0-5	0	0	0
	50-80	12-40	6.6-8.4	0-5	0	0	0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
2918:							
Gates-----------	0-5	10-13	6.6-8.4	0	0	0	0
	5-17	9.0-12	6.6-8.4	0	0	0	0
	17-30	10-12	7.4-8.4	1-10	0	0	0
	30-80	10-12	7.4-8.4	1-10	0	0	0
2920:							
Gates-----------	0-6	10-13	6.6-8.4	0	0	0	0
	6-13	9.0-12	6.6-8.4	0-5	0	0	0
	13-80	10-12	7.4-8.4	1-10	0	0	0
2924:							
Gates-----------	0-5	10-13	6.6-8.4	0	0	0	0
	5-9	9.0-12	6.6-8.4	0	0	0	0
	9-19	10-12	7.4-8.4	0	0	0	0
	19-80	10-12	7.4-8.4	1-10	0	0	0
2925:							
Gates-----------	0-5	10-13	7.4-8.4	1-10	0	0	0
	5-30	10-12	7.4-8.4	1-10	0	0	0
	30-80	10-12	7.4-8.4	1-10	0	0	0
2927:							
Gates-----------	0-7	10-13	6.6-7.8	0	0	0	0
	7-13	10-13	6.6-7.8	0	0	0	0
	13-22	10-13	6.6-8.4	1-6	0	0	0
	22-29	10-13	6.6-8.4	1-6	0	0	0
	29-35	9.0-12	7.4-8.4	1-6	0	0	0
	35-46	9.0-12	7.4-8.4	5-10	0	0	0
	46-51	9.0-12	7.4-8.4	1-6	0	0	0
	51-80	10-12	7.4-8.4	1-6	0	0	0
2940:							
Gates-----------	0-4	10-20	5.6-7.3	0	0	0	0
	4-8	10-20	5.6-7.3	0	0	0	0
	8-13	10-20	5.6-7.3	0	0	0	0
	13-42	10-12	6.1-8.4	0-10	0	0	0
	42-60	10-12	6.6-8.4	0-10	0	0	0
	60-80	10-12	6.6-8.4	0-10	0	0	0
2972:							
Gayville--------	0-3	4.0-13	6.1-7.8	0-5	0	0.0-4.0	0-9
	3-6	18-28	8.5-9.6	1-10	0	0.0-8.0	0-15
	6-28	18-28	8.5-9.6	1-10	0	2.0-8.0	9-15
	28-34	5.0-13	8.5-9.6	1-10	0	0.0-8.0	6-9
	34-54	5.0-13	7.9-9.6	1-10	0	0.0-8.0	0-6
	54-65	5.0-13	7.4-9.6	0-10	0	0.0-8.0	0-6
	65-80	5.0-10	6.6-7.8	0	0	0	0
3023:							
Gibbon----------	0-7	16-22	7.4-8.4	0-5	0	0.0-2.0	0
	7-23	16-22	7.4-8.4	0-15	0	0.0-2.0	0-5
	23-36	21-28	7.4-8.4	0-15	0	0.0-2.0	0-5
	36-42	21-28	7.4-8.4	0-15	0	0.0-2.0	0-5
	42-46	14-20	7.4-8.4	0-15	0	0.0-2.0	0-5
	46-62	1.0-8.0	7.4-8.4	0-15	0	0.0-2.0	0-5
	62-76	14-20	7.4-8.4	0-15	0	0.0-2.0	0-5
	76-80	2.0-5.0	7.4-7.8	0-5	0	0.0-2.0	0-5

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
3045:							
Gibbon----------	0-7	16-22	7.4-8.4	0-5	0	0.0-16.0	0-10
	7-23	7.0-19	6.6-8.4	0-5	0	0.0-16.0	0-10
	23-34	21-28	7.4-8.4	0-15	0	0.0-8.0	0-10
	34-48	21-28	7.4-8.4	0-15	0	0.0-8.0	0-10
	48-52	21-28	7.4-8.4	0-15	0	0.0-4.0	0-10
	52-62	21-28	7.4-8.4	0-15	0	0.0-4.0	0-10
	62-80	1.0-8.0	7.4-8.4	0-15	0	0.0-2.0	0-5
3140:							
Gothenburg------	0-4	5.0-20	6.6-8.4	0-5	0	0	0
	4-5	0.0-5.0	6.6-8.4	0	0	0	0
	5-80	0.0-5.0	6.6-7.8	0	0	0	0
3290:							
Hall------------	0-7	13-23	6.1-7.3	0	0	0	0
	7-14	13-23	6.1-7.3	0	0	0	0
	14-21	15-27	6.1-7.8	0	0	0	0
	21-30	15-27	6.1-7.8	0	0	0	0
	30-37	15-27	6.1-7.8	0	0	0	0
	37-47	11-22	6.6-7.8	0-5	0	0	0
	47-67	8.0-22	6.6-8.4	1-5	0	0	0
	67-80	8.0-22	6.6-8.4	1-5	0	0	0
3293:							
Hall------------	0-7	13-23	6.1-7.3	0	0	0	0
	7-10	13-23	6.1-7.3	0	0	0	0
	10-17	15-27	6.1-7.8	0	0	0	0
	17-21	15-27	6.1-7.8	0	0	0	0
	21-28	11-22	6.6-7.8	0-5	0	0	0
	28-80	8.0-22	6.6-8.4	1-5	0	0	0
3294:							
Hall------------	0-9	13-23	6.1-7.3	0	0	0	0
	9-15	13-23	6.1-7.3	0	0	0	0
	15-22	15-27	6.1-7.8	0	0	0	0
	22-26	15-27	6.1-7.8	0	0	0	0
	26-30	11-22	6.6-7.8	0	0	0	0
	30-39	8.0-22	6.6-7.8	1-5	0	0	0
	39-80	8.0-22	6.6-8.4	1-5	0	0	0
3300:							
Hall------------	0-7	13-23	6.1-7.3	0	0	0	0
	7-18	13-23	6.1-7.3	0	0	0	0
	18-30	15-27	6.1-7.8	0	0	0	0
	30-47	15-27	6.1-7.8	0	0	0	0
	47-60	10-20	6.1-7.8	0-5	0	0	0
	60-80	5.0-10	6.6-7.8	0	0	0	0
3301:							
Hall------------	0-8	13-23	6.1-7.3	0	0	0	0
	8-12	13-23	6.1-7.3	0	0	0	0
	12-24	15-27	6.1-7.8	0	0	0	0
	24-37	15-27	6.1-7.8	0	0	0	0
	37-41	11-22	6.6-7.8	0	0	0	0
	41-80	8.0-22	6.6-7.8	0	0	0	0
Hobbs-----------	0-6	15-30	6.1-7.8	0	0	0	0
	6-13	15-30	6.1-7.8	0	0	0	0
	13-30	15-30	6.1-7.8	0	0	0	0
	30-36	15-30	6.1-7.8	0	0	0	0
	36-47	10-20	6.1-7.8	0	0	0	0
	47-73	20-40	6.6-8.4	0	0	0	0
	73-80	20-40	6.6-8.4	0	0	0	0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
3330:							
Hastings--------	0-5	12-22	5.6-6.5	0	0	0	0
	5-14	22-28	5.6-6.5	0	0	0	0
	14-18	24-30	5.6-7.3	0	0	0	0
	18-26	24-30	5.6-7.3	0	0	0	0
	26-30	24-30	5.6-7.3	0	0	0	0
	30-35	17-27	6.1-7.8	0	0	0	0
	35-42	17-27	6.1-7.8	0	0	0	0
	42-80	10-17	6.6-8.4	0-5	0	0	0
3331:							
Hastings--------	0-5	12-22	5.6-6.5	0	0	0	0
	5-13	22-28	5.6-6.5	0	0	0	0
	13-19	24-30	5.6-7.3	0	0	0	0
	19-24	24-30	5.6-7.3	0	0	0	0
	24-35	24-30	5.6-7.3	0	0	0	0
	35-41	17-27	6.1-7.8	0	0	0	0
	41-46	17-27	6.6-8.4	0-1	0	0	0
	46-80	10-17	6.6-8.4	0-5	0	0	0
3478:							
Hersh-----------	0-6	10-15	6.1-7.3	0	0	0	0
	6-17	8.0-12	6.6-7.8	0	0	0	0
	17-47	0.0-5.0	6.6-7.8	0-3	0	0	0
	47-80	10-12	7.4-8.4	1-10	0	0	0
3532:							
Hobbs-----------	0-6	15-30	6.1-7.8	0	0	0	0
	6-13	15-30	6.1-7.8	0	0	0	0
	13-30	15-30	6.1-7.8	0	0	0	0
	30-36	15-30	6.1-7.8	0	0	0	0
	36-47	10-20	6.1-7.8	0	0	0	0
	47-73	20-40	6.6-8.4	0	0	0	0
	73-80	20-40	6.6-8.4	0	0	0	0
3537:							
Hobbs-----------	0-6	15-30	6.1-7.8	0	0	0	0
	6-9	15-30	6.1-7.8	0	0	0	0
	9-33	15-30	6.1-7.8	0	0	0	0
	33-43	20-40	6.6-8.4	0	0	0	0
	43-78	20-40	6.6-8.4	0	0	0	0
	53-67	20-40	6.6-8.4	0-3	0	0	0
	67-80	20-40	6.6-8.4	0	0	0	0
3568:							
Holder----------	0-5	16-24	5.1-7.3	0	0	0	0
	5-8	16-24	6.1-7.8	0	0	0	0
	8-16	16-24	5.1-7.3	0	0	0	0
	16-24	16-24	5.1-7.3	0	0	0	0
	24-32	19-26	6.1-7.8	0	0	0	0
	32-37	19-26	6.1-7.8	0	0	0	0
	37-42	14-21	6.6-8.4	0	0	0	0
	42-80	14-21	6.6-8.4	0-5	0	0	0
3570:							
Holder----------	0-5	16-24	5.1-7.3	0	0	0	0
	5-10	16-24	5.1-7.3	0	0	0	0
	10-14	19-26	6.1-7.8	0	0	0	0
	14-20	19-26	6.1-7.8	0	0	0	0
	20-30	19-26	6.1-7.8	0	0	0	0
	30-41	14-21	6.1-7.8	0	0	0	0
	41-57	14-21	6.6-8.4	0	0	0	0
	57-80	14-21	6.6-8.4	0-10	0	0	0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
3571:							
Holder----------	0-6	16-24	5.1-7.3	0	0	0	0
	6-10	16-24	5.1-7.3	0	0	0	0
	10-14	19-26	6.1-7.8	0	0	0	0
	14-28	19-26	6.1-7.8	0	0	0	0
	28-36	14-21	6.1-7.8	0	0	0	0
	36-52	14-21	6.6-8.4	0	0	0	0
	52-80	14-21	6.6-8.4	0-10	0	0	0
3578:							
Holder----------	0-4	19-27	5.1-7.3	0	0	0	0
	4-17	14-19	6.6-8.4	1-8	0	0	0
	17-31	14-19	6.6-8.4	1-8	0	0	0
3580:							
Holder----------	0-4	16-24	5.1-7.3	0	0	0	0
	4-10	19-26	6.1-7.8	0	0	0	0
	10-15	19-26	6.1-7.8	0	0	0	0
	15-20	14-21	6.1-7.8	0	0	0	0
	20-50	14-21	6.6-8.4	0-10	0	0	0
	50-80	14-21	6.6-8.4	0-10	0	0	0
3598:							
Holdrege--------	0-6	16-24	5.6-7.3	0	0	0	0
	6-13	19-26	6.6-7.8	0	0	0	0
	13-21	19-26	6.6-7.8	0	0	0	0
	21-31	14-21	6.6-7.8	0	0	0	0
	31-80	14-21	7.4-8.4	1-8	0	0	0
3616:							
Holdrege--------	0-6	16-24	5.6-7.3	0	0	0	0
	6-12	16-24	5.6-7.3	0	0	0	0
	12-17	16-24	5.6-7.3	0	0	0	0
	17-22	19-26	6.6-7.8	0	0	0	0
	22-28	19-26	6.6-7.8	0	0	0	0
	28-34	19-26	6.6-7.8	0	0	0	0
	34-65	14-21	6.6-7.8	0	0	0	0
	65-80	14-21	6.6-7.8	0	0	0	0
3770:							
Hord-----------	0-7	10-20	5.6-7.3	0	0	0	0
	7-14	10-20	5.6-7.3	0	0	0	0
	14-22	10-30	6.1-7.8	0	0	0	0
	22-32	10-30	6.1-7.8	0	0	0	0
	32-43	10-35	6.1-7.8	0	0	0	0
	43-59	10-35	6.1-7.8	0	0	0	0
	59-80	10-35	7.4-8.4	0-5	0	0	0
3771:							
Hord-----------	0-10	10-20	5.6-7.3	0	0	0	0
	10-16	10-20	5.6-7.3	0	0	0	0
	16-20	10-30	6.1-7.8	0	0	0	0
	20-30	10-30	6.1-7.8	0	0	0	0
	30-32	10-30	6.1-7.8	0	0	0	0
	32-46	10-35	7.4-8.4	0	0	0	0
	46-80	10-35	7.4-8.4	0	0	0	0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
3772:							
Hord-----------	0-8	10-20	5.6-7.3	0	0	0	0
	8-13	10-20	5.6-7.3	0	0	0	0
	13-20	10-30	6.1-7.8	0	0	0	0
	20-30	10-30	6.1-7.8	0	0	0	0
	30-32	10-30	6.1-7.8	0	0	0	0
	32-46	10-35	7.4-8.4	0	0	0	0
	46-80	10-35	7.4-8.4	0	0	0	0
3782:							
Hord-----------	0-7	13-23	6.1-7.3	0	0	0	0
	7-18	13-23	6.1-7.3	0	0	0	0
	18-22	15-24	6.1-7.8	0	0	0	0
	22-44	15-24	6.1-7.8	0	0	0	0
	44-54	15-23	6.1-7.8	0	0	0	0
	54-57	10-20	6.1-7.8	0	0	0	0
	57-80	5.0-10	6.6-7.8	0	0	0	0
3869:							
Inavale---------	0-5	2.0-10	5.6-7.8	0	0	0	0
	5-9	2.0-10	5.6-7.8	0	0	0	0
	9-50	1.0-10	5.6-7.8	0	0	0	0
	50-70	1.0-10	5.6-7.8	0	0	0	0
	70-80	1.0-8.0	6.6-8.4	0	0	0	0
3875:							
Inavale---------	0-5	2.0-10	5.6-7.8	0	0	0	0
	5-40	1.0-10	5.6-7.8	0	0	0	0
	40-57	1.0-10	5.6-7.8	0	0	0	0
	57-65	1.0-10	5.6-7.8	0	0	0	0
	65-80	1.0-8.0	6.6-8.4	0	0	0	0
3927:							
Ipage-----------	0-5	0.0-5.0	5.1-7.3	0	0	0	0
	5-9	0.0-5.0	5.1-7.3	0	0	0	0
	9-38	0.0-5.0	5.1-7.3	0	0	0	0
	38-54	0.0-5.0	5.6-7.8	0	0	0	0
	54-58	0.0-5.0	5.6-7.8	0	0	0	0
	58-80	0.0-5.0	5.6-7.8	0	0	0	0
3948:							
Ipage-----------	0-5	0.0-5.0	5.1-7.3	0	0	0	0
	5-18	0.0-5.0	5.1-7.3	0	0	0	0
	18-36	0.0-5.0	5.1-7.3	0	0	0	0
	36-78	0.0-5.0	5.1-7.3	0	0	0	0
	78-80	10-22	5.6-7.8	0	0	0	0
Tryon-----------	0-5	0.0-5.0	5.6-8.4	0	0	0	0
	5-9	0.0-5.0	5.6-7.8	0	0	0	0
	9-42	0.0-5.0	5.6-7.8	0	0	0	0
	42-47	10-25	5.6-7.8	0	0	0	0
	47-80	24-42	5.6-7.8	0	0	0	0
3993:							
Jansen----------	0-7	10-20	5.1-7.3	0	0	0	0
	7-13	10-20	5.1-7.3	0	0	0	0
	13-17	5.0-17	5.1-7.3	0	0	0	0
	17-27	16-25	5.1-7.8	0-5	0	0	0
	27-32	16-25	5.1-7.8	0-5	0	0	0
	32-38	5.0-15	5.1-7.8	0-5	0	0	0
	38-80	1.0-6.0	5.6-7.8	0	0	0	0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
4019:							
Janude----------	0-6	6.0-12	6.1-7.8	0	0	0	0
	6-21	6.0-12	6.6-8.4	0-10	0	0	0
	21-31	5.0-16	6.6-8.4	0-10	0	0	0
	31-42	5.0-16	6.6-8.4	0-10	0	0	0
	42-57	1.0-14	6.6-8.4	0-10	0	0	0
	57-70	1.0-8.0	6.6-8.4	0-10	0	0.0-2.0	0
	70-80	1.0-14	6.6-8.4	0-10	0	0	0
4020:							
Janude----------	0-5	9.0-18	6.6-8.4	0-10	0	0.0-2.0	0
	5-14	9.0-18	6.6-8.4	0-10	0	0.0-2.0	0
	14-23	6.0-12	6.6-8.4	0-10	0	0.0-2.0	0
	23-39	5.0-16	6.6-8.4	0-10	0	0.0-2.0	0
	39-46	1.0-14	6.6-8.4	0-10	0	0.0-2.0	0
	46-65	1.0-8.0	6.6-7.8	0-5	0	0.0-2.0	0
	65-80	0.0-3.0	6.6-8.4	0-5	0	0.0-2.0	0
4417:							
Lamo------------	0-6	16-22	7.4-8.4	0-5	0	0.0-2.0	0
	6-17	16-22	7.4-8.4	0-15	0	0.0-2.0	0
	17-29	21-28	7.4-8.4	1-15	0	0.0-2.0	0
	29-36	21-28	7.4-8.4	1-15	0	0.0-2.0	0
	36-43	19-26	7.4-8.4	1-15	0	0.0-2.0	0
	43-54	1.0-8.0	7.4-8.4	0-15	0	0	0
	54-80	1.0-8.0	7.4-8.4	0-15	0	0	0
4586:							
Lex-------------	0-8	11-22	7.4-8.4	1-10	0	0.0-4.0	0-6
	8-20	11-22	7.4-8.4	1-10	0	0.0-4.0	0-6
	20-23	11-22	6.1-8.4	0-5	0	0.0-4.0	0-6
	23-31	11-22	6.1-8.4	0-5	0	0.0-4.0	0-6
	31-34	2.0-16	6.1-8.4	0-5	0	0.0-2.0	0-6
	34-80	2.0-5.0	6.1-7.8	0-5	0	0.0-4.0	0-6
4613:							
Libory----------	0-6	0.0-5.0	5.1-7.3	0	0	0	0
	6-10	2.0-12	5.1-7.3	0	0	0	0
	10-25	1.0-9.0	5.1-7.3	0	0	0	0
	25-31	10-22	5.6-7.8	0	0	0	0
	31-38	10-22	5.6-7.8	0	0	0	0
	38-44	10-22	5.6-7.8	0	0	0	0
	44-80	10-22	5.6-7.8	0	0	0	0
4650:							
Lockton---------	0-5	10-25	5.6-6.5	0	0	0	0
	5-12	10-25	5.6-6.5	0	0	0	0
	12-21	10-25	5.6-7.3	0	0	0	0
	21-25	10-25	5.6-7.3	0	0	0	0
	25-33	10-25	5.6-7.3	0	0	0	0
	33-41	0.0-5.0	5.6-7.3	0	0	0	0
	41-80	0.0-5.0	5.6-7.3	0	0	0	0
4744:							
Loup------------	0-7	10-25	5.6-7.8	0-5	0	0	0
	7-11	0.0-5.0	5.6-7.8	0-5	0	0	0
	11-23	0.0-5.0	5.6-7.8	0-5	0	0	0
	23-26	10-25	5.6-7.8	0-5	0	0	0
	26-48	0.0-5.0	5.6-7.8	0	0	0	0
	48-65	0.0-5.0	5.6-7.8	0	0	0	0
	65-80	24-42	5.6-7.8	0	0	0	0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
4932:							
Marlake---------	0-8	0.0-10	5.6-8.4	0	0	0	0
	8-13	0.0-10	5.6-8.4	0	0	0	0
	13-34	0.0-10	5.6-7.8	0	0	0	0
	34-41	0.0-10	5.6-7.3	0	0	0	0
	41-55	0.0-10	5.6-7.3	0	0	0	0
	55-60	10-25	5.6-7.3	0	0	0	0
	60-80	24-42	5.6-7.3	0	0	0	0
5705:							
O'Neill---------	0-6	10-20	5.1-6.5	0	0	0	0
	6-14	10-20	5.1-6.5	0	0	0	0
	14-19	5.0-15	5.6-7.3	0	0	0	0
	19-22	5.0-15	5.6-7.3	0	0	0	0
	22-26	5.0-15	5.6-7.3	0	0	0	0
	26-35	0.0-5.0	5.6-7.3	0	0	0	0
	35-80	0.0-5.0	5.6-7.3	0	0	0	0
Pivot-----------	0-7	10-20	5.6-7.3	0	0	0	0
	7-15	0.0-10	5.6-7.3	0	0	0	0
	15-23	1.0-8.0	5.6-7.3	0	0	0	0
	23-27	1.0-6.0	5.6-7.3	0	0	0	0
	27-32	1.0-6.0	5.6-7.3	0	0	0	0
	32-80	1.0-6.0	5.6-7.3	0	0	0	0
5713:							
O'Neill---------	0-6	10-20	5.1-6.5	0	0	0	0
	6-14	10-20	5.1-6.5	0	0	0	0
	14-24	5.0-15	5.6-7.3	0	0	0	0
	24-28	5.0-15	5.6-7.3	0	0	0	0
	28-37	0.0-5.0	5.6-7.3	0	0	0	0
	37-80	0.0-5.0	5.6-7.3	0	0	0	0
5905:							
Ortello---------	0-6	10-20	5.6-7.3	0	0	0	0
	6-12	10-20	5.6-7.3	0	0	0	0
	12-27	5.0-15	6.1-7.3	0	0	0	0
	27-39	1.0-5.0	6.1-7.8	0	0	0	0
	39-55	5.0-15	6.1-7.8	0	0	0	0
	55-62	5.0-15	6.1-7.8	0	0	0	0
	62-78	19-26	6.1-7.8	0	0	0	0
	78-80	15-26	6.6-8.4	0-5	0	0	0
5909:							
Ortello---------	0-8	5.0-15	5.6-7.3	0	0	0	0
	8-14	5.0-15	6.1-7.3	0	0	0	0
	14-19	5.0-15	6.6-7.8	0	0	0	0
	19-24	5.0-15	6.6-7.8	0	0	0	0
	24-29	5.0-15	6.6-7.8	0	0	0	0
	29-35	5.0-15	6.6-7.8	0	0	0	0
	35-43	5.0-15	6.6-7.8	0	0	0	0
	43-80	5.0-15	6.6-7.8	0	0	0	0
Holder----------	0-5	16-24	5.1-7.3	0	0	0	0
	5-8	16-24	6.1-7.8	0	0	0	0
	8-16	16-24	5.1-7.3	0	0	0	0
	16-24	16-24	5.1-7.3	0	0	0	0
	24-32	19-26	6.1-7.8	0	0	0	0
	32-37	19-26	6.1-7.8	0	0	0	0
	37-42	14-21	6.6-8.4	0	0	0	0
	42-80	14-21	6.6-8.4	0-5	0	0	0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
5914:							
Ortello----------	0-6	10-20	5.6-7.3	0	0	0	0
	6-11	10-20	5.6-7.3	0	0	0	0
	11-16	5.0-15	6.1-7.8	0	0	0	0
	16-29	5.0-15	6.1-7.8	0	0	0	0
	29-50	0.0-10	6.6-7.8	0-5	0	0	0
	50-61	10-22	6.6-7.8	0-5	0	0	0
	61-80	0.0-5.0	6.6-7.8	0-5	0	0	0
5985:							
Ovina------------	0-5	7.0-16	6.6-8.4	0-10	0	0	0
	5-8	7.0-16	6.6-8.4	0-10	0	0	0
	8-13	7.0-15	6.6-8.4	0-10	0	0	0
	13-21	0.0-5.0	7.4-8.4	0-10	0	0	0
	21-38	5.0-12	7.4-8.4	0-40	0	0	0
	38-58	5.0-12	7.4-8.4	0-40	0	0	0
	58-77	15-30	7.4-8.4	0-40	0	0	0
	77-80	15-30	7.4-8.4	0-40	0	0	0
6136:							
Platte-----------	0-6	5.0-20	6.6-8.4	0-5	0	0.0-2.0	0
	6-16	11-22	6.6-8.4	0-5	0	0.0-2.0	0
	16-80	0.0-5.0	6.6-7.8	0	0	0.0-2.0	0
Alda-------------	0-10	13-24	6.6-8.4	0-10	0	0.0-4.0	0
	10-15	5.0-10	6.6-8.4	0-5	0	0.0-4.0	0-9
	15-26	5.0-10	6.6-8.4	0-5	0	0.0-4.0	0-9
	26-36	0.0-5.0	6.6-8.4	0-5	0	0.0-4.0	0-9
	36-80	0.0-5.0	6.6-8.4	0-5	0	0.0-4.0	0-9
6139:							
Platte-----------	0-6	5.0-20	6.6-8.4	0-10	0	0.0-2.0	0
	6-9	3.0-15	6.6-8.4	0-10	0	0.0-2.0	0
	9-13	4.0-20	6.6-8.4	0-5	0	0.0-2.0	0
	13-80	0.0-5.0	6.6-7.8	0	0	0.0-2.0	0
Bolent-----------	0-6	8.0-17	7.4-8.4	0-5	0	0	0
	6-9	8.0-17	7.4-8.4	0-5	0	0	0
	9-17	8.0-17	7.4-8.4	0-5	0	0	0
	17-28	1.0-10	6.6-8.4	0-2	0	0	0
	28-39	1.0-5.0	6.6-8.4	0-2	0	0	0
	39-80	0.0-5.0	6.6-7.8	0	0	0	0
6143:							
Platte-----------	0-6	5.0-20	6.6-8.4	0-10	0	0.0-2.0	0
	6-10	3.0-15	6.6-8.4	0-10	0	0.0-2.0	0
	10-80	0.0-5.0	6.6-7.8	0	0	0.0-2.0	0
Inavale----------	0-9	2.0-10	5.6-7.8	0	0	0	0
	9-39	1.0-10	5.6-7.8	0	0	0	0
	39-53	1.0-10	5.6-7.8	0	0	0	0
	53-65	1.0-10	5.6-7.8	0	0	0	0
	65-80	1.0-8.0	6.6-8.4	0	0	0	0
6800:							
Scott------------	0-9	20-30	5.1-6.5	0	0	0	0
	9-12	20-35	5.6-7.8	0	0	0	0
	12-26	20-35	5.6-7.8	0	0	0	0
	26-37	20-35	5.6-7.8	0-5	0	0	0
	37-45	20-35	5.6-7.8	0-5	0	0	0
	45-59	20-35	6.6-8.4	0-5	0	0	0
	59-80	20-30	6.6-8.4	0-5	0	0	0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
6956:							
Silver Creek----	0-6	7.0-16	7.4-9.0	0-5	0	0.0-4.0	0-6
	6-10	7.0-16	7.4-9.0	0-5	0	0.0-4.0	0-6
	10-18	24-32	7.9-9.6	1-15	0	2.0-8.0	0-15
	18-36	24-32	7.9-9.6	1-15	0	2.0-8.0	0-15
	36-48	24-42	7.9-9.6	1-15	0	2.0-8.0	0-15
	48-60	14-20	7.9-9.0	0-5	0	0.0-4.0	0-9
	60-80	0.0-10	7.4-8.4	0-3	0	0.0-4.0	0-6
6957:							
Silver Creek, alkali---------	0-6	16-24	6.6-9.0	0-5	0	1.0-4.0	0-13
	6-11	16-24	6.6-9.0	0-5	0	0.0-4.0	0-13
	11-19	24-32	7.4-9.6	0-30	0-5	1.0-16.0	6-20
	19-24	24-32	7.4-9.6	0-30	0-5	1.0-16.0	6-20
	24-44	18-24	6.6-8.4	0-15	0	1.0-4.0	0-9
	44-50	18-24	6.6-8.4	0-5	0	0.0-4.0	0-9
	50-65	24-32	6.6-8.4	0-5	0	0.0-4.0	0-9
	65-80	18-24	6.6-8.4	0-5	0	0.0-4.0	0-9
Silver Creek, saline, alkali-	0-3	16-24	6.6-9.6	0-5	0	0.0-4.0	0-13
	3-5	20-40	7.4-9.6	1-15	0	1.0-16.0	0-13
	5-11	25-40	7.9-9.6	1-15	0	2.0-8.0	13-40
	11-14	16-24	7.9-9.6	1-15	0	0.0-4.0	0-30
	14-22	25-40	7.9-9.6	1-15	0	2.0-8.0	13-40
	22-50	20-30	7.9-9.6	1-15	0	0.0-8.0	0-30
	50-65	5.0-20	6.6-8.4	0-5	0	0.0-4.0	0-6
	65-80	4.0-14	6.6-8.4	0-5	0	4.0-16.0	0-6
6978:							
Simeon----------	0-8	0.0-10	5.6-7.8	0	0	0	0
	8-15	0.0-5.0	5.6-7.8	0	0	0	0
	15-80	0.0-5.0	5.6-7.8	0	0	0	0
7225:							
Thurman---------	0-5	5.0-15	6.1-7.3	0	0	0	0
	5-12	5.0-15	6.1-7.3	0	0	0	0
	12-19	5.0-15	6.1-7.3	0	0	0	0
	19-36	1.0-5.0	6.1-7.8	0	0	0	0
	36-62	1.0-5.0	6.1-7.8	0	0	0	0
	62-80	10-25	5.6-7.3	0	0	0	0
7249:							
Thurman---------	0-12	0.0-6.0	5.6-7.3	0	0	0	0
	12-21	0.0-5.0	5.6-7.3	0	0	0	0
	21-54	0.0-5.0	5.6-7.3	0	0	0	0
	54-61	0.0-8.0	6.6-8.4	0	0	0	0
	61-68	0.0-8.0	6.6-8.4	0	0	0	0
	68-80	0.0-8.0	6.6-8.4	0	0	0	0
7250:							
Thurman---------	0-6	0.0-6.0	5.6-7.3	0	0	0	0
	6-12	0.0-5.0	5.6-7.3	0	0	0	0
	12-26	0.0-5.0	5.6-7.3	0	0	0	0
	26-42	0.0-5.0	5.6-7.3	0	0	0	0
	42-50	0.0-5.0	6.6-8.4	0	0	0	0
	50-55	0.0-5.0	6.6-8.4	0	0	0	0
	55-80	0.0-5.0	6.6-8.4	0	0	0	0
7429:							
Uly------------	0-5	10-20	6.1-7.8	0	0	0	0
	5-10	14-25	6.1-7.8	0	0	0	0
	10-80	12-20	7.4-8.4	1-15	0	0	0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
7436:							
Uly-------------	0-6	10-20	6.1-7.8	0	0	0	0
	6-15	14-25	6.1-7.8	0	0	0	0
	15-31	12-20	7.4-8.4	1-15	0	0	0
	31-80	12-20	7.4-8.4	1-15	0	0	0
Coly------------	0-6	14-19	7.4-8.4	0-5	0	0	0
	6-9	14-19	7.4-8.4	0-5	0	0	0
	9-21	14-19	7.4-8.4	1-5	0	0	0
	21-35	13-18	7.4-8.4	5-10	0	0	0
	35-80	13-18	7.4-8.4	5-10	0	0	0
7438:							
Uly-------------	0-5	10-20	6.1-7.8	0	0	0	0
	5-16	14-25	6.1-7.8	0	0	0	0
	16-42	12-20	7.4-8.4	1-15	0	0	0
	42-80	12-20	7.4-8.4	1-15	0	0	0
7439:							
Uly-------------	0-8	10-20	6.1-7.8	0	0	0	0
	8-16	14-25	6.1-7.8	0	0	0	0
	16-35	12-20	7.4-8.4	0	0	0	0
	35-80	12-20	7.4-8.4	1-15	0	0	0
Coly------------	0-4	14-19	6.6-7.8	0	0	0	0
	4-9	13-18	7.4-8.4	5-10	0	0	0
	9-39	13-18	7.4-8.4	5-10	0	0	0
	39-80	13-18	7.4-8.4	5-10	0	0	0
7440:							
Uly-------------	0-7	10-20	6.1-7.8	0	0	0	0
	7-13	14-25	6.1-7.8	0	0	0	0
	13-24	12-20	7.4-8.4	1-15	0	0	0
	24-80	12-20	7.4-8.4	1-15	0	0	0
Hobbs-----------	0-12	15-30	6.1-7.8	0	0	0	0
	12-21	20-40	6.6-7.8	0	0	0	0
	21-35	20-40	6.6-7.8	0	0	0	0
	35-59	20-40	6.6-7.8	0	0	0	0
	59-80	20-40	6.6-7.8	0	0	0	0
7652:							
Valentine-------	0-5	0.0-6.0	5.6-7.3	0	0	0	0
	5-19	0.0-5.0	5.6-7.3	0	0	0	0
	19-80	0.0-5.0	5.6-7.3	0	0	0	0
7656:							
Valentine-------	0-5	0.0-6.0	5.6-7.3	0	0	0	0
	5-12	0.0-5.0	5.6-7.3	0	0	0	0
	12-48	0.0-5.0	5.6-7.3	0	0	0	0
	48-80	0.0-5.0	5.6-7.3	0	0	0	0
7659:							
Valentine, rolling--------	0-6	0.0-6.0	5.6-7.3	0	0	0	0
	6-16	0.0-5.0	5.6-7.3	0	0	0	0
	16-31	0.0-5.0	5.6-7.3	0	0	0	0
	31-80	0.0-5.0	5.6-7.3	0	0	0	0
Valentine, hilly----------	0-7	0.0-6.0	5.6-7.3	0	0	0	0
	7-12	0.0-5.0	5.6-7.3	0	0	0	0
	12-80	0.0-5.0	5.6-7.3	0	0	0	0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
7662:							
Valentine-------	0-4	0.0-6.0	5.6-7.3	0	0	0	0
	4-7	0.0-5.0	5.6-7.3	0	0	0	0
	7-40	0.0-5.0	5.6-7.3	0	0	0	0
	40-60	0.0-5.0	5.6-7.3	0	0	0	0
	60-80	0.0-5.0	5.6-7.3	0	0	0	0
7664:							
Valentine-------	0-6	0.0-6.0	5.6-7.3	0	0	0	0
	6-16	0.0-5.0	5.6-7.3	0	0	0	0
	16-31	0.0-5.0	5.6-7.3	0	0	0	0
	31-80	0.0-5.0	5.6-7.3	0	0	0	0
7669:							
Valentine-------	0-5	0.0-6.0	5.1-7.3	0	0	0	0
	5-8	0.0-6.0	5.1-7.3	0	0	0	0
	8-22	0.0-5.0	5.6-7.3	0	0	0	0
	22-56	0.0-5.0	5.6-7.3	0	0	0	0
	56-70	12-25	5.6-8.4	0	0	0	0
	70-80	10-20	5.6-8.4	0	0	0	0
7721:							
Valentine-------	0-4	0.0-6.0	5.6-7.3	0	0	0	0
	4-8	0.0-5.0	5.6-7.3	0	0	0	0
	8-16	0.0-5.0	5.6-7.3	0	0	0	0
	16-80	0.0-5.0	5.6-7.3	0	0	0	0
Libory----------	0-6	1.0-9.0	5.6-7.3	0	0	0	0
	6-11	1.0-9.0	5.6-7.3	0	0	0	0
	11-28	1.0-9.0	5.6-7.3	0	0	0	0
	28-38	1.0-9.0	5.6-7.8	0	0	0	0
	38-46	10-22	5.6-7.8	0	0	0	0
	46-62	10-22	5.6-7.8	0	0	0	0
	62-80	10-22	5.6-7.8	0	0	0	0
7748:							
Valentine-------	0-4	0.0-6.0	5.6-7.3	0	0	0	0
	4-16	0.0-5.0	5.6-7.3	0	0	0	0
	16-80	0.0-5.0	5.6-7.3	0	0	0	0
Tryon-----------	0-7	0.0-5.0	5.6-8.4	0	0	0	0
	7-12	0.0-5.0	5.6-7.8	0	0	0	0
	12-44	0.0-5.0	5.6-7.8	0	0	0	0
	44-80	24-42	5.6-7.8	0	0	0	0
7924:							
Wann------------	0-8	10-30	6.6-8.4	0-5	0	0.0-4.0	0-6
	8-12	2.0-14	6.6-8.4	0-5	0	0.0-4.0	0-6
	12-15	1.0-8.0	6.6-8.4	0-5	0	0.0-4.0	0-6
	15-26	14-20	6.6-9.0	0-5	0	0.0-4.0	0-6
	26-39	2.0-14	6.6-9.0	0-5	0	0.0-4.0	0-6
	39-46	1.0-8.0	6.6-9.0	0-5	0	0.0-4.0	0-6
	46-61	1.0-8.0	6.6-9.0	0-5	0	0.0-4.0	0-6
	61-80	2.0-16	6.6-9.0	0-5	0	0.0-4.0	0-6
7927:							
Wann------------	0-12	4.0-14	6.6-8.4	0-5	0	0.0-4.0	0-6
	12-24	1.0-8.0	6.6-8.4	0-5	0	0.0-4.0	0-6
	24-31	4.0-14	6.6-8.4	0-5	0	0.0-4.0	0-6
	31-54	2.0-14	6.6-9.0	0-5	0	0.0-4.0	0-6
	54-80	2.0-16	6.6-9.0	0-5	0	0.0-4.0	0-6

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
8020:							
Wood River------	0-7	10-25	6.6-7.8	0-5	0	0.0-4.0	0-6
	7-13	10-25	6.6-7.8	0-5	0	0.0-4.0	0-6
	13-19	25-35	6.6-9.6	0-5	0	0.0-8.0	0-13
	19-29	25-35	6.6-9.6	1-15	0	0.0-8.0	6-13
	29-36	25-35	7.4-9.6	1-15	0	0.0-8.0	13-99
	36-56	10-25	7.4-9.6	1-15	0	0.0-8.0	13-99
	56-80	0.0-5.0	6.6-7.8	0	0	0.0-4.0	0
8022:							
Wood River------	0-8	10-20	6.6-7.8	0-5	0	0.0-4.0	0-6
	8-15	10-20	6.6-7.8	0-5	0	0.0-4.0	0-6
	15-20	25-35	7.4-9.6	0-5	0	0.0-8.0	0-13
	20-25	25-35	7.4-9.6	1-15	0	0.0-8.0	0-13
	25-30	25-35	7.4-9.6	1-15	0	0.0-8.0	0-13
	30-37	25-35	7.4-9.6	1-15	0	0.0-8.0	13-99
	37-46	10-25	7.4-9.6	1-15	0	0.0-8.0	13-99
	46-84	10-25	7.4-9.6	1-15	0	0.0-8.0	0-13
	84-85	0.0-3.0	6.6-7.8	0-5	0	0	0
Silver Creek----	0-6	7.0-16	6.6-8.4	0-10	0	0	0-6
	6-11	7.0-16	6.6-8.4	0-10	0	0	0-6
	11-16	25-35	7.4-9.6	1-30	0	0.0-8.0	0-13
	16-30	25-35	7.4-9.6	1-30	0	0.0-8.0	13-99
	30-40	10-25	7.4-9.6	1-30	0	0.0-8.0	6-99
	40-58	10-25	7.4-9.6	1-15	0	0.0-8.0	0-13
	58-65	10-25	7.4-9.6	0-15	0	0.0-8.0	0-13
	65-80	0.0-3.0	6.6-7.8	0-5	0	0	0-6
8023:							
Wood River------	0-6	10-25	6.6-7.8	0-5	0	0.0-2.0	0-6
	6-12	15-27	6.6-7.8	0-5	0	0.0-2.0	0-6
	12-20	25-35	6.6-9.6	0-5	0	0.0-8.0	0-13
	20-36	25-35	6.6-9.6	1-15	0	0.0-8.0	6-13
	36-50	25-35	7.4-9.6	1-15	0	0.0-8.0	13-99
	50-60	10-25	7.4-9.6	1-15	0	0.0-8.0	13-99
	60-80	0.0-5.0	6.6-7.8	0	0	0.0-4.0	0
Silver Creek----	0-8	16-24	6.6-7.8	0-5	0	0.0-2.0	0-5
	8-14	18-24	6.6-8.4	0-15	0	2.0-4.0	0-9
	14-18	24-32	7.4-9.0	0-30	0-5	2.0-16.0	6-20
	18-30	24-32	7.4-9.0	0-30	0-5	2.0-16.0	6-20
	30-41	24-32	7.4-9.0	0-30	0-5	2.0-16.0	6-20
	41-48	24-32	6.6-8.4	0-15	0	2.0-9.0	0-9
	48-59	18-24	6.6-8.4	0-15	0	2.0-9.0	0-9
	59-64	5.0-20	6.6-7.8	0-5	0	0.0-4.0	0-5
	64-80	0.0-5.0	6.6-7.8	0	0	0	0
9975: Sanitary landfill.							
9985:							
Gravel pits-----	0-60	0.0-5.0	6.6-8.4	0	0	0	0
9995: Miscellaneous water, sewage lagoons.							
9998: Water.							

Table 19.--Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Potential frost action	Risk of corrosion	
		Uncoated steel	Concrete
1102:			
Alda	High	Moderate	Low
1104:			
Alda	High	Moderate	Low
1166:			
Almeria	Moderate	High	Low
1348:			
Barney, frequently flooded	Moderate	High	Low
Barney, wet, channeled	Moderate	High	Low
1354:			
Barney	Moderate	High	Low
Bolent	Moderate	High	Low
1547:			
Blendon	Moderate	Moderate	Low
1669:			
Boelus	Moderate	Moderate	Low
O'Neill	Moderate	Moderate	Low
Pivot	Low	Low	Low
1678:			
Bolent	Moderate	High	Low
1680:			
Bolent	Moderate	Low	Low
1688:			
Bolent	Moderate	Low	Low
1704:			
Bolent	Moderate	High	Low
Calamus	Moderate	Moderate	Low
1796:			
Brocksburg	Moderate	Low	Low
1930:			
Butler	High	High	Low
1942:			
Calamus	Moderate	Moderate	Low
2020:			
Caruso	Moderate	High	Moderate
2168:			
Coly	Moderate	High	Low

Table 19.--Soil Features--Continued

Map symbol and soil name	Potential frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
2223:			
Cozad	Moderate	Low	Low
2238:			
Cozad	Moderate	High	Low
2240:			
Cozad	Moderate	High	Low
Hobbs	Moderate	Low	Low
2371:			
Cullison	Moderate	High	Low
2415:			
Darr	Moderate	Low	Low
2430:			
Detroit	Low	High	Low
2731:			
Els	Moderate	Moderate	Low
Tryon	Moderate	High	Low
2846:			
Fillmore	High	High	Low
2918:			
Gates	Moderate	Low	Low
2920:			
Gates	Moderate	Low	Low
2924:			
Gates	Moderate	Low	Low
2925:			
Gates	Moderate	Low	Low
2927:			
Gates	Moderate	High	Low
2940:			
Gates	Moderate	Low	Low
2972:			
Gayville	Moderate	High	Moderate
3023:			
Gibbon	High	High	Low
3045:			
Gibbon	High	High	Low
3140:			
Gothenburg	Moderate	Moderate	Low
3290:			
Hall	Moderate	Moderate	Low
3293:			
Hall	Moderate	Moderate	Low

Table 19.--Soil Features--Continued

Map symbol and soil name	Potential frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
3294:			
Hall	Moderate	Moderate	Low
3300:			
Hall	Moderate	Moderate	Low
3301:			
Hall	Moderate	Moderate	Low
Hobbs	Moderate	Low	Low
3330:			
Hastings	Moderate	Moderate	Low
3331:			
Hastings	Moderate	Moderate	Low
3478:			
Hersh	Moderate	Low	Low
3532:			
Hobbs	Moderate	Low	Low
3537:			
Hobbs	Moderate	Low	Low
3568:			
Holder	High	Low	Low
3570:			
Holder	High	Low	Low
3571:			
Holder	High	Low	Low
3578:			
Holder	High	Low	Low
3580:			
Holder	High	Low	Low
3598:			
Holdrege	Moderate	Low	Low
3616:			
Holdrege	Moderate	Low	Low
3770:			
Hord	Moderate	High	Low
3771:			
Hord	Moderate	High	Low
3772:			
Hord	Moderate	High	Low
3782:			
Hord	Moderate	Low	Low
3869:			
Inavale	Low	Moderate	Low
3875:			
Inavale	Low	Moderate	Low

Table 19.--Soil Features--Continued

Map symbol and soil name	Potential frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
3927:			
Ipage	Moderate	Low	Moderate
3948:			
Ipage	Moderate	Low	Moderate
Tryon	Moderate	High	Low
3993:			
Jansen	Moderate	Moderate	Low
4019:			
Janude	Moderate	Moderate	Low
4020:			
Janude	Moderate	Moderate	Low
4417:			
Lamo	High	High	Low
4586:			
Lex	High	High	Low
4613:			
Libory	Low	Moderate	Low
4650:			
Lockton	High	Moderate	Low
4744:			
Loup	Moderate	High	Low
4932:			
Marlake	Moderate	High	Low
5705:			
O'Neill	Moderate	Moderate	Low
Pivot	Low	Low	Low
5713:			
O'Neill	Moderate	Moderate	Low
5905:			
Ortello	Moderate	Moderate	Low
5909:			
Ortello	Moderate	Moderate	Low
Holder	High	Low	Low
5914:			
Ortello	Moderate	Moderate	Low
5985:			
Ovina	High	Moderate	Low
6136:			
Platte	Moderate	High	Moderate
Alda	High	Moderate	Low
6139:			
Platte	Moderate	High	Moderate

Table 19.--Soil Features--Continued

Map symbol and soil name	Potential frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
6139:			
Bolent	Moderate	Low	Low
6143:			
Platte	Moderate	High	Moderate
Inavale	Low	Moderate	Low
6800:			
Scott	High	High	Low
6956:			
Silver Creek	Moderate	High	Moderate
6957:			
Silver Creek, alkali	Moderate	High	Moderate
Silver Creek, saline, alkali	Moderate	High	Low
6978:			
Simeon	Low	Low	Low
7225:			
Thurman	Low	Low	Low
7249:			
Thurman	Low	Low	Low
7250:			
Thurman	Low	Low	Low
7429:			
Uly	Moderate	High	Low
7436:			
Uly	Moderate	High	Low
Coly	Moderate	High	Low
7438:			
Uly	Moderate	High	Low
7439:			
Uly	Moderate	High	Low
Coly	Moderate	High	Low
7440:			
Uly	Moderate	High	Low
Hobbs	Moderate	Low	Low
7652:			
Valentine	Low	Low	Low
7656:			
Valentine	Low	Low	Low
7659:			
Valentine, rolling	Low	Low	Low
Valentine, hilly	Low	Low	Low

Table 19.--Soil Features--Continued

Map symbol and soil name	Potential frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
7662:			
Valentine	Low	Low	Low
7664:			
Valentine	Low	Low	Low
7669:			
Valentine	Low	Low	Low
7721:			
Valentine	Low	Low	Low
Libory	Low	Moderate	Low
7748:			
Valentine	Low	Low	Low
Tryon	Moderate	High	Low
7924:			
Wann	High	Moderate	Low
7927:			
Wann	High	Moderate	Low
8020:			
Wood River	Low	High	High
8022:			
Wood River	Low	High	High
Silver Creek	Moderate	High	Moderate
8023:			
Wood River	Low	High	High
Silver Creek	Moderate	High	Moderate
9975:			
Sanitary landfill.			
9985:			
Gravel pits	Low	Low	Low
9995:			
Miscellaneous water, sewage lagoons.			
9998:			
Water.			

Table 20.--Water Features

(See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro-logic group	Month	Soil saturation: Upper limit	Soil saturation: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
1102:									
Alda	C								
		January	1.5-3.5	>6.0	---	---	None	Brief	Rare
		February	1.5-3.5	>6.0	---	---	None	Brief	Rare
		March	1.5-3.5	>6.0	---	---	None	Brief	Rare
		April	1.5-3.5	>6.0	---	---	None	Brief	Rare
		May	1.5-3.5	>6.0	---	---	None	Brief	Rare
		June	---	---	---	---	None	Brief	Rare
		November	1.5-3.5	>6.0	---	---	None	Brief	Rare
		December	1.5-3.5	>6.0	---	---	None	Brief	Rare
1104:									
Alda	C								
		January	1.5-3.5	>6.0	---	---	None	Brief	Rare
		February	1.5-3.5	>6.0	---	---	None	Brief	Rare
		March	1.5-3.5	>6.0	---	---	None	Brief	Rare
		April	1.5-3.5	>6.0	---	---	None	Brief	Rare
		May	1.5-3.5	>6.0	---	---	None	Brief	Rare
		June	---	---	---	---	None	Brief	Rare
		November	1.5-3.5	>6.0	---	---	None	Brief	Rare
		December	1.5-3.5	>6.0	---	---	None	Brief	Rare
1166:									
Almeria	D								
		January	0.0-1.5	>6.0	---	---	None	---	None
		February	0.0-1.5	>6.0	---	---	None	Brief	Occasional
		March	0.0-1.5	>6.0	---	---	None	Brief	Frequent
		April	0.0-1.5	>6.0	---	---	None	Brief	Frequent
		May	0.0-1.5	>6.0	---	---	None	Brief	Occasional
		June	0.0-1.5	>6.0	---	---	None	Brief	Occasional
		July	---	---	---	---	None	Brief	Occasional
		November	0.0-1.5	>6.0	---	---	None	---	None
		December	0.0-1.5	>6.0	---	---	None	---	None
1348:									
Barney, frequently flooded	D								
		January	0.0-1.5	>6.0	---	---	None	Brief	Frequent
		February	0.0-1.5	>6.0	---	---	None	Brief	Frequent
		March	0.0-1.5	>6.0	---	---	None	Brief	Frequent
		April	0.0-1.5	>6.0	---	---	None	Brief	Frequent
		May	0.0-1.5	>6.0	---	---	None	Brief	Frequent
		June	0.0-1.5	>6.0	---	---	None	Brief	Frequent
		July	---	---	---	---	None	Brief	Frequent
		November	0.0-1.5	>6.0	---	---	None	Brief	Frequent
		December	0.0-1.5	>6.0	---	---	None	Brief	Frequent
Barney, wet, channeled	D								
		January	0.0-1.0	>6.0	0.0-0.5	---	None	Brief	Frequent
		February	0.0-1.0	>6.0	0.0-0.5	---	None	Brief	Frequent
		March	0.0-1.0	>6.0	0.0-0.5	---	None	Brief	Frequent
		April	0.0-1.0	>6.0	0.0-0.5	---	None	Brief	Frequent
		May	0.0-1.0	>6.0	0.0-0.5	---	None	Brief	Frequent
		June	0.0-1.0	>6.0	0.0-0.5	---	None	Brief	Frequent
		July	---	---	---	---	None	Brief	Frequent
		November	0.0-1.0	>6.0	0.0-0.5	---	None	Brief	Frequent
		December	0.0-1.0	>6.0	0.0-0.5	---	None	Brief	Frequent

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Soil saturation Upper limit	Soil saturation Lower limit	Ponding Surface water depth	Ponding Duration	Ponding Frequency	Flooding Duration	Flooding Frequency
			Ft	Ft	Ft				
1354:									
Barney	D								
		January	0.0-1.5	>6.0	---	---	None	Brief	Frequent
		February	0.0-1.5	>6.0	---	---	None	Brief	Frequent
		March	0.0-1.5	>6.0	---	---	None	Brief	Frequent
		April	0.0-1.5	>6.0	---	---	None	Brief	Frequent
		May	0.0-1.5	>6.0	---	---	None	Brief	Frequent
		June	0.0-1.5	>6.0	---	---	None	Brief	Frequent
		July	---	---	---	---	None	Brief	Frequent
		November	0.0-1.5	>6.0	---	---	None	Brief	Frequent
		December	0.0-1.5	>6.0	---	---	None	Brief	Frequent
Bolent	A								
		January	1.5-3.0	>6.0	---	---	None	Brief	Occasional
		February	1.5-3.0	>6.0	---	---	None	Brief	Occasional
		March	1.5-3.0	>6.0	---	---	None	Brief	Occasional
		April	1.5-3.0	>6.0	---	---	None	Brief	Occasional
		May	1.5-3.0	>6.0	---	---	None	Brief	Occasional
		June	---	---	---	---	None	Brief	Occasional
		November	1.5-3.0	>6.0	---	---	None	Brief	Occasional
		December	1.5-3.0	>6.0	---	---	None	Brief	Occasional
1547:									
Blendon	B	---	---	---	---	---	---	---	---
1669:									---
Boelus	A	---	---	---	---	---	---	---	
O'Neill	B	---	---	---	---	---	---	---	---
Pivot	A	---	---	---	---	---	---	---	---
1678:									
Bolent	A								
		January	1.5-3.0	>6.0	---	---	None	Brief	Occasional
		February	1.5-3.0	>6.0	---	---	None	Brief	Occasional
		March	1.5-3.0	>6.0	---	---	None	Brief	Occasional
		April	1.5-3.0	>6.0	---	---	None	Brief	Occasional
		May	1.5-3.0	>6.0	---	---	None	Brief	Occasional
		June	---	---	---	---	None	Brief	Occasional
		November	1.5-3.0	>6.0	---	---	None	Brief	Occasional
		December	1.5-3.0	>6.0	---	---	None	Brief	Occasional
1680:									
Bolent	A								
		January	1.5-3.0	>6.0	---	---	None	Brief	Occasional
		February	1.5-3.0	>6.0	---	---	None	Brief	Occasional
		March	1.5-3.0	>6.0	---	---	None	Brief	Occasional
		April	1.5-3.0	>6.0	---	---	None	Brief	Occasional
		May	1.5-3.0	>6.0	---	---	None	Brief	Occasional
		June	---	---	---	---	None	Brief	Occasional
		November	1.5-3.0	>6.0	---	---	None	Brief	Occasional
		December	1.5-3.0	>6.0	---	---	None	Brief	Occasional

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Soil saturation: Upper limit	Soil saturation: Lower limit	Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
1688:									
Bolent	A								
		January	1.5-3.0	>6.0	---	---	None	---	None
		February	1.5-3.0	>6.0	---	---	None	---	None
		March	1.5-3.0	>6.0	---	---	None	Brief	Occasional
		April	1.5-3.0	>6.0	---	---	None	Brief	Occasional
		May	1.5-3.0	>6.0	---	---	None	Brief	Occasional
		June	---	---	---	---	None	Brief	Occasional
		July	---	---	---	---	None	Brief	Occasional
		August	---	---	---	---	None	Brief	Occasional
		November	1.5-3.0	>6.0	---	---	None	---	None
		December	1.5-3.0	>6.0	---	---	None	---	None
1704:									
Bolent	A								
		January	1.5-3.0	>6.0	---	---	None	Brief	Occasional
		February	1.5-3.0	>6.0	---	---	None	Brief	Occasional
		March	1.5-3.0	>6.0	---	---	None	Brief	Occasional
		April	1.5-3.0	>6.0	---	---	None	Brief	Occasional
		May	1.5-3.0	>6.0	---	---	None	Brief	Occasional
		June	---	---	---	---	None	Brief	Occasional
		November	1.5-3.0	>6.0	---	---	None	Brief	Occasional
		December	1.5-3.0	>6.0	---	---	None	Brief	Occasional
Calamus	A								
		January	3.0-4.9	>6.0	---	---	None	Brief	Rare
		February	3.0-4.9	>6.0	---	---	None	Brief	Rare
		March	3.0-4.9	>6.0	---	---	None	Brief	Rare
		April	3.0-4.9	>6.0	---	---	None	Brief	Rare
		May	3.0-4.9	>6.0	---	---	None	Brief	Rare
		June	3.0-4.9	>6.0	---	---	None	Brief	Rare
		July	3.0-4.9	>6.0	---	---	None	---	None
		November	3.0-4.9	>6.0	---	---	None	Brief	Rare
		December	3.0-4.9	>6.0	---	---	None	Brief	Rare
1796:									
Brocksburg	B	---	---	---	---	---	---	---	---
1930:									
Butler	D								
		March	0.5-1.5	1.0-2.0	---	---	None	---	None
		April	0.5-1.5	1.0-2.0	---	---	None	---	None
		May	0.5-1.5	1.0-2.0	---	---	None	---	None
		June	0.5-1.5	1.0-2.0	---	---	None	---	None
		July	0.5-1.5	1.0-2.0	---	---	None	---	None
		August	0.0	2.0	---	---	None	---	None
1942:									
Calamus	A								
		January	3.0-4.9	>6.0	---	---	None	Brief	Rare
		February	3.0-4.9	>6.0	---	---	None	Brief	Rare
		March	3.0-4.9	>6.0	---	---	None	Brief	Rare
		April	3.0-4.9	>6.0	---	---	None	Brief	Rare
		May	3.0-4.9	>6.0	---	---	None	Brief	Rare
		June	3.0-4.9	>6.0	---	---	None	Brief	Rare
		July	3.0-4.9	>6.0	---	---	None	---	None
		November	3.0-4.9	>6.0	---	---	None	Brief	Rare
		December	3.0-4.9	>6.0	---	---	None	Brief	Rare

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Soil saturation: Upper limit	Soil saturation: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
2020:									
Caruso	C								
		January	1.5-3.5	>6.0	---	---	None	Brief	Rare
		February	1.5-3.5	>6.0	---	---	None	Brief	Rare
		March	1.5-3.5	>6.0	---	---	None	Brief	Rare
		April	1.5-3.5	>6.0	---	---	None	Brief	Rare
		May	1.5-3.5	>6.0	---	---	None	Brief	Rare
		June	1.5-3.5	>6.0	---	---	None	Brief	Rare
		November	1.5-3.5	>6.0	---	---	None	Brief	Rare
		December	1.5-3.5	>6.0	---	---	None	Brief	Rare
2168:									
Coly	B	---	---	---	---	---	---	---	---
2223:									
Cozad	B	---	---	---	---	---	---	---	---
2238:									
Cozad	B	---	---	---	---	---	---	---	---
2240:									
Cozad	B	---	---	---	---	---	---	---	---
Hobbs	B								
		April	---	---	---	---	None	Brief	Occasional
		May	---	---	---	---	None	Brief	Occasional
		June	---	---	---	---	None	Brief	Occasional
		July	---	---	---	---	None	Brief	Occasional
		August	---	---	---	---	None	Brief	Occasional
		September	---	---	---	---	None	Brief	Occasional
2371:									
Cullison	D								
		January	0.0-1.5	>6.0	---	---	None	---	None
		February	0.0-1.5	>6.0	---	---	None	---	None
		March	0.0-1.5	>6.0	---	---	None	---	None
		April	0.0-1.5	>6.0	---	---	None	---	None
		May	0.0-1.5	>6.0	---	---	None	---	None
		June	0.0-1.5	>6.0	---	---	None	---	None
		July	1.5-3.0	>6.0	---	---	None	---	None
		August	1.5-3.0	>6.0	---	---	None	---	None
		September	1.5-3.0	>6.0	---	---	None	---	None
		October	1.5-3.0	>6.0	---	---	None	---	None
		November	0.0-1.5	>6.0	---	---	None	---	None
		December	0.0-1.5	>6.0	---	---	None	---	None
2415:									
Darr	B								
		January	---	---	---	---	None	Brief	Very rare
		February	---	---	---	---	None	Brief	Very rare
		March	---	---	---	---	None	Brief	Very rare
		April	---	---	---	---	None	Brief	Very rare
		May	---	---	---	---	None	Brief	Very rare
		June	---	---	---	---	None	Brief	Very rare
		November	---	---	---	---	None	Brief	Very rare
		December	---	---	---	---	None	Brief	Very rare
2430:									
Detroit	C	---	---	---	---	---	---	---	---

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Soil saturation Upper limit	Soil saturation Lower limit	Ponding Surface water depth	Ponding Duration	Ponding Frequency	Flooding Duration	Flooding Frequency
			Ft	Ft	Ft				
2731:									
Els	A								
		January	1.5-3.0	>6.0	---	---	None	---	None
		February	1.5-3.0	>6.0	---	---	None	---	None
		March	1.5-3.0	>6.0	---	---	None	---	None
		April	1.5-3.0	>6.0	---	---	None	---	None
		May	1.5-3.0	>6.0	---	---	None	---	None
		November	1.5-3.0	>6.0	---	---	None	---	None
		December	1.5-3.0	>6.0	---	---	None	---	None
Tryon	D								
		January	0.0-1.5	>6.0	---	---	None	---	None
		February	0.0-1.5	>6.0	---	---	None	---	None
		March	0.0-1.5	>6.0	---	---	None	---	None
		April	0.0-1.5	>6.0	---	---	None	---	None
		May	0.0-1.5	>6.0	---	---	None	---	None
		November	0.0-1.5	>6.0	---	---	None	---	None
		December	0.0-1.5	>6.0	---	---	None	---	None
2846:									
Fillmore	D								
		February	0.0	2.0	---	---	None	---	None
		March	0.0-2.0	1.0-3.0	0.0-0.5	Brief	Occasional	---	None
		April	0.0	2.0	0.0-0.5	Brief	Occasional	---	None
		May	0.0	2.0	0.0-0.5	Brief	Occasional	---	None
		June	0.0	2.0	0.0-0.5	Brief	Occasional	---	None
		July	0.0	2.0	0.0-0.5	Brief	Occasional	---	None
		August	0.0	2.0	0.0-0.5	Brief	Occasional	---	None
		September	0.0	2.0	---	---	None	---	None
2918:									
Gates	B	---	---	---	---	---	---	---	---
2920:									
Gates	B	---	---	---	---	---	---	---	---
2924:									
Gates	B	---	---	---	---	---	---	---	---
2925:									
Gates	B	---	---	---	---	---	---	---	---
2927:									
Gates	B	---	---	---	---	---	---	---	---
2940:									
Gates	B	---	---	---	---	---	---	---	---
2972:									
Gayville	C								
		January	3.0-5.0	>6.0	---	---	None	---	None
		February	3.0-5.0	>6.0	---	---	None	---	None
		March	3.0-5.0	>6.0	---	---	None	---	None
		April	3.0-5.0	>6.0	---	---	None	---	None
		May	3.0-5.0	>6.0	---	---	None	---	None
		December	3.0-5.0	>6.0	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Soil saturation: Upper limit	Soil saturation: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
3023:									
Gibbon	B								
		January	1.0-3.0	>6.0	---	---	None	Brief	Rare
		February	1.0-3.0	>6.0	---	---	None	Brief	Rare
		March	1.0-3.0	>6.0	---	---	None	Brief	Rare
		April	1.0-3.0	>6.0	---	---	None	Brief	Rare
		May	1.0-3.0	>6.0	---	---	None	Brief	Rare
		June	1.0-3.0	>6.0	---	---	None	Brief	Rare
		November	1.0-3.0	>6.0	---	---	None	Brief	Rare
		December	1.0-3.0	>6.0	---	---	None	Brief	Rare
3045:									
Gibbon	B								
		January	1.5-3.0	>6.0	---	---	None	Brief	Rare
		February	1.5-3.0	>6.0	---	---	None	Brief	Rare
		March	1.5-3.0	>6.0	---	---	None	Brief	Rare
		April	1.5-3.0	>6.0	---	---	None	Brief	Rare
		May	1.5-3.0	>6.0	---	---	None	Brief	Rare
		June	1.5-3.0	>6.0	---	---	None	Brief	Rare
		November	1.5-3.0	>6.0	---	---	None	Brief	Rare
		December	1.5-3.0	>6.0	---	---	None	Brief	Rare
3140:									
Gothenburg	D								
		January	0.0-1.5	>6.0	---	---	None	Brief	Frequent
		February	0.0-1.5	>6.0	---	---	None	Brief	Frequent
		March	0.0-1.5	>6.0	---	---	None	Brief	Frequent
		April	0.0-1.5	>6.0	---	---	None	Brief	Frequent
		May	0.0-1.5	>6.0	---	---	None	Brief	Frequent
		June	0.0-1.5	>6.0	---	---	None	Brief	Frequent
		July	---	---	---	---	None	Brief	Frequent
		November	0.0-1.5	>6.0	---	---	None	Brief	Frequent
		December	0.0-1.5	>6.0	---	---	None	Brief	Frequent
3290:									
Hall	B	---	---	---	---	---	---	---	---
3293:									
Hall	B	---	---	---	---	---	---	---	---
3294:									
Hall	B	---	---	---	---	---	---	---	---
3300:									
Hall	B	---	---	---	---	---	---	---	---
3301:									
Hall	B								
		April	---	---	---	---	None	Very brief	Rare
		May	---	---	---	---	None	Very brief	Rare
		June	---	---	---	---	None	Very brief	Rare
		July	---	---	---	---	None	Very brief	Rare
		August	---	---	---	---	None	Very brief	Rare
		September	---	---	---	---	None	Very brief	Rare
Hobbs	B								
		April	---	---	---	---	None	Brief	Occasional
		May	---	---	---	---	None	Brief	Occasional
		June	---	---	---	---	None	Brief	Occasional
		July	---	---	---	---	None	Brief	Occasional
		August	---	---	---	---	None	Brief	Occasional
		September	---	---	---	---	None	Brief	Occasional

Table 20.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Soil saturation: Upper limit	Soil saturation: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
3330:									
Hastings	B	---	---	---	---	---	---	---	---
3331:									
Hastings	B	---	---	---	---	---	---	---	---
3478:									
Hersh	B	---	---	---	---	---	---	---	---
3532:									
Hobbs	B								
		April	---	---	---	---	None	Brief	Occasional
		May	---	---	---	---	None	Brief	Occasional
		June	---	---	---	---	None	Brief	Occasional
		July	---	---	---	---	None	Brief	Occasional
		August	---	---	---	---	None	Brief	Occasional
		September	---	---	---	---	None	Brief	Occasional
3537:									
Hobbs	B								
		April	---	---	---	---	None	Brief	Frequent
		May	---	---	---	---	None	Brief	Frequent
		June	---	---	---	---	None	Brief	Frequent
		July	---	---	---	---	None	Brief	Frequent
		August	---	---	---	---	None	Brief	Frequent
		September	---	---	---	---	None	Brief	Frequent
3568:									
Holder	B	---	---	---	---	---	---	---	---
3570:									
Holder	B	---	---	---	---	---	---	---	---
3571:									
Holder	B	---	---	---	---	---	---	---	---
3578:									
Holder	B	---	---	---	---	---	---	---	---
3580:									
Holder	B	---	---	---	---	---	---	---	---
3598:									
Holdrege	B	---	---	---	---	---	---	---	---
3616:									
Holdrege	B	---	---	---	---	---	---	---	---
3770:									
Hord	B	---	---	---	---	---	---	---	---
3771:									
Hord	B	---	---	---	---	---	---	---	---
3772:									
Hord	B	---	---	---	---	---	---	---	---
3782:									
Hord	B	---	---	---	---	---	---	---	---

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Soil saturation: Upper limit	Soil saturation: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
3869:									
Inavale	A								
		January	---	---	---	---	None	Brief	Very rare
		February	---	---	---	---	None	Brief	Very rare
		March	---	---	---	---	None	Brief	Very rare
		April	---	---	---	---	None	Brief	Very rare
		May	---	---	---	---	None	Brief	Very rare
		June	---	---	---	---	None	Brief	Very rare
		November	---	---	---	---	None	Brief	Very rare
		December	---	---	---	---	None	Brief	Very rare
3875:									
Inavale	A								
		January	---	---	---	---	None	Brief	Very rare
		February	---	---	---	---	None	Brief	Very rare
		March	---	---	---	---	None	Brief	Very rare
		April	---	---	---	---	None	Brief	Very rare
		May	---	---	---	---	None	Brief	Very rare
		June	---	---	---	---	None	Brief	Very rare
		November	---	---	---	---	None	Brief	Very rare
		December	---	---	---	---	None	Brief	Very rare
3927:									
Ipage	A								
		January	3.0-5.0	>6.0	---	---	None	---	None
		February	3.0-5.0	>6.0	---	---	None	---	None
		March	3.0-5.0	>6.0	---	---	None	---	None
		April	3.0-5.0	>6.0	---	---	None	---	None
		May	3.0-5.0	>6.0	---	---	None	---	None
		June	3.0-5.0	>6.0	---	---	None	---	None
		December	3.0-5.0	>6.0	---	---	None	---	None
3948:									
Ipage	A								
		January	3.0-5.0	>6.0	---	---	None	---	None
		February	3.0-5.0	>6.0	---	---	None	---	None
		March	3.0-5.0	>6.0	---	---	None	---	None
		April	3.0-5.0	>6.0	---	---	None	---	None
		May	3.0-5.0	>6.0	---	---	None	---	None
		June	3.0-5.0	>6.0	---	---	None	---	None
		December	3.0-5.0	>6.0	---	---	None	---	None
Tryon	A								
		January	0.0-1.0	>6.0	0.0-0.5	Long	Occasional	---	None
		February	0.0-1.0	>6.0	0.0-0.5	Long	Occasional	---	None
		March	0.0-1.0	>6.0	0.0-0.5	Long	Occasional	---	None
		April	0.0-1.0	>6.0	0.0-0.5	Long	Occasional	---	None
		May	0.0-1.0	>6.0	0.0-0.5	Long	Occasional	---	None
		June	0.0-1.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		July	1.0-3.0	>6.0	---	---	None	---	None
		August	1.0-3.0	>6.0	---	---	None	---	None
		September	1.0-3.0	>6.0	---	---	None	---	None
		October	1.0-3.0	>6.0	---	---	None	---	None
		November	0.0-1.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		December	0.0-1.0	>6.0	0.0-0.5	Long	Occasional	---	None
3993:									
Jansen	B	---	---	---	---	---	---	---	---

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Soil saturation: Upper limit	Soil saturation: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
4019:									
Janude	B								
		January	---	---	---	---	None	Brief	Very rare
		February	---	---	---	---	None	Brief	Very rare
		March	4.0-6.0	>6.0	---	---	None	Brief	Very rare
		April	4.0-6.0	>6.0	---	---	None	Brief	Very rare
		May	4.0-6.0	>6.0	---	---	None	Brief	Very rare
		June	4.0-6.0	>6.0	---	---	None	Brief	Very rare
		November	---	---	---	---	None	Brief	Very rare
		December	---	---	---	---	None	Brief	Very rare
4020:									
Janude	B								
		January	---	---	---	---	None	Brief	Very rare
		February	---	---	---	---	None	Brief	Very rare
		March	4.0-6.0	>6.0	---	---	None	Brief	Very rare
		April	4.0-6.0	>6.0	---	---	None	Brief	Very rare
		May	4.0-6.0	>6.0	---	---	None	Brief	Very rare
		June	4.0-6.0	>6.0	---	---	None	Brief	Very rare
		November	---	---	---	---	None	Brief	Very rare
		December	---	---	---	---	None	Brief	Very rare
4417:									
Lamo	C								
		January	1.0-3.0	>6.0	---	---	None	Brief	Rare
		February	1.0-3.0	>6.0	---	---	None	Brief	Rare
		March	1.0-3.0	>6.0	---	---	None	Brief	Rare
		April	1.0-3.0	>6.0	---	---	None	Brief	Rare
		May	1.0-3.0	>6.0	---	---	None	Brief	Rare
		June	---	---	---	---	None	Brief	Rare
		November	1.0-3.0	>6.0	---	---	None	Brief	Rare
		December	1.0-3.0	>6.0	---	---	None	Brief	Rare
4586:									
Lex	B								
		January	1.0-3.0	>6.0	---	---	None	Brief	Rare
		February	1.0-3.0	>6.0	---	---	None	Brief	Rare
		March	1.0-3.0	>6.0	---	---	None	Brief	Rare
		April	1.0-3.0	>6.0	---	---	None	Brief	Rare
		May	1.0-3.0	>6.0	---	---	None	Brief	Rare
		June	---	---	---	---	None	Brief	Rare
		November	1.0-3.0	>6.0	---	---	None	Brief	Rare
		December	1.0-3.0	>6.0	---	---	None	Brief	Rare
4613:									
Libory	A								
		March	1.0-2.0	>6.0	---	---	None	---	None
		April	1.0-2.0	>6.0	---	---	None	---	None
		May	1.0-2.0	>6.0	---	---	None	---	None
		June	1.0-2.0	>6.0	---	---	None	---	None
4650:									
Lockton	B								
		January	3.0-5.0	>6.0	---	---	None	---	None
		February	3.0-5.0	>6.0	---	---	None	---	None
		March	3.0-5.0	>6.0	---	---	None	---	None
		April	3.0-5.0	>6.0	---	---	None	---	None
		May	3.0-5.0	>6.0	---	---	None	---	None
		June	3.0-5.0	>6.0	---	---	None	---	None
		November	3.0-5.0	>6.0	---	---	None	---	None
		December	3.0-5.0	>6.0	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Soil saturation: Upper limit	Soil saturation: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
4744:									
Loup	A								
		January	0.0-1.5	>6.0	---	---	None	---	None
		February	0.0-1.5	>6.0	---	---	None	---	None
		March	0.0-1.5	>6.0	---	---	None	---	None
		April	0.0-1.5	>6.0	---	---	None	---	None
		May	0.0-1.5	>6.0	---	---	None	---	None
		June	0.0-1.5	>6.0	---	---	None	---	None
		November	0.0-1.5	>6.0	---	---	None	---	None
		December	0.0-1.5	>6.0	---	---	None	---	None
4932:									
Marlake	D								
		January	0.0-1.0	>6.0	0.0-2.0	Very long	Frequent	---	None
		February	0.0-1.0	>6.0	0.0-2.0	Very long	Frequent	---	None
		March	0.0	>6.0	0.0-2.0	Very long	Frequent	---	None
		April	0.0	>6.0	0.0-2.0	Very long	Frequent	---	None
		May	0.0	>6.0	0.0-2.0	Very long	Frequent	---	None
		June	0.0	>6.0	0.0-2.0	Very long	Frequent	---	None
		July	0.0-1.0	>6.0	---	---	None	---	None
		August	0.0-1.0	>6.0	---	---	None	---	None
		September	0.0-1.0	>6.0	---	---	None	---	None
		October	0.0-1.0	>6.0	---	---	None	---	None
		November	0.0	>6.0	0.0-2.0	Very long	Frequent	---	None
		December	0.0	>6.0	0.0-2.0	Very long	Frequent	---	None
5705:									
O'Neill	B	---	---	---	---	---	---	---	---
Pivot	A	---	---	---	---	---	---	---	---
5713:									
O'Neill	B	---	---	---	---	---	---	---	---
5905:									
Ortello	B	---	---	---	---	---	---	---	---
5909:									
Ortello	B	---	---	---	---	---	---	---	---
Holder	B	---	---	---	---	---	---	---	---
5914:									
Ortello	B	---	---	---	---	---	---	---	---
5985:									
Ovina	B								
		May	1.0-3.0	>6.0	---	---	None	---	None
		June	1.0-3.0	>6.0	---	---	None	---	None
		July	1.0-3.0	>6.0	---	---	None	---	None
		August	1.0-3.0	>6.0	---	---	None	---	None
		September	1.0-3.0	>6.0	---	---	None	---	None
		October	1.0-3.0	>6.0	---	---	None	---	None
		November	1.0-3.0	>6.0	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Soil saturation: Upper limit	Soil saturation: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
6136:									
Platte	B								
		January	---	---	---	---	None	Brief	Frequent
		February	1.0-3.0	>6.0	---	---	None	Brief	Frequent
		March	1.0-3.0	>6.0	---	---	None	Brief	Frequent
		April	1.0-3.0	>6.0	---	---	None	Brief	Frequent
		May	1.0-3.0	>6.0	---	---	None	Brief	Frequent
		June	1.0-3.0	>6.0	---	---	None	Brief	Frequent
		July	---	---	---	---	None	Brief	Frequent
		November	---	---	---	---	None	Brief	Frequent
		December	---	---	---	---	None	Brief	Frequent
Alda	C								
		January	1.5-3.0	>6.0	---	---	None	Brief	Frequent
		February	1.5-3.0	>6.0	---	---	None	Brief	Frequent
		March	1.5-3.0	>6.0	---	---	None	Brief	Frequent
		April	1.5-3.0	>6.0	---	---	None	Brief	Frequent
		May	1.5-3.0	>6.0	---	---	None	Brief	Frequent
		June	---	---	---	---	None	Brief	Frequent
		July	---	---	---	---	None	Brief	Frequent
		November	1.5-3.0	>6.0	---	---	None	Brief	Frequent
		December	1.5-3.0	>6.0	---	---	None	Brief	Frequent
6139:									
Platte	B								
		January	---	---	---	---	None	Brief	Occasional
		February	1.0-3.0	>6.0	---	---	None	Brief	Occasional
		March	1.0-3.0	>6.0	---	---	None	Brief	Occasional
		April	1.0-3.0	>6.0	---	---	None	Brief	Occasional
		May	1.0-3.0	>6.0	---	---	None	Brief	Occasional
		June	1.0-3.0	>6.0	---	---	None	Brief	Occasional
		November	---	---	---	---	None	Brief	Occasional
		December	---	---	---	---	None	Brief	Occasional
Bolent	A								
		January	1.5-3.0	>6.0	---	---	None	Brief	Occasional
		February	1.5-3.0	>6.0	---	---	None	Brief	Occasional
		March	1.5-3.0	>6.0	---	---	None	Brief	Occasional
		April	1.5-3.0	>6.0	---	---	None	Brief	Occasional
		May	1.5-3.0	>6.0	---	---	None	Brief	Occasional
		June	---	---	---	---	None	Brief	Occasional
		November	1.5-3.0	>6.0	---	---	None	Brief	Occasional
		December	1.5-3.0	>6.0	---	---	None	Brief	Occasional
6143:									
Platte	B								
		January	---	---	---	---	None	Brief	Occasional
		February	1.0-3.0	>6.0	---	---	None	Brief	Occasional
		March	1.0-3.0	>6.0	---	---	None	Brief	Occasional
		April	1.0-3.0	>6.0	---	---	None	Brief	Occasional
		May	1.0-3.0	>6.0	---	---	None	Brief	Occasional
		June	1.0-3.0	>6.0	---	---	None	Brief	Occasional
		November	---	---	---	---	None	Brief	Occasional
		December	---	---	---	---	None	Brief	Occasional
Inavale	A								
		January	---	---	---	---	None	Brief	Very rare
		February	---	---	---	---	None	Brief	Very rare
		March	---	---	---	---	None	Brief	Very rare
		April	---	---	---	---	None	Brief	Very rare
		May	---	---	---	---	None	Brief	Very rare
		June	---	---	---	---	None	Brief	Very rare
		November	---	---	---	---	None	Brief	Very rare
		December	---	---	---	---	None	Brief	Very rare

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Soil saturation: Upper limit	Soil saturation: Lower limit	Soil saturation: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
6800:									
Scott	D								
		March	0.0	2.0	0.0-1.0	Long	Frequent	---	None
		April	0.0	2.0	0.0-1.0	Long	Frequent	---	None
		May	0.0	2.0	0.0-1.0	Long	Frequent	---	None
		June	0.0	2.0	0.0-1.0	Long	Frequent	---	None
		July	0.0	2.0	0.0-1.0	Long	Frequent	---	None
		August	0.0	2.0	0.0-1.0	Long	Frequent	---	None
6956:									
Silver Creek	D								
		January	3.0-5.0	>6.0	---	---	None	---	None
		February	3.0-5.0	>6.0	---	---	None	---	None
		March	0.0-3.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		April	0.0-1.5	>6.0	0.0-0.5	Long	Occasional	---	None
		May	0.0-1.5	>6.0	0.0-0.5	Long	Occasional	---	None
		June	0.0-1.5	>6.0	0.0-0.5	Long	Occasional	---	None
		July	0.0-3.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		August	3.0-5.0	>6.0	---	---	None	---	None
		September	3.0-5.0	>6.0	---	---	None	---	None
		October	3.0-5.0	>6.0	---	---	None	---	None
		November	3.0-5.0	>6.0	---	---	None	---	None
		December	3.0-5.0	>6.0	---	---	None	---	None
6957:									
Silver Creek, alkali	D								
		March	2.0-4.0	>6.0	---	---	None	Brief	Rare
		April	2.0-4.0	>6.0	---	---	None	Brief	Rare
		May	2.0-4.0	>6.0	---	---	None	Brief	Rare
		June	2.0-4.0	>6.0	---	---	None	Brief	Rare
		July	2.0-4.0	>6.0	---	---	None	Brief	Rare
Silver Creek, saline, alkali	D								
		January	3.0-6.0	>6.0	---	---	None	---	None
		February	3.0-6.0	>6.0	---	---	None	---	None
		March	3.0-6.0	>6.0	---	---	None	---	None
		April	3.0-6.0	>6.0	---	---	None	---	None
		May	3.0-6.0	>6.0	---	---	None	---	None
		June	3.0-6.0	>6.0	---	---	None	---	None
		November	3.0-6.0	>6.0	---	---	None	---	None
		December	3.0-6.0	>6.0	---	---	None	---	None
6978:									
Simeon	A	---	---	---	---	---	---	---	---
7225:									
Thurman	A	---	---	---	---	---	---	---	---
7249:									
Thurman	A	---	---	---	---	---	---	---	---
7250:									
Thurman	A	---	---	---	---	---	---	---	---
7429:									
Uly	B	---	---	---	---	---	---	---	---
7436:									
Uly	B	---	---	---	---	---	---	---	---
Coly	B	---	---	---	---	---	---	---	---

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Soil saturation: Upper limit	Soil saturation: Lower limit	Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
7438:									
Uly	B	---	---	---	---	---	---	---	---
7439:									
Uly	B	---	---	---	---	---	---	---	---
Coly	B	---	---	---	---	---	---	---	---
7440:									
Uly	B	---	---	---	---	---	---	---	---
Hobbs	B								
		April	---	---	---	---	None	Brief	Occasional
		May	---	---	---	---	None	Brief	Occasional
		June	---	---	---	---	None	Brief	Occasional
		July	---	---	---	---	None	Brief	Occasional
		August	---	---	---	---	None	Brief	Occasional
		September	---	---	---	---	None	Brief	Occasional
7652:									
Valentine	A	---	---	---	---	---	---	---	---
7656:									
Valentine	A	---	---	---	---	---	---	---	---
7659:									
Valentine, rolling	A	---	---	---	---	---	---	---	---
Valentine, hilly	A	---	---	---	---	---	---	---	---
7662:									
Valentine	A	---	---	---	---	---	---	---	---
7664:									
Valentine	A	---	---	---	---	---	---	---	---
7669:									
Valentine	A	---	---	---	---	---	---	---	---
7721:									
Valentine	A	---	---	---	---	---	---	---	---
Libory	A								
		March	0.9-3.0	3.1-5.2	---	---	None	---	None
		April	0.9-3.0	3.1-5.2	---	---	None	---	None
		May	0.9-3.0	3.1-5.2	---	---	None	---	None
		June	0.9-3.0	3.1-5.2	---	---	None	---	None
7748:									
Valentine	A	---	---	---	---	---	---	---	---
Tryon	A								
		January	0.0-1.0	>6.0	0.0-0.5	Long	Occasional	---	None
		February	0.0-1.0	>6.0	0.0-0.5	Long	Occasional	---	None
		March	0.0-1.0	>6.0	0.0-0.5	Long	Occasional	---	None
		April	0.0-1.0	>6.0	0.0-0.5	Long	Occasional	---	None
		May	0.0-1.0	>6.0	0.0-0.5	Long	Occasional	---	None
		June	0.0-1.0	>6.0	0.0-0.5	Long	Occasional	---	None
		November	0.0-1.0	>6.0	0.0-0.5	Long	Occasional	---	None
		December	0.0-1.0	>6.0	0.0-0.5	Long	Occasional	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Soil saturation: Upper limit	Soil saturation: Lower limit	Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
7924:									
Wann	B								
		January	---	---	---	---	None	Brief	Rare
		February	---	---	---	---	None	Brief	Rare
		March	1.5-3.5	>6.0	---	---	None	Brief	Rare
		April	1.5-3.5	>6.0	---	---	None	Brief	Rare
		May	1.5-3.5	>6.0	---	---	None	Brief	Rare
		June	1.5-3.5	>6.0	---	---	None	Brief	Rare
		July	1.5-3.5	>6.0	---	---	None	---	None
		November	---	---	---	---	None	Brief	Rare
		December	---	---	---	---	None	Brief	Rare
7927:									
Wann	B								
		January	---	---	---	---	None	Brief	Rare
		February	---	---	---	---	None	Brief	Rare
		March	1.5-3.5	>6.0	---	---	None	Brief	Rare
		April	1.5-3.5	>6.0	---	---	None	Brief	Rare
		May	1.5-3.5	>6.0	---	---	None	Brief	Rare
		June	1.5-3.5	>6.0	---	---	None	Brief	Rare
		July	1.5-3.5	>6.0	---	---	None	---	None
		November	---	---	---	---	None	Brief	Rare
		December	---	---	---	---	None	Brief	Rare
8020:									
Wood River	D	---	---	---	---	---	---	---	---
8022:									
Wood River	D								
		April	6.0	>6.0	---	---	None	---	None
		May	5.0-6.0	>6.0	---	---	None	---	None
		June	5.0-6.0	>6.0	---	---	None	---	None
		July	5.0-6.0	>6.0	---	---	None	---	None
		August	5.0-6.0	>6.0	---	---	None	---	None
		September	5.0-6.0	>6.0	---	---	None	---	None
		October	6.0	>6.0	---	---	None	---	None
Silver Creek	D								
		February	---	---	---	---	None	Brief	Rare
		March	2.0-5.0	>6.0	0.0-0.5	Long	Occasional	Brief	Rare
			0.0	0.6-1.0					
		April	0.0	0.6-1.0	0.0-0.5	Long	Occasional	Brief	Rare
			2.0-5.0	>6.0					
		May	0.0	0.6-1.0	0.0-0.5	Long	Occasional	Brief	Rare
			2.0-5.0	>6.0					
		June	0.0	0.6-1.0	0.0-0.5	Long	Occasional	Brief	Rare
			2.0-5.0	>6.0					
		July	0.5-2.0	0.5-2.0	---	---	None	Brief	Rare
8023:									
Wood River	D	---	---	---	---	---	---	---	---
Silver Creek	D								
		March	2.0-4.0	>6.0	---	---	None	Brief	Rare
		April	2.0-4.0	>6.0	---	---	None	Brief	Rare
		May	2.0-4.0	>6.0	---	---	None	Brief	Rare
		June	2.0-4.0	>6.0	---	---	None	Brief	Rare
		July	2.0-4.0	>6.0	---	---	None	Brief	Rare
9975:									
Sanitary landfill.									

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Soil saturation: Upper limit	Soil saturation: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
9985:									
Gravel pits	A	---	---	---	---	---	---	---	---
9995:									
Miscellaneous water, sewage lagoons.									
9998:									
Water.									

Table 21.--Classification of the Soils

(An asterisk in the first column indicates a taxadjunct to the series. See the note below.)

Soil name	Family or higher taxonomic class
Alda	Coarse-loamy, mixed, superactive, mesic Oxyaquic Haplustolls
Almeria	Sandy, mixed, mesic Typic Fluvaquents
Barney	Sandy, mixed, mesic Mollic Fluvaquents
Blendon	Coarse-loamy, mixed, superactive, mesic Pachic Haplustolls
Boelus	Sandy over loamy, mixed, mesic Udic Haplustolls
Bolent	Sandy, mixed, mesic Aquic Ustifluvents
Brocksburg	Fine-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Pachic Argiustolls
Butler	Fine, smectitic, mesic Abruptic Argiaquolls
Calamus	Sandy, mixed, mesic Oxyaquic Ustifluvents
Caruso	Fine-loamy, mixed, superactive, mesic Fluvaquentic Haplustolls
Coly	Fine-silty, mixed (calcareous), superactive, mesic Typic Ustorthents
Cozad	Coarse-silty, mixed, superactive, mesic Fluventic Haplustolls
*Cullison	Coarse-loamy, mixed, superactive, mesic Typic Calciaquolls
*Darr	Coarse-loamy, mixed, superactive, mesic Typic Haplustolls
Detroit	Fine, smectitic, mesic Pachic Argiustolls
Els	Mixed, mesic Aquic Ustipsamments
Fillmore	Fine, smectitic, mesic Vertic Argialbolls
Gates	Coarse-silty, mixed, superactive, nonacid, mesic Typic Ustorthents
*Gates	Coarse-silty, mixed, superactive, calcareous, mesic Typic Ustorthents
*Gayville	Fine-silty, mixed, mesic Typic Natrustolls
Gibbon	Fine-silty, mixed (calcareous), superactive, mesic Fluvaquentic Endoaquolls
Gothenburg	Mixed, mesic Typic Psammaquents
Hall	Fine-silty, mixed, superactive, mesic Pachic Argiustolls
Hastings	Fine, smectitic, mesic Udic Argiustolls
Hersh	Coarse-loamy, mixed, nonacid, mesic Typic Ustorthents
Hobbs	Fine-silty, mixed, superactive, nonacid, mesic Mollic Ustifluvents
Holder	Fine-silty, mixed, superactive, mesic Udic Argiustolls
Holdrege	Fine-silty, mixed, superactive, mesic Typic Argiustolls
Hord	Fine-silty, mixed, superactive, mesic Cumulic Haplustolls
Inavale	Sandy, mixed, mesic Typic Ustifluvents
Ipage	Mixed, mesic Oxyaquic Ustipsamments
Jansen	Fine-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Typic Argiustolls
Janude	Coarse-loamy, mixed, superactive, mesic Cumulic Haplustolls
Kenesaw	Coarse-silty, mixed, superactive, mesic Typic Haplustolls
Lamo	Fine-silty, mixed (calcareous), superactive, mesic Cumulic Endoaquolls
Lawet	Fine-loamy, mixed, superactive, mesic Typic Calciaquolls
Lex	Fine-loamy over sandy or sandy-skeletal, mixed (calcareous), superactive, mesic Fluvaquentic Endoaquolls
Libory	Sandy over loamy, mixed, mesic Oxyaquic Haplustolls
Lockton	Fine-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Cumulic Haplustolls
Loup	Sandy, mixed, mesic Typic Endoaquolls
Marlake	Mixed, mesic Mollic Psammaquents
Meadin	Sandy, mixed, mesic Entic Haplustolls
O'Neill	Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Typic Haplustolls
Ortello	Coarse-loamy, mixed, superactive, mesic Udic Haplustolls
Ovina	Coarse-loamy, mixed, superactive, mesic Fluvaquentic Haplustolls
Pivot	Sandy, mixed, mesic Entic Haplustolls
Platte	Sandy, mixed, mesic Aeric Fluvaquents
Rusco	Fine-silty, mixed, superactive, mesic Oxyaquic Argiustolls
Scott	Fine, smectitic, mesic Vertic Argialbolls
*Silver Creek	Fine, smectitic, mesic Aquic Natrustolls
Simeon	Mixed, mesic Typic Ustipsamments
Thurman	Sandy, mixed, mesic Udorthentic Haplustolls
*Tryon	Mixed, mesic Mollic Psammaquents
Uly	Fine-silty, mixed, superactive, mesic Typic Haplustolls
Valentine	Mixed, mesic Typic Ustipsamments
*Wann	Coarse-loamy, mixed, superactive, mesic Oxyaquic Haplustolls
Wood River	Fine, smectitic, mesic Typic Natrustolls

Note: Taxadjuncts have properties that cause them to be outside the classification of the named series. They appear throughout this survey. The differences in properties do not significantly affect the use and management of the soils.

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Nondiscrimination Statement

Nondiscrimination Policy

The U.S. Department of Agriculture (USDA) prohibits discrimination against its customers, employees, and applicants for employment on the basis of race, color, national origin, age, disability, sex, gender identity, religion, reprisal, and where applicable, political beliefs, marital status, familial or parental status, sexual orientation, whether all or part of an individual's income is derived from any public assistance program, or protected genetic information. The Department prohibits discrimination in employment or in any program or activity conducted or funded by the Department. (Not all prohibited bases apply to all programs and/or employment activities.)

To File an Employment Complaint

If you wish to file an employment complaint, you must contact your agency's EEO Counselor (http://directives.sc.egov.usda.gov/33081.wba) within 45 days of the date of the alleged discriminatory act, event, or personnel action. Additional information can be found online at http://www.ascr.usda.gov/complaint_filing_file.html.

To File a Program Complaint

If you wish to file a Civil Rights program complaint of discrimination, complete the USDA Program Discrimination Complaint Form, found online at http://www.ascr.usda.gov/complaint_filing_cust.html or at any USDA office, or call (866) 632-9992 to request the form. You may also write a letter containing all of the information requested in the form. Send your completed complaint form or letter by mail to U.S. Department of Agriculture; Director, Office of Adjudication; 1400 Independence Avenue, S.W.; Washington, D.C. 20250-9419; by fax to (202) 690-7442; or by email to program.intake@usda.gov.

Persons with Disabilities

If you are deaf, are hard of hearing, or have speech disabilities and you wish to file either an EEO or program complaint, please contact USDA through the Federal Relay Service at (800) 877-8339 or (800) 845-6136 (in Spanish).

If you have other disabilities and wish to file a program complaint, please see the contact information above. If you require alternative means of communication for program information (e.g., Braille, large print, audiotape, etc.), please contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

Supplemental Nutrition Assistance Program

For additional information dealing with Supplemental Nutrition Assistance Program (SNAP) issues, call either the USDA SNAP Hotline Number at (800) 221-5689, which is also in Spanish, or the State Information/Hotline Numbers (http://directives.sc.egov.usda.gov/33085.wba).

All Other Inquiries

For information not pertaining to civil rights, please refer to the listing of the USDA Agencies and Offices (http://directives.sc.egov.usda.gov/33086.wba).