United States Department of Agriculture

Natural Resources Conservation Service
In cooperation with

United States Department of Interior, Bureau of Land Management and Bureau of Indian Affairs; and the New Mexico Agricultural Experiment Station

Soil Survey of McKinley County Area, New Mexico, McKinley County and Parts of Cibola and San Juan Counties

How To Use This Soil Survey

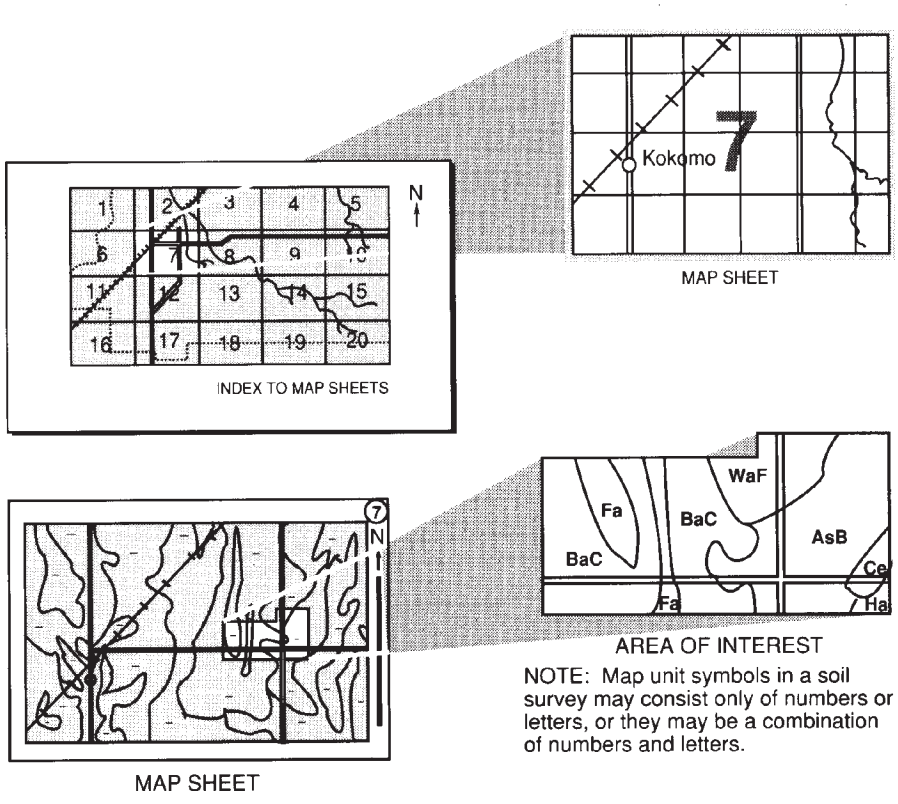
Detailed Soil Maps

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.

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 August 2000. Soil names and descriptions were approved in June 2001. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 2001. This survey was made cooperatively by the Natural Resources Conservation Service and the United States Department of Interior, Bureau of Land Management and Bureau of Indian Affairs; and the New Mexico Agricultural Experiment Station.. The survey is part of the technical assistance furnished to the Cuba, Lava, McKinley, and San Juan Soil and Water Conservation Districts.

Cover: Red Cliffs of Entrada Sandstone along I-40 north of Continental Divide, New Mexico.

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.

Contents

Issued 2005

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

Rosendo Trevino III
State Conservationist
Natural Resources Conservation Service

Soil Survey of McKinley County Area, New Mexico, McKinley County and Parts of Cibola and San Juan Counties

By Scott A. Zschetzsche, Natural Resources Conservation Service

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Vegetative work by Robert Abercrombie, F. George Chavez, Richard Montoya, Brenda Simpson, and David Trujillo.

United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with United States Department of Interior, Bureau of Land Management and Bureau of Indian Affairs; and the New Mexico Agricultural Experiment Station

General Nature of the Area

The McKinley County soil survey covers the west-central part of New Mexico and borders Arizona on its extreme western edge (fig. 1). This progressive survey has a land area totaling 2,862,700 acres or 4,473 square miles; 2,717,363 acres are in McKinley County, 86,700 acres are in Cibola County; and 58,637 acres are in San Juan County. A nonprogressive soil survey known as the Zuni Mountain Area was released in July of 1967 (USDA, 1967). This earlier survey covers a part of the present survey. The present survey, however, updates this earlier survey and provides additional information and larger maps that show the soils in greater detail.

In 2000, McKinley County had a population of about 66,923; and Gallup, the largest city in the survey area, had a population of 20,120. This area encompasses the Zuni Pueblo in the southwest part of the county and a small portion of the Navajo Reservation in the northwest.

Elevations in the survey area range from a low of about 6,100 feet in an area near the Zuni and Puerco Rivers to above 9,000 feet on Mesa Chivato north of Mt. Taylor. Most areas are at elevations of 6,300 to 8,000 feet.

Figure 1.—Location of McKinley County Area in New Mexico.

The survey area is mainly rangeland within the Colorado Plateau physiographic province. It is characterized by rough, broken terrain, including steep mountainous areas, plateaus, cuestas, and mesas intermingled with steep canyon walls, escarpments, and valleys. The survey area has been subject to volcanic activity expressed as volcanic plugs, such as Cerro Alesna, and basalt-capped plateaus and mesas, such as Mesa Chivato.

The survey area has very little surface water. The major bodies of water are Bluewater and Ramah Lakes. Major watersheds are the Rio Puerco in the western part of the area, the Chaco river in the northern part, the Rio San Jose in the eastern part, and the Zuni river in the southwestern part of the survey.

Precipitation in the survey area varies with elevation. It ranges from about 8 inches at Chaco Canyon to over 18 inches in the Zuni Mountains.

Coal mining, commercial woodcutting, tourism, and ranching are the most important enterprises in the survey area. Uranium mining was a major commercial activity until the 1980's and could see a resurgence if demand and prices strengthen. The major coal mining area is centered northwest of Gallup, and a smaller operation exists north of San Mateo. The ranches are mainly cow-calf enterprises, but some are yearling operations. The survey area has few acres of irrigated cropland and non-irrigated cropland. Parts of the Zuni Pueblo and Ramah valley are used for irrigated pasture. The main crops are alfalfa hay and winter wheat. The main factors that restrict land use for crops are short growing season, low rainfall, and inadequate irrigation.

History of McKinley County, New Mexico

Steve Lacy, geomorphologist, Natural Resources Conservation Service, prepared this section.

Paleo-Indian people were living in northwestern New Mexico over 12,000 years ago. These people lived the nomadic lifestyle of a hunting and gathering culture. Most of the evidence left behind by these people consists of Clovis, Folsom, and Eden stone points.

The Archaic period began around 6,000 to 8,000 years ago. Early in this period, the people retained the nomadic lifestyle. The climate of New Mexico began to change to warmer and dryer weather patterns. Sometime between 3,500 and 4,000 years ago, the introduction of cultivated crops from northern Mexico changed the way people lived. At first, the crops were only seasonally tended, and food gathering continued as before. By the period of 3,000 to 2,500 years ago, people were constructing food storage pits and pit houses. They first built villages in forested settings, but eventually moved into lowland areas near river systems. Around 1,300 years ago, the populations had grown to the point that people began to occupy the open basin lands.

The Basin Classic period began with the movement into the open lowlands. The people now known as the Anasazi or Ancestral Puebloans first occupied the lower, drier elevations of northwestern and west-central New Mexico. They created small above-ground roomblocks formed from rock and adobe. Corn became the major food source, and the population grew rapidly. Pottery production was a major advance for this culture. The Chaco Culture rose with a period of massive pueblo building during a span from 900 to 1,050 years ago. Their influence covered an area of nearly 40,000 square miles. The Chaco phenomenon and the Basin Classic period ended around 850 years ago, possibly because of drought and resource depletion.

The Upland period began around 850 years ago and is distinguished by the reintroduction of pithouse villages. By 800 years ago, people had returned to building above-ground masonry pueblos. These villages were located at elevations up to 7,000 feet. Besides growing corn, people had also reverted to some hunting and gathering techniques for food acquisition. The Upland period lasted until around 700 years ago.

The Riverine period covers a time span from 700 years ago to the arrival of the Spanish in 1540. Pueblo village size increased along with a reliance on corn, beans, melons and squash. Villages were located along perennial water courses.

The Spanish presence in the McKinley County area began in 1539 when Fray Marcos de Niza and his slave, Esteban, reached the villages of Zuni. Francisco Vasquez de Coronado passed though Zuni in 1540 on his search for the fabled Cities of Cibola. By 1598, Juan de Onate led colonists into New Mexico. He spent time searching for economic mineral deposits in the Zuni Mountain region but was unsuccessful. Catholic priests established missions at the Zuni villages in 1630 and 1639.

The Navajo Indians moved into northwestern New Mexico sometime during the 16th century. The first recorded encounter was reported by Antonio de Espejo near Mount Taylor. The Navajo both traded with and raided the villages of the Pueblo people who occupied the area. Eventually, the Navajo spread westward and settled around the Colorado and Little Colorado rivers. Conflicts arose with Spanish settlers as they moved westward from the Rio Grande Valley.

Spanish land grants were given in 1767 and 1768 to

Ignacio Chavez, Felipe Tafoya, and Bartolome Fernandez. These grants were located on what would become the eastern part of McKinley County. The Cebolleta grant, issued in 1807, also occupied part of the eastern area of the future McKinley County.

American control of New Mexico began in 1846 with the commencement of the Mexican-American War. Several years after the end of the war, the United States Cavalry established Fort Wingate in 1849 to protect citizens from Indian attacks. In 1863, under the leadership of Kit Carson, the Army began a military campaign to round up the Navajo tribe and move it to a reservation at Bosque Redondo. The Navajo were kept at Bosque Redondo until 1868, when they were allowed to return to their homeland. A reservation was established, and Fort Wingate was relocated to be near the eastern boundary.

In 1880, the St. Louis and San Francisco Railroad Company began construction from Isleta to Arizona, after acquiring the land rights granted by the U.S. Congress to the bankrupt Atlantic and Pacific Railroad. Eventually, this line was acquired by the Santa Fe Railroad. The town of Gallup was established in 1881 and named after David Gallup, who was the paymaster for the railroad. The town was incorporated in 1891.

Logging in the Zuni Mountains began in the 1890's. Extensive cutting occurred from the 1900's through the 1940's. Ponderosa pine was the tree of choice for use as railroad ties. Ranching and farming have been ongoing operations since the late 1700's, but the number of people with farms and ranches increased greatly with the arrival of the American presence.

Other utilized economic resources of the area include coal, which has been mined for the railroads since the 1890's, and commercially mined since 1908. Uranium exploration boomed after 1950 when Paddy Martinez, a Navajo sheep rancher, found a strange-looking yellow rock. The development of the Ambrosia Lake district led to large-scale mining that continued until the crash of the uranium ore market in the 1980's.

McKinley County was established in 1899, when it was organized from portions of Bernalillo and Valencia counties. It was named for the 25th President of the United States, William McKinley.

Climate

Prepared by the Natural Resources Conservation Service's National Water and Climate Center, Portland, Oregon.

Climate tables are created from climate stations McGaffey 5 SE, Thoreau 5 ENE, and Zuni, New Mexico. In the narrative below, precipitation information was also obtained from the mean annual precipitation map of New Mexico, which was developed for the NRCS using Oregon State University's PRISM climate mapping system.

Thunderstorm days, relative humidity, percent sunshine, and wind information are estimated from First Order station, Albuquerque, New Mexico.

Table 1 gives data on temperature and precipitation for the survey area as recorded at McGaffey (8,000 feet in elevation), Thoreau (7,100 feet), and Zuni (6,310 feet) 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 the length of the growing season. In the narratives below the extremes are for the full period of record for each station, which is 1949 to 2000 at McGaffey and Zuni, and from 1953 to 1992 at Thoreau.

In winter, the average temperatures at McGaffey, Thoreau and Zuni are 25.5, 32.9, and 33.7 degrees F, and the average daily minimum temperatures are 10.0, 20.4 and 18.2 degrees, respectively. The lowest temperatures on record in these reporting periods are -32 at McGaffey on January 7, 1971; -20 at Thoreau on January 6, 1971; and -26 at Zuni, also on January 6, 1971.

In summer, the average temperatures are 60.7, 68.5 and 68.6 degrees at McGaffey, Thoreau and Zuni. The average daily maximum temperatures in summer are 78.0, 83.9, and 86.6 degrees, respectively. The highest temperatures ever recorded are 99 degrees at McGaffey on July 28, 1960; 99 at Thoreau on July 3, 1989; and 105 at Zuni on July 19, 1989.

Growing degree days are shown in table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

Average annual total precipitation across the McKinley county soil survey area is somewhat variable, depending on elevation. In general, the northern and eastern portions of the survey area receive between 8 and 10 inches annually, and the western sections receive between 10 and 14 inches. The mountainous area along the Cibola county border receives between 18 and 22 inches per year. At McGaffey the average annual precipitation is about 20.33 inches, at Thoreau it is 11.05 inches, and at Zuni it is 12.88 inches. Of these amounts, about 40 percent usually falls in the May through September frost-free period. The growing season for most crops falls within this period. The heaviest 1-day rainfalls during these periods of record were 2.60 inches at McGaffey on

August 12, 1995; 2.00 inches at Thoreau on September 16, 1984; and 2.46 inches at Zuni on September 29, 1971. Thunderstorms occur on about 41 days each year, and most occur between May and September, with more than 22 in July and August.

The average seasonal snowfall also is quite dependent on elevation and location in this survey region. At McGaffey the average annual snowfall is 49.6 inches, whereas it is 32.4 inches at Thoreau and just 9.0 inches at Zuni. The greatest snow depths at any one time during the periods of record were 30 inches at McGaffey, recorded on January 31, 1997; 17 inches at Thoreau, recorded on January 16, 1987; and 14 inches at Zuni, recorded on March 11, 1969. On average, about 40 days per year have at least 1 inch of snow on the ground at McGaffey. At Thoreau, the average is about 28 days per year; and at Zuni, the average is just 3 days per year. The heaviest 1-day snowfalls on record were 22.0 inches at McGaffey, recorded on March 27, 1984; 15.0 inches at Thoreau, recorded on January 16,1987; and 13.0 inches at Zuni, recorded on February 11, 1963.

The average relative humidity in mid-afternoon is about 40 percent in the winter and between 15 and 20 percent in the summer. Humidity is higher at night, and the average at dawn is about 70 percent in the winter and 45 percent in the summer. The sun shines about 75 to 80 percent of the time in summer and around 65 to 70 percent in winter. The prevailing wind is from the northwest in the winter and early spring, and from the south and southeast the remainder of the year. Average wind speed is highest, around 12 miles per hour, in April.

Geology

Steve Lacy, geomorphologist, prepared this section.

The geology and geomorphology of the McKinley County area include portions of the Datil and Navajo sections of the Colorado Plateau Province. The county lies in the southeastern portion of the Colorado Plateau Province and represents an area of transition between the Plateau, Rocky Mountain, and Basin and Range Provinces. Structurally, the area includes portions of the Chaco Slope dipping into the San Juan Basin, parts of the Chuska and Zuni mountain uplifts, the Zuni Basin, and the volcanic centers found on or near Mesa Chivato, located northeast of Grants. The Continental Divide enters the county from the northeast corner and exits through the Zuni Mountains south of Thoreau. Water on the west side of the divide drains though the Colorado River basin, and water on the east side drains through the Rio Grande. The county is quite scenic and has a varied topography and relief. The geology is mainly sedimentary rocks, but some igneous rocks can be found in the mountains and volcanic exposures.

The Datil section

Two geomorphic regions are differentiated within the Datil section of the McKinley County area. The Datil section is characterized as an area of diverse features, with those of volcanic origin being most prominent.

The Mount Taylor Volcanic Center is centered in Cibola County. It consists of an 11,301-foot volcano that towers over a lava-capped mesa. The highest elevations in the McKinley County area occur in the southeast corner on Mesa Chivato. The volcanic necks rise to elevations exceeding 8,900 feet, with one feature rising over 9,000 feet. Mesa Chivato forms the pedestal under Mount Taylor. It is the remnant of the earliest pediment developed around the volcanic cone. The pediment surfaces were covered soon after formation by flows of basalt and andesite, and are generally younger than the flows from the cone itself. The mesa tops are studded with the eroded remains of the small cones from which the later lava flows poured. Some of the cones are in good condition, whereas others are severely eroded. The Mesa Chivato cones are clustered in groups along three rough arcs concave to the west, and are composed of basalt and scoria. Examples of soils formed from these volcanic materials are the Amcec and Montillo series.

The Zuni Uplift is a 75- to 85-mile-long structural rise. The Zunis consist of rolling uplands with local deepening around the margins of the central core of crystalline rocks. The northern end of the Zuni Mountains has been placed within the Datil Section by Fenneman (1931). He described the Zunis as belonging to the class of “domed mountains,” similar to the Black Hills, formed by upward pressure from below. These mountains are rather distinct physiographically and do not readily fit within the characteristics of either the Datil or Navajo sections. Within the McKinley County area, Precambrian-aged core rocks are exposed near Page and McGaffey, and younger sedimentary rocks occur along the mountain flanks. These sedimentary rocks consist of sandstone, shale, and limestone units that range in age from Permian to Cretaceous (280 to 65 million years before present). The older rocks are found nearer the Precambrian core, and the younger rocks occur farther to the north and west. The Mirabal series is an example of a soil formed from the older rocks of the Precambrian core. The younger Owlrock and Zaster soils formed from limestone, and the Cinnadale soils formed in sandstone.

Lying along the northern edge of the Zuni Mountains

is a group of Mesozoic-aged sedimentary rocks that have been uplifted on the flanks of the rising Zunis. The surficial geology consists of Triassic, Jurassic, and Cretaceous-aged sandstone and shale formations. Some of the Triassic and Jurassic sandstone units form impressive cliffs and bluffs, especially in the area north of Interstate 40, from east of Gallup to around Prewitt. These bluffs are high enough in elevation so that Ponderosa pine trees can be found growing on north-facing exposures, giving rise to scenic vistas. The colors of the sandstones range from buff to red to white, and were deposited in near-shore and beach environments. Cross-bedding can be observed in some of the rock outcrops. Two soils associated with this area are the Flugle and Simitarq series.

The Navajo section

Three geomorphic areas are differentiated within the Navajo section. These areas cover the western and northern sections of the county. It is mainly a country of sandstone with lesser amounts of shale. The rock units are generally not horizontal and have been subject to a great deal of erosion in an arid climate. Typical features include the mesa, cuesta, retreating escarpment, and dry washes.

The Zuni Basin lies to the west of the Zuni Mountains. The basin is somewhat flat-bottomed, and it lies between the Zuni and Defiance Uplifts. The basin is bounded by the Nutria and Defiance monoclines to the east and west, respectively. These monoclines are expressed as the hogback ridges seen near Gallup. The bedrock exposed in the basin mostly consists of Cretaceous-aged sandstones and shales, and seams of economically viable coal occur. Near the Arizona line and south of the Puerco River, there are some exposures of Jurassic and Triassic-aged sedimentary rocks. There are also extensive areas covered by Tertiary-aged alluvial and lacustrine sediments. Quaternary aged alluvium and bolson deposits are found from Zuni to the Arizona state line. Soils formed from the young Quaternary material are the Breadsprings and Nahodish series on the stream terraces of the Puerco River. Parkelei is an example of a soil that formed from the older geology on the higher landforms in the area.

The Defiance Uplift is a north-trending asymmetrical fold found mostly in eastern Arizona. It runs for nearly 100 miles and is generally 30 miles wide. The Chuska Mountains are formed on this uplift and are found in the northwest corner of the county. The Chuskas extend for 60 miles and consist of Tertiary-aged Chuska Sandstone with some exposures of Tertiary volcanics. Prominent cliffs bound most of the upland surfaces and are broken by canyons, which intrude into the uplands. One interesting feature found in the Chuskas is the many lakes and swamps that partly fill rock basins. Most of these are not connected into the modern drainage. The lakes range in shape from nearly oval to highly irregular, and in size from less than 100 feet to more than a quarter of a mile. Water depth does not exceed 25 feet. The highest point in the range is Chuska Peak at 8,795 feet.

The Chaco Slope forms the most extensive structural feature in the McKinley County area. It is a somewhat arbitrarily defined structural subdivision of the larger San Juan Basin. It is formed by a strip of low, northerly, regional dip 110 miles in length and 30 to 40 miles in width, extending across the southern part of the San Juan Basin. The length is roughly parallel to the general strike of the slope, and the width is in the direction of the regional dip. The over-all regional dip is about 1 degree, and the structural relief is nearly 2,500 feet. Along the south side near the Zuni uplift, the dip is several degrees or more. In the northern portion, the beds are nearly horizontal. Near the contact where the Chaco Slope merges with the Central Basin, the dip again increases. The Cretaceous sediments consist of sandstones and shales and were deposited in coastal environments. The sandstones form more resistant features, whereas the shale weathers into rolling plains. Some common soils of the Chaco Slope are the Benally, Doak, and the Farb series.

Economic Resources

Economic resources found in the McKinley County area include natural gas and petroleum production, mineral and coal mining, grazing, farming and tourism. Groundwater is scarce, and this is a growing concern for the communities found within this region.

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other

living organisms and has not been changed by other biological activity.

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

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

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

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

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

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

Map Unit Composition

Soils in this survey area were mapped at two levels of detail. The detail of mapping in an area was selected based on the area's anticipated long term use.

At the most detailed level, map units are narrowly defined. Soil boundaries are plotted and verified at closely spaced intervals. Agricultural areas in the Rio Nutria Valley, Pescado, and the Zuni River Valley were mapped at this level of detail.

Most of the survey area is used as rangeland and mapping was performed at a less detailed level. The map units in this area are broadly defined. Soil boundaries were plotted and verified at widely spaced intervals. In general, these map units are less homogeneous and contain more included areas than the more detailed map units. These units are designed primarily for planning the management of large tracts of land as rangeland. The provide general information for more development, but the information should be used with caution. Onsite investigation is essential to provide the detail needed for planning intensive land uses.

Detailed Soil Map Units

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

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

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

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

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

Soils that have profiles that are almost alike make up a *soil series*. 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, Suwanee clay, 0 to 1 percent slopes, is a phase of the Suwanee series.

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

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Evpark-Arabrab complex, 2 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the

survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Escawetter-Riverwash-Razito Associaton, 0 to 5 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. Breadsprings and Nahodish Soils, 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. Badland is an example.

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

8—Water

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 thoughout the year. Delineations mapped as water in the survey area are the Rio Nutria lakes and the northwest part of Bluewater lake.

10—Tsosie-Councelor-Blancot fine sandy loams, 1 to 3 percent slopes

Map Unit Setting

MLRA: 37
Elevation: 6,400 to 6,800 feet (1,951 to 2,073 meters)
Mean annual precipitation: 9 to 10 inches (229 to 254 millimeters)
Average annual air temperature: 46 to 49 degrees F (8 to 9 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

Tsosie and similar soils: 35 percent
Councelor and similar soils: 30 percent
Blancot and similar soils: 20 percent
Minor components: 15 percent

Component Descriptions

Tsosie soils

Geomorphic position: Stream terraces on valley floors and alluvial fans on valley sides
Parent material: Fan and stream alluvium derived from sandstone and shale
Slope: 1 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 9.9 inches (high)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: Rare
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Low
Calcium carbonate maximum: About 5 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 20 SAR (moderately sodic)
Ecological site: Salt Flats
Present native vegetation: alkali sacaton, galleta, big sagebrush, fourwing saltbush, blue grama, greasewood, mound saltbush, western wheatgrass
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 9N

Typical Profile:
A—0 to 2 inches; fine sandy loam
C1—2 to 7 inches; fine sandy loam
C2—7 to 13 inches; silt loam
C3—13 to 35 inches; sandy clay loam
C4—35 to 47 inches; clay loam
Ck—47 to 65 inches; loam

Councelor soils

Geomorphic position: Alluvial fans on valley sides and stream terraces on valley floors
Parent material: Eolian material and fan and stream alluvium derived from sandstone
Slope: 1 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 8.5 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: Rare
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very low
Calcium carbonate maximum: About 10 percent

Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 5 SAR (slightly sodic)
Ecological site: Sandy
Present native vegetation: Indian ricegrass, blue grama, big sagebrush, bottlebrush squirreltail, sand dropseed, spike dropseed, western wheatgrass, winterfat, Mormon tea
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4

Typical Profile:
A—0 to 2 inches; fine sandy loam
C1—2 to 20 inches; fine sandy loam
C2—20 to 47 inches; sandy loam
C3—47 to 65 inches; silt loam

Blancot soils

Geomorphic position: Fan remnants on valley sides
Parent material: Fan alluvium derived from sandstone and shale
Slope: 1 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 4.7 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 1 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 5 SAR (moderately sodic)
Ecological site: Loamy
Present native vegetation: big sagebrush, blue grama, Indian ricegrass, galleta, alkali sacaton, bottlebrush squirreltail, fourwing saltbush, rabbitbrush, sand dropseed, western wheatgrass, winterfat, Mormon tea
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 9N

Typical Profile:
A—0 to 3 inches; fine sandy loam
Bt1—3 to 11 inches; clay loam
Bt2—11 to 16 inches; sandy clay loam
C1—16 to 37 inches; sandy loam
C2—37 to 65 inches; loamy sand

Minor Components

Starlake and similar soils
Composition: About 7 percent
Slope: 1 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Sodic Slopes

Riverwash
Composition: About 5 percent
Riverwash consists of unstable sand and silt that is reworked by water and wind so frequently that it supports little or no vegetation. Riverwash occurs in stream channels and is subject to frequent, brief periods of flooding from high intensity storms, July to November.

Badland
Composition: About 3 percent
Badland is a miscellaneous area consisting of exposed areas of raw shale that is essentially denuded of vegetation. Seams and layers of coal and porcelenite are also included. These areas are highly dissected.

11—Doakum-Betonnie complex, 1 to 8 percent slopes

Map Unit Setting

MLRA: 37
Elevation: 6,400 to 6,900 feet (1,951 to 2,103 meters)
Mean annual precipitation: 9 to 10 inches (229 to 254 millimeters)
Average annual air temperature: 46 to 49 degrees F (8 to 9 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

Doakum and similar soils: 60 percent
Betonnie and similar soils: 25 percent
Minor components: 15 percent

Component Descriptions

Doakum soils

Geomorphic position: Sideslopes on ridges and hills, fan remnants on valley sides, dipslopes on cuestas, and summits on mesas
Parent material: Eolian material and fan and slope alluvium derived from sandstone and shale
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.57 in/hr (moderate)

Available water capacity: About 8.3 inches (moderate)
Shrink-swell potential: About 1.0 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very low
Calcium carbonate maximum: About 5 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 5 SAR (slightly sodic)
Ecological site: Loamy
Present native vegetation: blue grama, Indian ricegrass, big sagebrush, bottlebrush squirreltail, fourwing saltbush, galleta, sand dropseed, western wheatgrass, alkali sacaton, rabbitbrush, Mormon tea, winterfat
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 9N

Typical Profile:
A—0 to 2 inches; fine sandy loam
Bt1—2 to 8 inches; sandy clay loam
Bt2—8 to 13 inches; sandy clay loam
Bt3—13 to 21 inches; sandy clay loam
Bk1—21 to 42 inches; sandy clay loam
Bk2—42 to 65 inches; sandy loam

Betonnie soils

Geomorphic position: Sideslopes on ridges and hills, fan remnants on valley sides, dipslopes on cuestas, and summits on mesas
Parent material: Eolian material and fan and slope alluvium derived from sandstone
Slope: 1 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat excessively drained
Slowest permeability: About 1.98 in/hr (moderately rapid)
Available water capacity: About 5.9 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very low
Calcium carbonate maximum: About 5 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 10 SAR (slightly sodic)
Ecological site: Sandy
Present native vegetation: Indian ricegrass, blue grama, sand dropseed, alkali sacaton, big sagebrush, bottlebrush squirreltail, fourwing saltbush, needleandthread, spike dropseed, galleta, winterfat, Mormon tea
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 6G

Typical Profile:
A—0 to 3 inches; sandy loam
Bt1—3 to 11 inches; sandy loam
Bt2—11 to 21 inches; sandy loam
Bk1—21 to 29 inches; loamy sand
Bk2—29 to 45 inches; loamy sand
Bk3—45 to 52 inches; loamy sand
Btkb—52 to 60 inches; sandy loam

Minor Components

Badlands
Composition: About 5 percent
Badland is a miscellaneous area consisting of exposed areas of raw shale that is essentially denuded of vegetation. Seams and layers of coal and porcelenite are also included. These areas are highly dissected.

Starlake and similar soils
Composition: About 5 percent
Slope: 1 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Sodic Slopes

Calladito and similar soils
Composition: About 5 percent
Slope: 1 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Excessively drained
Ecological site: Deep Sands

12—Calladito-Elias association, 1 to 6 percent slopes

Map Unit Setting

MLRA: 37
Elevation: 6,300 to 6,800 feet (1,920 to 2,073 meters)
Mean annual precipitation: 9 to 10 inches (229 to 254 millimeters)
Average annual air temperature: 46 to 49 degrees F (8 to 9 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

Calladito and similar soils: 55 percent

Elias and similar soils: 30 percent
Minor components: 15 percent

Component Descriptions

Calladito soils

Geomorphic position: Dunes on valley sides
Parent material: Eolian material derived from sandstone
Slope: 1 to 6 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Excessively drained
Slowest permeability: About 6.00 in/hr (rapid)
Available water capacity: About 5.2 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Negligible
Calcium carbonate maximum: About 1 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Deep Sand
Present native vegetation: Indian ricegrass, galleta, sand dropseed, blue grama, sand sagebrush, broom snakeweed, Mormon tea, needleandthread
Land capability (nonirrigated): 7e
Conservation Tree/Shrub Group: 7

Typical Profile:
A—0 to 2 inches; loamy fine sand
C1—2 to 26 inches; loamy fine sand
C2—26 to 65 inches; loamy fine sand

Elias soils

Geomorphic position: Fan remnants on valley sides
Parent material: Fan alluvium derived from sandstone and shale
Slope: 1 to 6 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 5.9 inches (low)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 15 percent
Gypsum maximum: About 1 percent
Salinity maximum: About 8 mmhos/cm (slightly saline)
Sodicity maximum: About 30 SAR (strongly sodic)
Ecological site: Sodic Slopes
Present native vegetation: alkali sacaton, galleta, blue grama, fourwing saltbush, greasewood, mound saltbush, western wheatgrass, big sagebrush, shadscale saltbush, threeawn
Land capability (nonirrigated): 7s
Conservation Tree/Shrub Group: 10

Typical Profile:
E—0 to 1 inches; fine sandy loam
Btn1—1 to 3 inches; sandy clay loam
Btn2—3 to 10 inches; sandy clay loam
Bkn1—10 to 18 inches; loamy fine sand
Bkn2—18 to 33 inches; sandy clay loam
Bkn3—33 to 65 inches; clay loam

Minor Components

Starlake and similar soils
Composition: About 5 percent
Slope: 1 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Sodic Slopes

Blancot and similar soils
Composition: About 4 percent
Slope: 1 to 6 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Loamy

Badlands
Composition: About 3 percent
Badland is a miscellaneous area consisting of exposed areas of raw shale that is essentially denuded of vegetation. Seams and layers of coal and porcelenite are also included. These areas are highly dissected.

Tsosie and similar soils
Composition: About 3 percent
Slope: 1 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Salt Flats

13—Councelor-Calladito complex, 1 to 8 percent slopes

Map Unit Setting

MLRA: 37
Elevation: 6,300 to 6,800 feet (1,920 to 2,073 meters)

Mean annual precipitation: 9 to 10 inches (229 to 254 millimeters)
Average annual air temperature: 46 to 49 degrees F (8 to 9 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

Councelor and similar soils: 60 percent
Calladito and similar soils: 30 percent
Minor components: 10 percent

Component Descriptions

Councelor soils

Geomorphic position: Stream terraces on valley floors and alluvial fans on valley sides
Parent material: Eolian material and fan and stream alluvium derived from sandstone and shale
Slope: 1 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 8.1 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: Rare
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 5 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 5 SAR (slightly sodic)
Ecological site: Loamy
Present native vegetation: Indian ricegrass, blue grama, big sagebrush, bottlebrush squirreltail, sand dropseed, spike dropseed, western wheatgrass, winterfat, Mormon tea
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4

Typical Profile:
A—0 to 2 inches; fine sandy loam
C1—2 to 15 inches; fine sandy loam
C2—15 to 19 inches; silty clay loam
C3—19 to 42 inches; loamy fine sand
C4—42 to 55 inches; loam
Btb—55 to 65 inches; loam

Calladito soils

Geomorphic position: Dunes on valley floors and on valley sides
Parent material: Eolian material derived from sandstone
Slope: 1 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Excessively drained
Slowest permeability: About 6.00 in/hr (rapid)
Available water capacity: About 4.9 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Negligible
Calcium carbonate maximum: About 1 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Deep Sand
Present native vegetation: Indian ricegrass, galleta, sand dropseed, blue grama, sand sagebrush, broom snakeweed, Mormon tea, needleandthread
Land capability (nonirrigated): 7e
Conservation Tree/Shrub Group: 7

Typical Profile:
A—0 to 3 inches; loamy fine sand
C1—3 to 37 inches; loamy sand
C2—37 to 65 inches; loamy fine sand

Minor Components

Tsosie and similar soils
Composition: About 5 percent
Slope: 1 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Salt Flats

Doakum and similar soils
Composition: About 3 percent
Slope: 1 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Loamy

Rock outcrop
Composition: About 1 percent
Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments.

Starlake and similar soils
Composition: About 1 percent
Slope: 1 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Sodic Slopes

14—Councelor-Eslendo-Calladito complex, 2 to 25 percent slopes

Map Unit Setting

MLRA: 37
Elevation: 6,300 to 6,800 feet (1,920 to 2,073 meters)
Mean annual precipitation: 9 to 10 inches (229 to 254 millimeters)
Average annual air temperature: 46 to 49 degrees F (8 to 9 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

Councelor and similar soils: 30 percent
Eslendo and similar soils: 30 percent
Calladito and similar soils: 25 percent
Minor components: 15 percent

Component Descriptions

Councelor soils

Geomorphic position: Alluvial fans on valley sides
Parent material: Eolian material and fan alluvium derived from sandstone
Slope: 2 to 10 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat excessively drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 8.3 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: Rare
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Low
Calcium carbonate maximum: About 5 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 5 SAR (slightly sodic)
Ecological site: Loamy
Present native vegetation: Indian ricegrass, blue grama, big sagebrush, bottlebrush squirreltail, sand dropseed, spike dropseed, western wheatgrass, winterfat, Mormon tea
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 3

Typical Profile:
A—0 to 4 inches; fine sandy loam
C1—4 to 16 inches; fine sandy loam
C2—16 to 65 inches; fine sandy loam

Eslendo soils

Geomorphic position: Sideslopes on ridges and hills
Parent material: Slope alluvium over residuum derived from sandstone and shale
Slope: 2 to 25 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 2.1 inches (very low)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: About 10 percent
Gypsum maximum: About 1 percent
Salinity maximum: About 4 mmhos/cm (very slightly saline)
Sodicity maximum: About 5 SAR (slightly sodic)
Ecological site: Shallow
Present native vegetation: Indian ricegrass, New Mexico feathergrass, galleta, alkali sacaton, big sagebrush, blue grama, bottlebrush squirreltail, Mormon tea, fourwing saltbush, Bigelow's sagebrush, rabbitbrush, sand dropseed
Land capability (nonirrigated): 7e
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 2 inches; loam
C—2 to 11 inches; clay loam
Cr—11 inches; shale

Calladito soils

Geomorphic position: Dunes on ridges and hills
Parent material: Eolian material derived from sandstone
Slope: 2 to 10 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Excessively drained
Slowest permeability: About 6.00 in/hr (rapid)
Available water capacity: About 4.8 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Negligible
Calcium carbonate maximum: About 1 percent
Gypsum maximum: None

Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Deep Sand
Present native vegetation: Indian ricegrass, galleta, sand dropseed, blue grama, sand sagebrush, broom snakeweed, Mormon tea, needleandthread
Land capability (nonirrigated): 7e
Conservation Tree/Shrub Group: 7

Typical Profile:
A—0 to 3 inches; loamy fine sand
C1—3 to 41 inches; loamy sand
C2—41 to 65 inches; loamy fine sand

Minor Components

Rock outcrop
Composition: About 5 percent
Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments.

Tsosie and similar soils
Composition: About 4 percent
Slope: 1 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Salt Flats

Badlands
Composition: About 3 percent
Badland is a miscellaneous area consisting of exposed areas of raw shale that is essentially denuded of vegetation. Seams and layers of coal and porcelenite are also included. These areas are highly dissected.

Blancot and similar soils
Composition: About 3 percent
Slope: 1 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Loamy

16—Starlake clay, 1 to 3 percent slopes

Map Unit Setting

MLRA: 37
Elevation: 6,300 to 6,700 feet (1,920 to 2,042 meters)
Mean annual precipitation: 9 to 10 inches (229 to 254 millimeters)
Average annual air temperature: 46 to 49 degrees F (8 to 9 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

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

Component Descriptions

Starlake soils

Geomorphic position: Stream terraces on valley floors and fan remnants on valley sides
Parent material: Fan and stream alluvium derived from sandstone and shale
Slope: 1 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.03 in/hr (very slow)
Available water capacity: About 5.4 inches (low)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: Rare
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: High
Calcium carbonate maximum: About 15 percent
Gypsum maximum: About 1 percent
Salinity maximum: About 8 mmhos/cm (slightly saline)
Sodicity maximum: About 30 SAR (strongly sodic)
Ecological site: Sodic Slopes
Present native vegetation: alkali sacaton, galleta, blue grama, fourwing saltbush, greasewood, mound saltbush, western wheatgrass, shadscale saltbush, threeawn
Land capability (nonirrigated): 7s
Conservation Tree/Shrub Group: 10

Typical Profile:
Btn1—0 to 3 inches; clay
Btn2—3 to 12 inches; clay
Btknz1—12 to 20 inches; clay loam
Btknz2—20 to 54 inches; clay
Btknz3—54 to 65 inches; clay loam

Minor Components

Blancot and similar soils
Composition: About 5 percent
Slope: 1 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Loamy

Tsosie and similar soils
Composition: About 4 percent
Slope: 1 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained

Ecological site: Salt Flats

Rock outcrop
Composition: About 3 percent
Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments.

Badlands
Composition: About 3 percent
Badland is a miscellaneous area consisting of exposed areas of raw shale that is essentially denuded of vegetation. Seams and layers of coal and porcelenite are also included. These areas are highly dissected.

22—Querencia-Lavodnas association, 2 to 15 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,600 to 7,200 feet (2,012 to 2,195 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Average annual air temperature: 49 to 54 degrees F (9 to 12 degrees C)
Frost-free period: 120 to 140 days

Map Unit Composition

Querencia and similar soils: 50 percent
Lavodnas and similar soils: 35 percent
Minor components: 15 percent

Component Descriptions

Querencia soils

Geomorphic position: Drainageways and alluvial fans on valley sides
Parent material: Fan and slope alluvium derived from sandstone and shale
Slope: 2 to 10 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 11.7 inches (high)
Shrink-swell potential: About 4.0 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: High
Calcium carbonate maximum: About 15 percent
Gypsum maximum: About 1 percent
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 1 SAR (slightly sodic)
Ecological site: Loamy
Present native vegetation: blue grama, western wheatgrass, galleta, alkali sacaton, bottlebrush squirreltail, fourwing saltbush, winterfat, oneseed juniper, broom snakeweed, rabbitbrush, spineless horsebrush
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 8

Typical Profile:
A—0 to 2 inches; fine sandy loam
Bw1—2 to 9 inches; clay loam
Bw2—9 to 15 inches; clay loam
Bk—15 to 65 inches; clay loam

Lavodnas soils

Geomorphic position: Sideslopes and summits on ridges and hills
Parent material: Slope alluvium derived from shale
Slope: 2 to 15 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 1.8 inches (very low)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: About 5 percent
Gypsum maximum: About 25 percent
Salinity maximum: About 4 mmhos/cm (very slightly saline)
Sodicity maximum: About 1 SAR (slightly sodic)
Ecological site: Shallow
Present native vegetation: winterfat, Indian ricegrass, alkali sacaton, galleta, needleandthread, blue grama, fourwing saltbush, western wheatgrass, Bigelow's sagebrush, Mormon tea, oneseed juniper, twoneedle pinyon
Land capability (nonirrigated): 7s
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 3 inches; loam
By1—3 to 9 inches; clay loam
By2—9 to 13 inches; clay
Cr—13 inches; shale

Minor Components

Zia and similar soils

Composition: About 5 percent
Slope: 2 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat excessively drained
Ecological site: Sandy

San Mateo and similar soils
Composition: About 5 percent
Slope: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Bottomland

Hagerwest and similar soils
Composition: About 5 percent
Slope: 1 to 5 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Loamy

30—Orlie-Tinian complex, 1 to 6 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,800 to 7,500 feet (2,073 to 2,286 meters)
Mean annual precipitation: 13 to 14 inches (330 to 356 millimeters)
Average annual air temperature: 46 to 49 degrees F (8 to 9 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

Orlie and similar soils: 45 percent
Tinian and similar soils: 40 percent
Minor components: 15 percent

Component Descriptions

Orlie soils

Geomorphic position: Dipslopes on cuestas and summits on mesas
Parent material: Eolian material and slope alluvium derived from sandstone and shale
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 10.6 inches (high)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Loamy
Present native vegetation: western wheatgrass, Indian ricegrass, big sagebrush, blue grama, bottlebrush squirreltail, galleta, winterfat, broom snakeweed, muttongrass, rabbitbrush, spineless horsebrush, oneseed juniper, twoneedle pinyon
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4

Typical Profile:
A—0 to 2 inches; fine sandy loam
BA—2 to 5 inches; loam
Bt—5 to 15 inches; clay loam
Bk1—15 to 36 inches; sandy clay loam
Bk2—36 to 50 inches; silty clay loam
Bk3—50 to 62 inches; clay loam

Tinian soils

Geomorphic position: Dipslopes on cuestas and summits on mesas
Parent material: Slope alluvium derived from sandstone and shale
Slope: 1 to 6 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 4.8 inches (low)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 2 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 1 SAR (slightly sodic)
Ecological site: Loamy
Present native vegetation: western wheatgrass, Indian ricegrass, big sagebrush, blue grama, bottlebrush squirreltail, galleta, spineless horsebrush, winterfat, muttongrass, oneseed juniper, twoneedle pinyon
Land capability (nonirrigated): 6c

Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 3 inches; very fine sandy loam
Bt1—3 to 8 inches; clay loam
Bt2—8 to 19 inches; clay
Btk—19 to 24 inches; clay loam
2R—24 inches; sandstone bedrock

Minor Components

Atarque and similar soils
Composition: About 10 percent
Slope: 1 to 6 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Shallow Sandstone

Rock outcrop
Composition: About 5 percent
Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments.

40—Nuffel silt loam, 0 to 2 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,100 to 6,500 feet (1,859 to 1,981 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Average annual air temperature: 49 to 54 degrees F (9 to 12 degrees C)
Frost-free period: 120 to 140 days

Map Unit Composition

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

Component Descriptions

Nuffel soils

Geomorphic position: Flood plains on valley floors
Parent material: Alluvial material derived from siltstone and shale
Slope: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 11.8 inches (high)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: Frequent
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 5 SAR (slightly sodic)
Ecological site: Bottomland
Present native vegetation: alkali sacaton, western wheatgrass, fourwing saltbush, blue grama, galleta, spike muhly, mat muhly, sand dropseed, spineless horsebrush
Land capability (irrigated): 4w
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 8

Typical Profile:
A—0 to 2 inches; silt loam
C1—2 to 12 inches; silty clay loam
C2—12 to 18 inches; silt loam
C3—18 to 26 inches; silty clay loam
C4—26 to 65 inches; silt loam

Minor Components

Venadito and similar soils
Composition: About 10 percent
Slope: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Clayey Bottomland

42—Suwanee clay loam, 0 to 2 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,100 to 6,500 feet (1,859 to 1,981 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Average annual air temperature: 49 to 54 degrees F (9 to 12 degrees C)
Frost-free period: 120 to 140 days

Map Unit Composition

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

Component Descriptions

Suwanee soils

Geomorphic position: Flood plains on valley floors

Parent material: Alluvial material derived from sandstone, siltstone and shale
Slope: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 11.8 inches (high)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: Frequent
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 1 SAR (slightly sodic)
Ecological site: Bottomland
Present native vegetation: alkali sacaton, western wheatgrass, fourwing saltbush, blue grama, galleta, spike muhly, mat muhly, sand dropseed, spineless horsebrush
Land capability (irrigated): 4w
Land capability (nonirrigated): 6w
Conservation Tree/Shrub Group: 8

Typical Profile:
Ap—0 to 4 inches; clay loam
C1—4 to 34 inches; clay loam
C2—34 to 48 inches; silt loam
C3—48 to 65 inches; clay loam

Minor Components

Venadito and similar soils
Composition: About 5 percent
Slope: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Clayey Bottomland

Nuffel and similar soils
Composition: About 5 percent
Slope: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Bottomland

44—Suwanee clay, 0 to 1 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,100 to 6,500 feet (1,859 to 1,981 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Average annual air temperature: 49 to 54 degrees F (9 to 12 degrees C)
Frost-free period: 120 to 140 days

Map Unit Composition

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

Component Descriptions

Suwanee soils

Geomorphic position: Flood plains on valley floors
Parent material: Alluvial material derived from sandstone, siltstone, and shale
Slope: 0 to 1 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 9.1 inches (high)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: Frequent
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Clayey Bottomland
Present native vegetation: western wheatgrass, alkali sacaton, fourwing saltbush, galleta, blue grama, spike muhly, mat muhly, broom snakeweed, rabbitbrush
Land capability (irrigated): 4w
Land capability (nonirrigated): 6w
Conservation Tree/Shrub Group: 4CK

Typical Profile:
Ap—0 to 10 inches; clay
C1—10 to 17 inches; clay
C2—17 to 30 inches; clay loam
C3—30 to 47 inches; sandy clay loam
C4—47 to 65 inches; sandy loam

Minor Components

Venadito and similar soils
Composition: About 5 percent
Slope: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Clayey Bottomland

Nuffel and similar soils
Composition: About 5 percent
Slope: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Bottomland

45—Nutreeah clay loam, 0 to 2 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,600 to 7,000 feet (2,012 to 2,134 meters)
Mean annual precipitation: 13 to 16 inches (330 to 406 millimeters)
Average annual air temperature: 46 to 49 degrees F (8 to 9 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

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

Component Descriptions

Nutreeah soils

Geomorphic position: Stream terraces on valley floors
Parent material: Stream alluvium derived from sandstone and shale
Slope: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained
Slowest permeability: About 0.03 in/hr (very slow)
Available water capacity: About 9.7 inches (high)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: Rare
Seasonal water table minimum depth: About 42 inches
Runoff class: High
Calcium carbonate maximum: About 1 percent
Gypsum maximum: None
Salinity maximum: About 8 mmhos/cm (slightly saline)
Sodicity maximum: About 5 SAR (slightly sodic)
Ecological site: Clayey
Present native vegetation: western wheatgrass, needleandthread, winterfat, Indian ricegrass, big sagebrush, blue grama, bottlebrush squirreltail, galleta, pingue hymenoxys, rabbitbrush
Land capability (irrigated): 3s
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4CK

Typical Profile:
Ap—0 to 10 inches; clay loam
Bt—10 to 16 inches; clay loam
Btk—16 to 24 inches; clay
Btz—24 to 40 inches; clay
C—40 to 65 inches; clay

Minor Components

Sparham and similar soils
Composition: About 5 percent
Slope: 0 to 1 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Swale

Suwanee and similar soils
Composition: About 5 percent
Slope: 0 to 1 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Bottomland

47—Conchovar clay loam, 0 to 1 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,600 to 6,800 feet (2,012 to 2,073 meters)
Mean annual precipitation: 13 to 16 inches (330 to 406 millimeters)
Average annual air temperature: 46 to 49 degrees F (8 to 9 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

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

Component Descriptions

Conchovar soils

Geomorphic position: Drainageways and stream terraces on valley floors
Parent material: Fan and stream alluvium derived from sandstone and shale
Slope: 0 to 1 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat poorly drained
Slowest permeability: About 0.06 in/hr (very slow)
Available water capacity: About 7.9 inches (moderate)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: Rare
Seasonal water table minimum depth: About 45 inches
Runoff class: Medium
Calcium carbonate maximum: About 1 percent

Gypsum maximum: About 1 percent
Salinity maximum: About 8 mmhos/cm (slightly saline)
Sodicity maximum: About 5 SAR (slightly sodic)
Ecological site: Salty Bottomland
Present native vegetation: alkali sacaton, western wheatgrass, fourwing saltbush, big sagebrush, blue grama, bottlebrush squirreltail, greasewood, inland saltgrass, mat muhly, rabbitbrush
Land capability (irrigated): 3s
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 9W

Typical Profile:
Ap1—0 to 3 inches; clay loam
Ap2—3 to 9 inches; clay
Btz—9 to 26 inches; clay
BC—26 to 36 inches; clay
Cg—36 to 54 inches; clay
2C—54 to 65 inches; sandy clay

Minor Components

Concho and similar soils
Composition: About 10 percent
Slope: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Meadow

49—Concho clay loam, 0 to 2 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,600 to 6,800 feet (2,012 to 2,073 meters)
Mean annual precipitation: 13 to 16 inches (330 to 406 millimeters)
Average annual air temperature: 46 to 49 degrees F (8 to 9 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

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

Component Descriptions

Concho soils

Geomorphic position: Drainageways and stream terraces on valley floors
Parent material: Fan and stream alluvium derived from sandstone and shale
Slope: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 11.3 inches (high)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: Rare
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 3 percent
Gypsum maximum: None
Salinity maximum: About 4 mmhos/cm (very slightly saline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Clayey
Present native vegetation: western wheatgrass, needleandthread, winterfat, Indian ricegrass, big sagebrush, blue grama, bottlebrush squirreltail, galleta, pingue hymenoxys, rabbitbrush
Land capability (irrigated): 3c
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4C

Typical Profile:
Ap—0 to 4 inches; clay loam
Btss—4 to 28 inches; clay loam
Btkss—28 to 38 inches; clay
Btkz—38 to 65 inches; clay loam

Minor Components

Conchovar and similar soils
Composition: About 10 percent
Slope: 0 to 1 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Salty Bottomland

Parkelei and similar soils
Composition: About 5 percent
Slope: 1 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Loamy

51—Kwakina loamy fine sand, 0 to 2 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,000 to 7,300 feet (1,829 to 2,134 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Average annual air temperature: 49 to 53 degrees F (9 to 12 degrees C)

Frost-free period: 120 to 140 days

Map Unit Composition

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

Component Descriptions

Kwakina soils

Geomorphic position: Flood plains and stream terraces on valley floors and alluvial fans on valley sides
Parent material: Fan and stream alluvium derived from sandstone
Slope: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat excessively drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 5.6 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: Occasional
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Negligible
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 8 mmhos/cm (slightly saline)
Ecological site: Bottomland
Present native vegetation: alkali sacaton, western wheatgrass, fourwing saltbush, blue grama, galleta, spike muhly, mat muhly, sand dropseed, spineless horsebrush
Land capability (irrigated): 4e
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 5

Typical Profile:
A—0 to 7 inches; loamy fine sand
C1—7 to 11 inches; loamy fine sand
C2—11 to 23 inches; fine sand
C3—23 to 33 inches; fine sandy loam
Ck—33 to 65 inches; loamy sand

Minor Components

Dunes and similar soils
Composition: About 5 percent
Dunes are loose, windblown, generally sandy material, mostly bare of vegetation. Their characteristic shape is llow mounds, ridges, or hills. They are capable of movement from place to place.

Zia and similar soils
Composition: About 5 percent
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Sandy

52—Zuniven loamy fine sand, 0 to 2 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,200 to 6,500 feet (1,890 to 1,981 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Average annual air temperature: 49 to 54 degrees F (9 to 12 degrees C)
Frost-free period: 120 to 140 days

Map Unit Composition

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

Component Descriptions

Zuniven soils

Geomorphic position: Flood plains on valley floors (fig. 2)
Parent material: Stream alluvium derived from sandstone and shale
Slope: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 8.9 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: Frequent
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 3 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 5 SAR (slightly sodic)
Ecological site: Woody Riparian
Present native vegetation: cottonwood, rush, willow
Land capability (irrigated): 4w
Land capability (nonirrigated): 6w
Conservation Tree/Shrub Group: 4

Typical Profile:
A—0 to 12 inches; loamy fine sand
C1—12 to 42 inches; silt loam
C2—42 to 65 inches; loamy fine sand

Figure 2.—Typical landscape of Zuniven loamy fine sand, 0 to 2 percent slopes, in the foreground. The mesas and steep canyon walls in the background are common landscape features in the survey area.

Minor Components

Suwanee and similar soils
Composition: About 10 percent
Slope: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Bottomland

53—Hawaikuh clay loam, 0 to 2 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,000 to 6,900 feet (1,829 to 2,103 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Average annual air temperature: 49 to 54 degrees F (9 to 12 degrees C)
Frost-free period: 120 to 140 days

Map Unit Composition

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

Component Descriptions

Hawaikuh soils

Geomorphic position: Stream terraces on valley floors
Parent material: Stream alluvium derived from sandstone and shale
Slope: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 10.4 inches (high)
Shrink-swell potential: About 7.0 LEP (high)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 10 percent

Gypsum maximum: None
Salinity maximum: About 4 mmhos/cm (very slightly saline)
Sodicity maximum: About 2 SAR (slightly sodic)
Ecological site: Clayey
Present native vegetation: alkali sacaton, western wheatgrass, galleta, Indian ricegrass, blue grama, bottlebrush squirreltail, broom snakeweed, fourwing saltbush, threeawn, winterfat, mat muhly, spike muhly, oneseed juniper
Land capability (irrigated): 3e
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4C

Typical Profile:
Ap—0 to 10 inches; clay loam
Bt—10 to 24 inches; sandy clay
Btk—24 to 32 inches; clay loam
Bk1—32 to 42 inches; clay loam
Bk2—42 to 65 inches; clay

Minor Components

Aquima and similar soils
Composition: About 10 percent
Slope: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Loamy
Zia and similar soils
Composition: About 10 percent
Slope: 1 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat excessively drained
Ecological site: Sandy

54—Venadito clay, saline, 0 to 2 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,100 to 6,300 feet (1,859 to 1,920 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Average annual air temperature: 49 to 53 degrees F (9 to 11 degrees C)
Frost-free period: 120 to 140 days

Map Unit Composition

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

Component Descriptions

Venadito soils

Geomorphic position: Swales, depressions, stream terraces, and flood plains on valley floors
Parent material: Stream alluvium derived from shale
Slope: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained
Slowest permeability: About 0.06 in/hr (very slow)
Available water capacity: About 6.2 inches (moderate)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: Occasional
Seasonal water table minimum depth: About 48 inches
Runoff class: High
Calcium carbonate maximum: About 10 percent
Gypsum maximum: About 2 percent
Salinity maximum: About 8 mmhos/cm (moderately saline)
Sodicity maximum: About 10 SAR (slightly sodic)
Ecological site: Clayey Bottomland
Present native vegetation: alkali sacaton, western wheatgrass, fourwing saltbush, blue grama, greasewood, inland saltgrass, mat muhly
Land capability (irrigated): 4w
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4CC
Typical Profile:
Ap—0 to 5 inches; clay
BCssz1—5 to 29 inches; clay
BCssz2—29 to 40 inches; sandy clay
Bz—40 to 65 inches; clay

Minor Components

Suwanee and similar soils
Composition: About 10 percent
Slope: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Bottomland

55—Sparham clay loam, 0 to 2 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,600 to 6,800 feet (2,012 to 2,073 meters)
Mean annual precipitation: 14 to 16 inches (356 to 406 millimeters)
Average annual air temperature: 46 to 49 degrees F (8 to 9 degrees C)

Frost-free period: 100 to 135 days

Map Unit Composition

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

Component Descriptions

Sparham soils

Geomorphic position: Flood plains on valley floors
Parent material: Stream alluvium derived from sandstone and shale
Slope: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.03 in/hr (very slow)
Available water capacity: About 9.2 inches (high)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: Frequent
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Low
Calcium carbonate maximum: About 5 percent
Gypsum maximum: About 1 percent
Salinity maximum: About 4 mmhos/cm (very slightly saline)
Sodicity maximum: About 5 SAR (slightly sodic)
Ecological site: Swale
Present native vegetation: western wheatgrass, blue grama, big sagebrush, muttongrass, rabbitbrush, broom snakeweed, sedge
Land capability (irrigated): 4w
Land capability (nonirrigated): 6w
Conservation Tree/Shrub Group: 4CC

Typical Profile:
A—0 to 2 inches; clay loam
C1—2 to 14 inches; clay
C2—14 to 18 inches; sandy clay loam
C3—18 to 27 inches; clay
C4—27 to 31 inches; sandy clay loam
Cz—31 to 65 inches; clay

Minor Components

Nutreeah and similar soils
Composition: About 5 percent
Slope: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Meadow

60—Redpen sandy clay loam, 0 to 2 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,000 to 6,500 feet (1,829 to 1,981 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Average annual air temperature: 49 to 54 degrees F (9 to 12 degrees C)
Frost-free period: 120 to 140 days

Map Unit Composition

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

Component Descriptions

Redpen soils

Geomorphic position: Fan remnants on valley sides
Parent material: Eolian and fan alluvium derived from sandstone and shale
Slope: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 9.2 inches (high)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Low
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 1 SAR (slightly sodic)
Ecological site: Loamy
Present native vegetation: blue grama, western wheatgrass, Indian ricegrass, galleta, bottlebrush squirreltail, fourwing saltbush, winterfat, sand dropseed, oneseed juniper, rabbitbrush
Land capability (irrigated): 3e
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 8

Typical Profile:
Ap—0 to 4 inches; sandy clay loam
Btk—4 to 24 inches; sandy clay loam
Bk1—24 to 52 inches; sandy clay loam

Bk2—52 to 65 inches; clay loam

Minor Components

Tintero and similar soils
Composition: About 5 percent
Slope: 1 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat excessively drained
Ecological site: Sandy

Hawaikuh and similar soils
Composition: About 3 percent
Slope: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Clayey

Monpark and similar soils
Composition: About 2 percent
Slope: 0 to 2 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Clayey

100—Norkiki-Kimnoli complex, 1 to 8 percent slopes

Map Unit Setting

MLRA: 37
Elevation: 6,000 to 6,800 feet (1,829 to 2,073 meters)
Mean annual precipitation: 7 to 9 inches (178 to 229 millimeters)
Average annual air temperature: 50 to 55 degrees F (10 to 13 degrees C)
Frost-free period: 130 to 150 days

Map Unit Composition

Norkiki and similar soils: 45 percent
Kimnoli and similar soils: 40 percent
Minor components: 15 percent

Component Descriptions

Norkiki soils

Geomorphic position: Dipslopes on cuestas and summits on mesas, ridges, and hills
Parent material: Eolian material and slope alluvium derived from sandstone and shale
Slope: 1 to 8 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 3.8 inches (low)
Shrink-swell potential: About 4.0 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: None
Ecological site: Sandy Loam Upland 5-8 P.z.
Present native vegetation: Indian ricegrass, galleta, Bigelow's sagebrush, New Mexico feathergrass, alkali sacaton, blue grama, Mormon tea, rabbitbrush, black grama, fourwing saltbush, shadscale saltbush, narrowleaf yucca, sand dropseed
Land capability (nonirrigated): 7c
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 3 inches; loamy sand
Bt1—3 to 13 inches; sandy clay loam
Bt2—13 to 19 inches; sandy loam
Btk—19 to 28 inches; sandy clay loam
2R—28 inches; sandstone bedrock

Kimnoli soils

Geomorphic position: Dipslopes on cuestas and summits on mesas, ridges, and hills
Parent material: Eolian material and slope alluvium derived from sandstone and shale
Slope: 1 to 6 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 1.9 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: High
Calcium carbonate maximum: About 15 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 5 SAR (slightly sodic)
Ecological site: Sandstone Upland 5-8" P.z.
Present native vegetation: Indian ricegrass, Bigelow's sagebrush, galleta, New Mexico feathergrass, black grama, blue grama, fourwing saltbush,

Mormon tea, sand dropseed, shadscale saltbush, sideoats grama, narrowleaf yucca
Land capability (nonirrigated): 7s
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 2 inches; fine sandy loam
Bt—2 to 7 inches; sandy loam
Btk—7 to 14 inches; sandy clay loam
2R—14 inches; sandstone bedrock

Minor Components

Rock outcrop
Composition: About 5 percent
Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments.

Fajada and similar soils
Composition: About 5 percent
Slope: 1 to 5 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Loamy Upland (sodic)

Shiprock and similar soils
Composition: About 5 percent
Slope: 1 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat excessively drained
Ecological site: Sandy Upland

Small transverse dunes that formed perpendicular to the prevailing winds. These dunes are generally less than 15 feet wide and 200 feet long.

110—Benally-Fruitland association, 1 to 5 percent slopes

Map Unit Setting

MLRA: 37
Elevation: 5,800 to 6,800 feet (1,768 to 2,073 meters)
Mean annual precipitation: 7 to 9 inches (178 to 229 millimeters)
Average annual air temperature: 50 to 55 degrees F (10 to 13 degrees C)
Frost-free period: 130 to 150 days

Map Unit Composition

Benally and similar soils: 60 percent
Fruitland and similar soils: 25 percent
Minor components: 15 percent

Component Descriptions

Benally soils

Geomorphic position: Stream terraces on valley floors
Parent material: Stream alluvium derived from sandstone and shale
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 8.2 inches (moderate)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 10 percent
Gypsum maximum: About 1 percent
Salinity maximum: About 4 mmhos/cm (very slightly saline)
Sodicity maximum: About 30 SAR (strongly sodic)
Ecological site: Loamy Upland (sodic) 5-8" P.z.
Present native vegetation: alkali sacaton, mound saltbush, galleta, Indian ricegrass, blue grama, sand dropseed, shadscale saltbush
Land capability (nonirrigated): 7c
Conservation Tree/Shrub Group: 10

Typical Profile:
E—0 to 2 inches; sandy clay loam
Btn—2 to 9 inches; sandy clay loam
Btkn—9 to 25 inches; sandy clay loam
Bz—25 to 65 inches; sandy clay loam

Fruitland soils

Geomorphic position: Stream terraces on valley floors
Parent material: Eolian material and stream alluvium derived from sandstone
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat excessively drained
Slowest permeability: About 1.98 in/hr (moderately rapid)
Available water capacity: About 6.5 inches (moderate)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very low
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 10 SAR (slightly sodic)
Ecological site: Sandy Upland 5-8" P.z.

Present native vegetation: Indian ricegrass, blue grama, galleta, fourwing saltbush, winterfat, bottlebrush squirreltail, sand dropseed, broom snakeweed, rabbitbrush, sandhill muhly
Land capability (nonirrigated): 7c
Conservation Tree/Shrub Group: 5

Typical Profile:
A—0 to 3 inches; loamy fine sand
C1—3 to 10 inches; loamy fine sand
C2—10 to 19 inches; loamy fine sand
Ck1—19 to 29 inches; loamy fine sand
Ck2—29 to 65 inches; fine sandy loam

Minor Components

Huerfano and similar soils
Composition: About 5 percent
Slope: 1 to 5 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Loamy Upland (sodic)

Fajada and similar soils
Composition: About 5 percent
Slope: 1 to 5 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Loamy Upland (sodic)

Razito and similar soils
Composition: About 5 percent
Slope: 1 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Excessively drained
Ecological site: Sandy Upland

Small transverse dunes that formed perpendicular to the prevailing winds. These dunes are generally less than 15 feet wide and 200 feet long.

111—Yelives fine sandy loam, 1 to 3 percent slopes

Map Unit Setting

MLRA: 37
Elevation: 5,400 to 6,100 feet (1,646 to 1,859 meters)
Mean annual precipitation: 7 to 9 inches (178 to 229 millimeters)
Average annual air temperature: 50 to 55 degrees F (10 to 13 degrees C)
Frost-free period: 130 to 150 days

Map Unit Composition

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

Component Descriptions

Yelives soils

Geomorphic position: Alluvial fans on valley sides and flood plains on valley floors
Parent material: Fan and stream alluvium derived from sandstone and shale
Slope: 1 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat excessively drained
Slowest permeability: About 0.57 in/hr (moderate)
Available water capacity: About 7.6 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: Rare
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Low
Calcium carbonate maximum: About 5 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 2 SAR (slightly sodic)
Ecological site: Loamy Upland 5-8" P.z.
Present native vegetation: blue grama, western wheatgrass, Indian ricegrass, fourwing saltbush, sand dropseed, needleandthread, spike dropseed, winterfat, galleta, ring muhly, rabbitbrush, sand sagebrush, spineless horsebrush
Land capability (nonirrigated): 7c
Conservation Tree/Shrub Group: 4

Typical Profile:
A—0 to 2 inches; fine sandy loam
Ck1—2 to 12 inches; fine sandy loam
Ck2—12 to 30 inches; loam
C1—30 to 41 inches; loam
C2—41 to 56 inches; loamy fine sand
C3—56 to 80 inches; loamy fine sand

Minor Components

Hamburn and similar soils
Composition: About 6 percent
Slope: 1 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Saline Bottom

Notal and similar soils
Composition: About 5 percent
Slope: 1 to 3 percent
Depth to restrictive feature: None within 60 inches

Drainage class: Well drained
Ecological site: Clay Loam Terrace (sodic)

Benally and similar soils
Composition: About 4 percent
Slope: 1 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Loamy Upland (sodic)

115—Razito-Shiprock complex, 3 to 8 percent slopes

Map Unit Setting

MLRA: 37
Elevation: 5,800 to 6,800 feet (1,768 to 2,073 meters)
Mean annual precipitation: 7 to 9 inches (178 to 229 millimeters)
Average annual air temperature: 50 to 55 degrees F (10 to 13 degrees C)
Frost-free period: 130 to 150 days

Map Unit Composition

Razito and similar soils: 45 percent
Shiprock and similar soils: 40 percent
Minor components: 15 percent

Component Descriptions

Razito soils

Geomorphic position: Dunes on valley sides, mesas, and cuestas
Parent material: Eolian material derived from sandstone
Slope: 3 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Excessively drained
Slowest permeability: About 6.00 in/hr (rapid)
Available water capacity: About 4.1 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Negligible
Calcium carbonate maximum: About 5 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 5 SAR (slightly sodic)
Ecological site: Sandy Upland 5-8" P.z.
Present native vegetation: Indian ricegrass, Mormon tea, blue grama, galleta, sand dropseed, sandhill muhly, spike dropseed, broom snakeweed, fourwing saltbush, giant dropseed, needleandthread, rabbitbrush, winterfat
Land capability (nonirrigated): 7c
Conservation Tree/Shrub Group: 7

Typical Profile:
A—0 to 4 inches; loamy sand
C—4 to 34 inches; loamy sand
Ck—34 to 65 inches; loamy sand

Shiprock soils

Geomorphic position: Fan remnants on valley sides, summits on mesas, and dipslopes on cuestas
Parent material: Eolian material and fan and slope alluvium derived from sandstone
Slope: 3 to 6 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat excessively drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 8.3 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very low
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 5 SAR (moderately sodic)
Ecological site: Sandy Loam Upland 5-8 P.z.
Present native vegetation: Indian ricegrass, blue grama, galleta, fourwing saltbush, winterfat, bottlebrush squirreltail, sand dropseed, broom snakeweed, rabbitbrush, sandhill muhly
Land capability (nonirrigated): 7c
Conservation Tree/Shrub Group: 3

Typical Profile:
A—0 to 3 inches; fine sandy loam
Bt—3 to 15 inches; fine sandy loam
Bk1—15 to 37 inches; fine sandy loam
Bk2—37 to 60 inches; fine sandy loam

Minor Components

Doak and similar soils
Composition: About 7 percent
Slope: 3 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Loamy Upland

Benally and similar soils
Composition: About 5 percent

Slope: 3 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Loamy Upland (sodic)

Farb and similar soils
Composition: About 3 percent
Slope: 3 to 8 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Somewhat excessively drained
Ecological site: Sandstone Upland

116—Fajada-Huerfano-Benally complex, 1 to 5 percent slopes

Map Unit Setting

MLRA: 37
Elevation: 5,800 to 6,800 feet (1,768 to 2,073 meters)
Mean annual precipitation: 7 to 9 inches (178 to 229 millimeters)
Average annual air temperature: 50 to 55 degrees F (10 to 13 degrees C)
Frost-free period: 130 to 150 days

Map Unit Composition

Fajada and similar soils: 30 percent
Huerfano and similar soils: 30 percent
Benally and similar soils: 25 percent
Minor components: 15 percent

Component Descriptions

Fajada soils

Geomorphic position: Erosional terraces on dipslopes on cuestas and valley floors (fig. 3)
Parent material: Alluvial material derived from sandstone and shale
Slope: 1 to 5 percent
Surface fragments: About 20 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 2.3 inches (very low)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: High
Calcium carbonate maximum: About 15 percent
Gypsum maximum: About 2 percent
Salinity maximum: About 16 mmhos/cm (moderately saline)
Sodicity maximum: About 40 SAR (strongly sodic)
Ecological site: Loamy Upland (sodic) 5-8" P.z.
Present native vegetation: alkali sacaton, mound saltbush, saltbush, galleta, Indian ricegrass, blue grama, sand dropseed, shadscale saltbush
Land capability (nonirrigated): 7s
Conservation Tree/Shrub Group: 10

Typical Profile:
E—0 to 2 inches; gravelly sandy clay loam
Btkn1—2 to 6 inches; clay loam
Btkn2—6 to 12 inches; sandy clay loam
Btknz—12 to 16 inches; sandy clay loam
Bkyz—16 to 28 inches; clay loam
2Cr—28 inches; shale

Huerfano soils

Geomorphic position: Erosional terraces on dipslopes on cuestas and valley floors
Parent material: Alluvial material derived from sandstone and shale
Slope: 1 to 5 percent
Surface fragments: About 10 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 1.6 inches (very low)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: High
Calcium carbonate maximum: About 10 percent
Gypsum maximum: About 2 percent
Salinity maximum: About 16 mmhos/cm (moderately saline)
Sodicity maximum: About 40 SAR (strongly sodic)
Ecological site: Loamy Upland (sodic) 5-8" P.z.
Present native vegetation: alkali sacaton, mound saltbush, galleta, Indian ricegrass, blue grama, sand dropseed, shadscale saltbush
Land capability (nonirrigated): 7s
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 2 inches; loam
Btk—2 to 17 inches; clay loam
Cr—17 inches; shale

Benally soils

Geomorphic position: Stream terraces on valley floors
Parent material: Stream alluvium derived from sandstone and shale
Slope: 1 to 3 percent
Depth to restrictive feature: 40 to 60 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 3.6 inches (low)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 10 percent
Gypsum maximum: About 1 percent
Salinity maximum: About 8 mmhos/cm (slightly saline)
Sodicity maximum: About 30 SAR (strongly sodic)
Ecological site: Loamy Upland (sodic) 5-8" P.z.
Present native vegetation: alkali sacaton, mound saltbush, galleta, Indian ricegrass, blue grama, sand dropseed, shadscale saltbush
Land capability (nonirrigated): 7c
Conservation Tree/Shrub Group: 9N

Typical Profile:
A—0 to 2 inches; sandy clay loam
Btn—2 to 18 inches; sandy clay loam
Btkn—18 to 45 inches; sandy clay loam
Cr—45 inches; shale

Minor Components

Rock outcrop
Composition: About 5 percent
Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments.

Razito and similar soils
Composition: About 5 percent
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Excessively drained
Ecological site: Sandy Upland

Farb and similar soils
Composition: About 5 percent
Slope: 1 to 5 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Somewhat excessively drained
Ecological site: Sandstone Upland

Figure 3.—Typical landscape of Fajada-Huerfano-Benally complex, 1 to 5 percent slopes. These sodium-affected soils are common on this landscape.

Small transverse dunes that formed perpendicular to the prevailing winds. These dunes are generally less than 15 feet wide and 200 feet long.

118—Farb-Chipeta-Rock outcrop complex, 2 to 30 percent slopes

Map Unit Setting

MLRA: 37
Elevation: 5,800 to 6,800 feet (1,768 to 2,073 meters)
Mean annual precipitation: 7 to 9 inches (178 to 229 millimeters)
Average annual air temperature: 50 to 55 degrees F (10 to 13 degrees C)
Frost-free period: 130 to 150 days

Map Unit Composition

Farb and similar soils: 35 percent
Chipeta and similar soils: 30 percent
Rock outcrop: 25 percent
Minor components: 10 percent

Component Descriptions

Farb soils

Geomorphic position: Summits on hills and ridges and structural benches on escarpments
Parent material: Eolian material over residuum derived from sandstone
Slope: 2 to 15 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Somewhat excessively drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 1.1 inches (very low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 5 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 2 SAR (slightly sodic)
Ecological site: Sandstone Upland 5-8" P.z.
Present native vegetation: Indian ricegrass, Bigelow's sagebrush, galleta, New Mexico feathergrass, black grama, blue grama, Mormon tea, fourwing saltbush, sand dropseed, shadscale saltbush, sideoats grama, narrowleaf yucca
Land capability (nonirrigated): 7s
Conservation Tree/Shrub Group: 10
Typical Profile:
A—0 to 2 inches; sandy loam
C—2 to 9 inches; sandy loam
2R—9 inches; sandstone bedrock

Chipeta soils

Geomorphic position: Escarpments on cuestas and mesas
Parent material: Slope alluvium and colluvium over residuum derived from shale
Slope: 5 to 30 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 1.7 inches (very low)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: About 10 percent
Gypsum maximum: About 10 percent
Salinity maximum: About 16 mmhos/cm (moderately saline)
Sodicity maximum: About 13 SAR (moderately sodic)
Ecological site: Breaks 5-8" P.z.
Present native vegetation: mat saltbush, galleta, Native American pipeweed, bottlebrush squirreltail, bud sagebrush
Land capability (nonirrigated): 7e
Conservation Tree/Shrub Group: 10
Typical Profile:
A—0 to 2 inches; silty clay
Cyz—2 to 12 inches; clay
Cr—12 inches; shale

Rock outcrop

Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments.

Minor Components

Badlands
Composition: About 5 percent

Badland is a miscellaneous area consisting of exposed areas of raw shale that is essentially denuded of vegetation. Seams and layers of coal and porcelenite are also included. These areas are highly dissected.

Razito and similar soils
Composition: About 5 percent

Slope: 2 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Excessively drained
Ecological site: Sandy Upland

120—Doak-Shiprock complex, 1 to 8 percent slopes

Map Unit Setting

MLRA: 37
Elevation: 5,800 to 6,800 feet (1,768 to 2,073 meters)
Mean annual precipitation: 7 to 9 inches (178 to 229 millimeters)
Average annual air temperature: 50 to 55 degrees F (10 to 13 degrees C)
Frost-free period: 130 to 150 days

Map Unit Composition

Doak and similar soils: 55 percent
Shiprock and similar soils: 30 percent
Minor components: 15 percent

Component Descriptions

Doak soils

Geomorphic position: Fan remnants on valley sides, dipslopes on cuestas, and summits on mesas
Parent material: Eolian material and fan and slope alluvium derived from sandstone and shale
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 8.3 inches (moderate)
Shrink-swell potential: About 4.0 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Low
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 5 SAR (slightly sodic)
Ecological site: Loamy Upland 5-8" P.z.
Present native vegetation: galleta, Indian ricegrass, fourwing saltbush, alkali sacaton, black grama, blue grama, bottlebrush squirreltail, rabbitbrush, winterfat, sand dropseed
Land capability (nonirrigated): 7c
Conservation Tree/Shrub Group: 4

Typical Profile:
A—0 to 2 inches; fine sandy loam
Bt—2 to 8 inches; sandy clay loam
Btk—8 to 12 inches; sandy clay loam
Bk1—12 to 40 inches; sandy clay loam
Bk2—40 to 65 inches; sandy loam

Shiprock soils

Geomorphic position: Fan remnants on valley sides, dipslopes on cuestas, and summits on mesas
Parent material: Eolian material and fan and slope alluvium derived from sandstone
Slope: 1 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat excessively drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 8.1 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Low
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 5 SAR (moderately sodic)
Ecological site: Sandy Loam Upland 5-8 P.z.
Present native vegetation: Indian ricegrass, blue grama, galleta, fourwing saltbush, winterfat, bottlebrush squirreltail, sand dropseed, broom snakeweed, rabbitbrush, sandhill muhly
Land capability (nonirrigated): 7c
Conservation Tree/Shrub Group: 3

Typical Profile:
A—0 to 4 inches; loamy fine sand
Bt—4 to 18 inches; fine sandy loam
Bk1—18 to 37 inches; fine sandy loam
Bk2—37 to 65 inches; fine sandy loam

Minor Components

Razito and similar soils
Composition: About 5 percent
Slope: 1 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Excessively drained
Ecological site: Sandy Upland

Norkiki and similar soils
Composition: About 4 percent

Slope: 1 to 5 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Sandstone Upland

Huerfano and similar soils
Composition: About 3 percent
Slope: 1 to 5 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Loamy Upland (sodic)

Kimnoli and similar soils
Composition: About 3 percent
Slope: 1 to 5 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Sandstone Upland

121—Badland

Map Unit Composition

Badland: 95 percent
Minor components: 5 percent

Component Descriptions

Badland

Badland is a miscellaneous area consisting of exposed areas of raw shale that is essentially denuded of vegetation. Seams and layers of coal and porcelenite are also included in some areas. These areas are highly dissected.

Geomorphic position: Ridges, hills, and escarpments
Parent material: Unweathered to slightly weathered shale
Slope: 1 to 50 percent
Depth to restrictive feature: 0 to 2 inches to bedrock (paralithic)
Drainage class: Somewhat excessively drained
Available water capacity: About 0.2 inches (very low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: About 5 percent
Gypsum maximum: About 5 percent
Salinity maximum: About 4 mmhos/cm (very slightly saline)
Sodicity maximum: About 10 SAR (slightly sodic)
Land capability (nonirrigated): 8

Minor Components

Rock outcrop
Composition: About 5 percent
Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments.

122—Rock outcrop-Farb complex, 2 to 8 percent slopes

Map Unit Setting

MLRA: 37
Elevation: 6,600 to 6,800 feet (2,012 to 2,073 meters)
Mean annual precipitation: 7 to 9 inches (178 to 229 millimeters)
Average annual air temperature: 50 to 55 degrees F (10 to 13 degrees C)
Frost-free period: 130 to 150 days

Map Unit Composition

Rock outcrop: 45 percent
Farb and similar soils: 45 percent
Minor components: 10 percent

Component Descriptions

Rock outcrop

Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments.

Farb soils

Geomorphic position: Escarpments on cuestas and mesas
Parent material: Eolian material over residuum derived from sandstone
Slope: 2 to 8 percent
Surface fragments: About 55 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Somewhat excessively drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 0.5 inches (very low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet

Runoff class: Very high
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 5 SAR (slightly sodic)
Ecological site: Sandstone Upland 5-8" P.z.
Present native vegetation: Indian ricegrass, Bigelow's sagebrush, galleta, New Mexico feathergrass, black grama, blue grama, fourwing saltbush, Mormon tea, sand dropseed, shadscale saltbush, sideoats grama, narrowleaf yucca
Land capability (nonirrigated): 7s
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 2 inches; very gravelly sandy loam
C—2 to 5 inches; sandy loam
R—5 inches; sandstone bedrock

Minor Components

Chipeta and similar soils
Composition: About 10 percent
Slope: 2 to 8 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Breaks

125—Sanfeco fine sandy loam, 0 to 2 percent slopes

Map Unit Setting

MLRA: 37
Elevation: 6,400 to 6,800 feet (1,951 to 2,073 meters)
Mean annual precipitation: 7 to 9 inches (178 to 229 millimeters)
Average annual air temperature: 50 to 55 degrees F (10 to 13 degrees C)
Frost-free period: 130 to 150 days

Map Unit Composition

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

Component Descriptions

Sanfeco soils

Geomorphic position: Stream terraces on valley floors
Parent material: Stream alluvium derived from sandstone and shale
Slope: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 7.7 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: Rare
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: High
Calcium carbonate maximum: About 15 percent
Gypsum maximum: None
Salinity maximum: About 4 mmhos/cm (very slightly saline)
Sodicity maximum: About 5 SAR (slightly sodic)
Ecological site: Loamy Terrace 5-8" P.z.
Present native vegetation: Indian ricegrass, fourwing saltbush, galleta, alkali sacaton, blue grama, bottlebrush squirreltail, sand dropseed, broom snakeweed, globemallow
Land capability (nonirrigated): 7c
Conservation Tree/Shrub Group: 4K

Typical Profile:
A—0 to 2 inches; fine sandy loam
Bt—2 to 10 inches; clay loam
Btk1—10 to 27 inches; clay
Btk2—27 to 35 inches; sandy clay
Btk3—35 to 39 inches; sandy clay loam
Bk—39 to 65 inches; loamy sand

Minor Components

Notal and similar soils
Composition: About 10 percent
Slope: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Clay Loam Terrace

Hamburn and similar soils
Composition: About 10 percent
Slope: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Saline Bottom

Doak and similar soils
Composition: About 5 percent
Slope: 1 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Loamy Upland

Small transverse dunes that formed perpendicular to the prevailing winds. These dunes are generally less than 15 feet wide and 200 feet long.

130—Chipeta-Badland-Moncisco complex, 2 to 45 percent slopes

Map Unit Setting

MLRA: 37
Elevation: 5,800 to 6,300 feet (1,768 to 1,920 meters)
Mean annual precipitation: 7 to 9 inches (178 to 229 millimeters)
Average annual air temperature: 50 to 55 degrees F (10 to 13 degrees C)
Frost-free period: 130 to 150 days

Map Unit Composition

Chipeta and similar soils: 40 percent
Badland and similar soils: 30 percent
Moncisco and similar soils: 15 percent
Minor components: 15 percent

Component Descriptions

Chipeta soils

Geomorphic position: Sideslopes on ridges and hills
Parent material: Slope alluvium and colluvium over residuum derived from shale
Slope: 5 to 35 percent
Surface fragments: About 45 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 1.0 inches (very low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: About 5 percent
Gypsum maximum: About 5 percent
Salinity maximum: About 4 mmhos/cm (very slightly saline)
Sodicity maximum: About 2 SAR (slightly sodic)
Ecological site: Breaks 5-8" P.z.
Present native vegetation: mat saltbush, galleta, Native American pipeweed, bottlebrush squirreltail, bud sagebrush
Land capability (nonirrigated): 7s
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 3 inches; very gravelly silt loam
Cy—3 to 6 inches; clay
Cr1—6 to 14 inches; weathered bedrock
Cr2—14 inches; shale

Badland

Badland is a miscellaneous area consisting of exposed areas of raw shale that is essentially denuded of vegetation. Seams and layers of coal and porcelenite are also included. These areas are highly dissected.

Geomorphic position: Hills and ridges
Slope: 0 to 50 percent
Depth to restrictive feature: 1 to 2 inches to bedrock (paralithic)
Drainage class: Somewhat excessively drained
Available water capacity: About 0.2 inches (very low)
Shrink-swell potential: About 7.0 LEP (high)
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: About 5 percent
Gypsum maximum: About 5 percent
Salinity maximum: About 4 mmhos/cm (moderately saline)
Sodicity maximum: About 10 SAR (moderately sodic)
Land capability (nonirrigated): 8

Moncisco soils

Geomorphic position: Summits of ridges and hills
Parent material: Eolian material from sandstone over residuum derived from porcelanite
Slope: 2 to 45 percent
Surface fragments: About 70 percent
Depth to restrictive feature: 10 to 20 inches to abrupt textural change
Drainage class: Excessively drained
Slowest permeability: About 0.57 in/hr (moderate)
Available water capacity: About 0.5 inches (very low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: High
Calcium carbonate maximum: About 20 percent
Gypsum maximum: About 1 percent
Salinity maximum: About 8 mmhos/cm (slightly saline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Porcelanite Hills 5-8" P.z.
Present native vegetation: alkali sacaton, shadscale saltbush, galleta, Indian ricegrass, bottlebrush squirreltail, mound saltbush
Land capability (nonirrigated): 7s
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 3 inches; extremely channery sandy clay loam
Bk—3 to 13 inches; extremely channery sandy loam

Bcky—13 to 27 inches; fragmental material
C1—27 to 39 inches; fragmental material
C2—39 to 59 inches; fragmental material

Minor Components

Farb and similar soils
Composition: About 10 percent
Slope: 2 to 15 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Somewhat excessively drained
Ecological site: Sandstone Upland

Fajada and similar soils
Composition: About 4 percent
Slope: 2 to 5 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Loamy Upland (sodic)

150—Riverwash-Escawetter association, 0 to 1 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,100 to 6,900 feet (1,859 to 1,981 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Average annual air temperature: 46 to 49 degrees F (8 to 9 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

Riverwash: 65 percent
Escawetter and similar soils: 25 percent
Minor components: 10 percent

Component Descriptions

Riverwash

Riverwash consists of unstable sand and silt that is reworked by water and wind so frequently that it supports little or no vegetation. Riverwash occurs in stream channels and is subject to frequent, brief periods of flooding from high intensity storms, July to September.

Geomorphic position: Stream channels
Parent material: Alluvium from mixed sources
Slope: 0 to 1 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained
Slowest permeability: About 20.00 in/hr (very rapid)
Available water capacity: About 1.2 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: Frequent
Seasonal water table minimum depth: about 40 inches
Runoff class: Very high
Calcium carbonate maximum: None
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 2 SAR (slightly sodic)
Land capability (nonirrigated): 8

Typical Profile:
C1—0 to 10 inches; extremely stony sand
C2—10 to 80 inches; stratified coarse sand

Escawetter soils

Geomorphic position: Flood plains on valley floors
Parent material: Stream alluvium derived from sandstone and shale
Slope: 0 to 1 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained
Slowest permeability: About 5.95 in/hr (rapid)
Available water capacity: About 4.2 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: Frequent
Seasonal water table minimum depth: About 40 inches
Runoff class: Negligible
Calcium carbonate maximum: About 2 percent
Gypsum maximum: None
Salinity maximum: About 4 mmhos/cm (very slightly saline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Sandy Bottomland (subirrigated)
Present native vegetation: alkali sacaton, inland saltgrass, Indian ricegrass, saltcedar, sand dropseed, western wheatgrass, Russian olive, bottlebrush squirreltail
Land capability (nonirrigated): 7c
Conservation Tree/Shrub Group: 7

Typical Profile:
AC—0 to 2 inches; loamy fine sand
C1—2 to 8 inches; stratified loamy fine sand
C2—8 to 25 inches; fine sand
C3—25 to 32 inches; stratified silt loam
C4—32 to 48 inches; fine sand
C5—48 to 65 inches; fine sand

Minor Components

Escavada and similar soils
Composition: About 10 percent

Slope: 0 to 1 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Sandy Bottomland

160—Escawetter-Riverwash-Razito association, 0 to 5 percent slopes

Map Unit Setting

MLRA: 37
Elevation: 5,500 to 5,800 feet (1,676 to 1,768 meters)
Mean annual precipitation: 7 to 9 inches (178 to 229 millimeters)
Average annual air temperature: 50 to 55 degrees F (10 to 13 degrees C)
Frost-free period: 130 to 150 days

Map Unit Composition

Escawetter and similar soils: 40 percent
Riverwash: 35 percent
Razito and similar soils: 15 percent
Minor components: 10 percent

Component Descriptions

Escawetter soils

Geomorphic position: Flood plains on valley floors
Parent material: Stream alluvium derived from sandstone and shale
Slope: 0 to 1 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained
Slowest permeability: About 5.95 in/hr (rapid)
Available water capacity: About 3.6 inches (low)
Shrink-swell potential: About 1.0 LEP (low)
Flooding hazard: Frequent
Seasonal water table minimum depth: About 40 inches
Runoff class: Negligible
Calcium carbonate maximum: About 5 percent
Gypsum maximum: About 1 percent
Salinity maximum: About 4 mmhos/cm (very slightly saline)
Sodicity maximum: About 5 SAR (slightly sodic)
Ecological site: Sandy Bottom (subirrigated) 5-8" P.z.
Present native vegetation: alkali sacaton, inland saltgrass, Indian ricegrass, saltcedar, sand dropseed, western wheatgrass, Russian olive, bottlebrush squirreltail
Land capability (nonirrigated): 7c
Conservation Tree/Shrub Group: 7

Typical Profile:
C1—0 to 1 inches; fine sand
C2—1 to 7 inches; fine sand
C3—7 to 16 inches; stratified very fine sand and silt
C4—16 to 22 inches; stratified very fine sand and silt
C5—22 to 52 inches; fine sand
C6—52 to 70 inches; coarse sand

Riverwash

Riverwash consists of unstable sand and silt that is reworked by water and wind so frequently that it supports little or no vegetation. Riverwash occurs in stream channels and is subject to frequent, brief periods of flooding from high intensity storms, July to September.

Geomorphic position: Flood plains on valley floors
Parent material: Alluvium from mixed sources
Slope: 0 to 1 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained
Slowest permeability: About 5.95 in/hr (rapid)
Available water capacity: About 2.4 inches (very low)
Shrink-swell potential: About 0.0 LEP (low)
Flooding hazard: Very Frequent
Seasonal water table minimum depth: About 40 inches
Runoff class: Very high
Calcium carbonate maximum: About 5 percent
Gypsum maximum: About 1 percent
Salinity maximum: About 4 mmhos/cm (very slightly saline)
Sodicity maximum: About 5 SAR (slightly sodic)
Land capability (nonirrigated): 8

Razito soils

Geomorphic position: Dunes on valley floors
Parent material: Eolian material derived from sandstone
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Excessively drained
Slowest permeability: About 5.95 in/hr (rapid)
Available water capacity: About 3.5 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very low
Calcium carbonate maximum: About 1 percent
Gypsum maximum: About 1 percent
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 2 SAR (slightly sodic)
Ecological site: Sandy Upland 5-8" P.z.
Present native vegetation: Indian ricegrass, Mormon

tea, blue grama, galleta, sand dropseed, sandhill muhly, spike dropseed, broom snakeweed, fourwing saltbush, giant dropseed, needleandthread, rabbitbrush, winterfat
Land capability (nonirrigated): 7c
Conservation Tree/Shrub Group: 7

Typical Profile:
AC—0 to 1 inches; fine sand
C—1 to 70 inches; stratified fine sand

Minor Components

Escavada and similar soils
Composition: About 10 percent
Slope: 0 to 1 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Sandy Bottomland

205—Penistaja-Tintero complex, 1 to 10 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,200 to 7,100 feet (1,890 to 2,164 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Average annual air temperature: 49 to 53 degrees F (9 to 12 degrees C)
Frost-free period: 120 to 140 days

Map Unit Composition

Penistaja and similar soils: 45 percent
Tintero and similar soils: 40 percent
Minor components: 15 percent

Component Descriptions

Penistaja soils

Geomorphic position: Fan remnants on valley sides, dipslopes on cuestas, and summits on mesas
Parent material: Eolian material and fan and slope alluvium derived from sandstone and shale
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 8.4 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Low
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Loamy
Present native vegetation: blue grama, western wheatgrass, Indian ricegrass, galleta, bottlebrush squirreltail, fourwing saltbush, winterfat, sand dropseed, oneseed juniper, spineless horsebrush, rabbitbrush
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4

Typical Profile:
A—0 to 3 inches; sandy loam
Bt—3 to 19 inches; sandy clay loam
Bk—19 to 65 inches; sandy loam

Tintero soils

Geomorphic position: Fan remnants on valley sides, dipslopes on cuestas, and summits on mesas
Parent material: Eolian material and fan and slope alluvium derived from sandstone
Slope: 1 to 10 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat excessively drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 7.8 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Low
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 1 SAR (slightly sodic)
Ecological site: Sandy
Present native vegetation: blue grama, western wheatgrass, Indian ricegrass, fourwing saltbush, sand dropseed, spike dropseed, winterfat, galleta, ring muhly, oneseed juniper, rabbitbrush, sand sagebrush, spineless horsebrush
Land capability (nonirrigated): 7e
Conservation Tree/Shrub Group: 3

Typical Profile:
A—0 to 4 inches; fine sandy loam
Bt—4 to 16 inches; fine sandy loam
Bk1—16 to 48 inches; fine sandy loam
Bk2—48 to 65 inches; loamy fine sand

Minor Components

Hagerwest and similar soils
Composition: About 5 percent
Slope: 1 to 5 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Loamy

Bond and similar soils
Composition: About 5 percent
Slope: 1 to 5 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Shallow Sandstone

Sparank and similar soils
Composition: About 5 percent
Slope: 0 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Clayey Bottomland

208—Marianolake fine sandy loam, 1 to 8 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,200 to 7,300 feet (1,890 to 2,225 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Average annual air temperature: 49 to 54 degrees F (9 to 12 degrees C)
Frost-free period: 120 to 140 days

Map Unit Composition

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

Component Descriptions

Marianolake soils

Geomorphic position: Drainageways and fan remnants on valley sides
Parent material: Fan and slope alluvium derived from sandstone and shale
Slope: 1 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 8.0 inches (moderate)
Shrink-swell potential: About 2.0 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 5 percent
Gypsum maximum: About 1 percent
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 1 SAR (slightly sodic)
Ecological site: Loamy
Present native vegetation: blue grama, western wheatgrass, Indian ricegrass, galleta, bottlebrush squirreltail, fourwing saltbush, winterfat, sand dropseed, oneseed juniper, spineless horsebrush, rabbitbrush
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4

Typical Profile:
A—0 to 2 inches; fine sandy loam
Bt1—2 to 8 inches; loam
Bt2—8 to 14 inches; clay loam
Bt3—14 to 24 inches; fine sandy loam
Bk—24 to 39 inches; fine sandy loam
C—39 to 70 inches; loamy sand

Minor Components

Zia and similar soils
Composition: About 10 percent
Slope: 1 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat excessively drained
Ecological site: Sandy

Nahodish and similar soils
Composition: About 5 percent
Slope: 1 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Salty Bottomland

210—Marianolake-Skyvillage complex, 1 to 8 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,400 to 7,000 feet (1,951 to 2,134 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)

Average annual air temperature: 49 to 54 degrees F (9 to 12 degrees C)
Frost-free period: 120 to 140 days

Map Unit Composition

Marianolake and similar soils: 50 percent
Skyvillage and similar soils: 30 percent
Minor components: 20 percent

Component Descriptions

Marianolake soils

Geomorphic position: Fan remnants on valley sides, summits on mesas, and dipslopes on cuestas
Parent material: Fan and slope alluvium derived from sandstone and shale
Slope: 1 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 10.5 inches (high)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Loamy
Present native vegetation: blue grama, western wheatgrass, Indian ricegrass, galleta, bottlebrush squirreltail, fourwing saltbush, needleandthread, winterfat, sand dropseed, spineless horsebrush, oneseed juniper, rabbitbrush
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4

Typical Profile:
A—0 to 5 inches; fine sandy loam
Bt—5 to 11 inches; sandy clay loam
Btk—11 to 47 inches; clay loam
Bk—47 to 65 inches; fine sandy loam

Skyvillage soils

Geomorphic position: Structural benches and summits on mesas, hills and ridges and dipslopes on cuestas
Parent material: Eolian material and slope alluvium derived from sandstone
Slope: 1 to 6 percent
Surface fragments: About 20 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 2.0 inches (very low)
Shrink-swell potential: About 4.0 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (slightly sodic)
Ecological site: Shallow Sandstone
Present native vegetation: Bigelow's sagebrush, blue grama, fourwing saltbush, galleta, Indian ricegrass, New Mexico feathergrass, little bluestem, shadscale saltbush, sideoats grama, winterfat, cliffrose, Mormon tea, oneseed juniper, twoneedle pinyon
Land capability (nonirrigated): 7s
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 2 inches; channery sandy loam
Bw1—2 to 5 inches; sandy loam
Bw2—5 to 9 inches; sandy clay loam
Bk—9 to 15 inches; sandy clay loam
2R—15 inches sandstone bedrock

Minor Components

Hagerwest and similar soils
Composition: About 10 percent
Slope: 1 to 6 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Loamy
Rock outcrop
Composition: About 5 percent
Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments.

Hospah and similar soils
Composition: About 5 percent
Slope: 2 to 8 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Shale Hills

212—Rehobeth silty clay loam, 0 to 1 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,600 to 6,800 feet (2,012 to 2,073 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Average annual air temperature: 46 to 49 degrees F (8 to 9 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

Rehobeth and similar soils: 90 percent
Minor components: 10 percent
Urban land

In the City of Gallup, components of this map unit are covered by buildings, parking lots, roads, and sidewalks. The percentage of Urban land ranges from less than 10 percent on the city's periphery to 60 percent in densely developed residential sections. There are also many areas that have been cut and filled with a variety of earthen materials or man-made soils.

Component Descriptions

Rehobeth soils

Geomorphic position: Flood plains and stream terraces on valley floors
Parent material: Stream alluvium derived from gypsiferous shale
Slope: 0 to 1 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 8.5 inches (moderate)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: Occasional
Ponding hazard: Occasional
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Low
Calcium carbonate maximum: About 5 percent
Gypsum maximum: About 15 percent
Salinity maximum: About 8 mmhos/cm (slightly saline)
Sodicity maximum: About 13 SAR (moderately sodic)
Ecological site: Salty Bottomland
Present native vegetation: alkali sacaton, western wheatgrass, fourwing saltbush, black greasewood, blue grama, bottlebrush squirreltail, inland saltgrass, mat muhly, rabbitbrush
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 2 inches; silty clay loam
Bw—2 to 5 inches; silty clay loam
Bss—5 to 12 inches; clay
Bssny1—12 to 18 inches; clay
Bssny2—18 to 32 inches; clay
Bssny3—32 to 80 inches; clay

Minor Components

Nuffel and similar soils
Composition: About 4 percent
Slope: 0 to 1 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Bottomland

Aquima and similar soils
Composition: About 3 percent
Slope: 0 to 1 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Loamy

Zia and similar soils
Composition: About 3 percent
Slope: 0 to 1 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat excessively drained
Ecological site: Sandy

215—Viuda-Penistaja-Rock outcrop complex, 1 to 5 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,700 to 7,000 feet (2,042 to 2,134 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Average annual air temperature: 49 to 54 degrees F (9 to 12 degrees C)
Frost-free period: 120 to 140 days

Map Unit Composition

Viuda and similar soils: 35 percent
Penistaja and similar soils: 30 percent
Rock outcrop: 25 percent
Minor components: 10 percent

Component Descriptions

Viuda soils

Geomorphic position: Lava flows
Parent material: Eolian material and slope alluvium derived from sandstone and basalt
Slope: 1 to 5 percent
Surface fragments: About 40 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 2.5 inches (very low)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: High
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 2 SAR (slightly sodic)
Ecological site: Malpais
Present native vegetation: blue grama, galleta, alkali sacaton, hairy grama, sideoats grama, black grama, common wolfstail, fourwing saltbush, little bluestem, spike muhly
Land capability (nonirrigated): 7s
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 3 inches; very cobbly fine sandy loam
Bt—3 to 15 inches; clay
Bk—15 to 17 inches; cobbly clay loam
2R—17 inches; basalt bedrock

Penistaja soils

Geomorphic position: Drainageways on lava flows
Parent material: Eolian and fan alluvium derived from sandstone and shale
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 8.4 inches (moderate)
Shrink-swell potential: About 4.0 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Low
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Loamy
Present native vegetation: blue grama, western wheatgrass, Indian ricegrass, galleta, bottlebrush squirreltail, fourwing saltbush, needleandthread, winterfat, sand dropseed, spineless horsebrush, rabbitbrush
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4

Typical Profile:
A—0 to 2 inches; sandy loam
Bt—2 to 22 inches; sandy clay loam
Bk—22 to 65 inches; sandy clay loam

Rock outcrop

Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments.

Minor Components

Bond and similar soils
Composition: About 5 percent
Slope: 1 to 5 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Shallow Sandstone

Hagerwest and similar soils
Composition: About 5 percent
Slope: 1 to 5 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Loamy

220—Hagerwest-Bond fine sandy loams, 1 to 8 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,500 to 7,200 feet (1,981 to 2,195 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Average annual air temperature: 49 to 54 degrees F (9 to 12 degrees C)
Frost-free period: 120 to 140 days

Map Unit Composition

Hagerwest and similar soils: 50 percent
Bond and similar soils: 35 percent

Minor components: 15 percent

Component Descriptions

Hagerwest soils

Geomorphic position: Summits on hills and mesas and dipslopes on cuestas
Parent material: Eolian material and slope alluvium derived from sandstone and shale
Slope: 1 to 5 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 4.8 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Loamy
Present native vegetation: blue grama, western wheatgrass, Indian ricegrass, galleta, bottlebrush squirreltail, fourwing saltbush, winterfat, sand dropseed, oneseed juniper, spineless horsebrush, rabbitbrush
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 6D

Typical Profile:
A—0 to 2 inches; fine sandy loam
Bt—2 to 13 inches; sandy clay loam
Bk1—13 to 19 inches; sandy clay loam
Bk2—19 to 35 inches; sandy loam
2R—35 inches; sandstone bedrock

Bond soils

Geomorphic position: Summits on hills and mesas and dipslopes on cuestas
Parent material: Eolian material and slope alluvium derived from sandstone
Slope: 1 to 8 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 2.0 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: High
Calcium carbonate maximum: About 5 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Shallow Sandstone
Present native vegetation: Bigelow's sagebrush, blue grama, fourwing saltbush, Indian ricegrass, New Mexico feathergrass, galleta, little bluestem, sideoats grama, winterfat, cliffrose, Mormon tea, oneseed juniper, twoneedle pinyon
Land capability (nonirrigated): 7s
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 2 inches; fine sandy loam
Bt1—2 to 5 inches; fine sandy loam
Bt2—5 to 14 inches; sandy clay loam
2R—14 inches sandstone bedrock

Minor Components

Rock outcrop
Composition: About 5 percent
Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments.

Tintero and similar soils
Composition: About 5 percent
Slope: 1 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat excessively drained
Ecological site: Sandy

Penistaja and similar soils
Composition: About 5 percent
Slope: 1 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Loamy

225—Aquima-Hawaikuh silt loams, 1 to 5 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,000 to 6,800 feet (1,829 to 2,073 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Average annual air temperature: 49 to 54 degrees F (9 to 12 degrees C)
Frost-free period: 120 to 140 days

Map Unit Composition

Aquima and similar soils: 40 percent
Hawaikuh and similar soils: 40 percent
Minor components: 20 percent

Component Descriptions

Aquima soils

Geomorphic position: Stream terraces on valley floors and alluvial fans on valley sides
Parent material: Fan and stream alluvium derived from siltstone, sandstone and shale
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 10.7 inches (high)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Low
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 10 SAR (slightly sodic)
Ecological site: Loamy
Present native vegetation: blue grama, western wheatgrass, Indian ricegrass, galleta, bottlebrush squirreltail, fourwing saltbush, needleandthread, winterfat, sand dropseed, rabbitbrush, broom snakeweed (fig. 4)
Land capability (irrigated): 3e
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 8

Typical Profile:
A—0 to 2 inches; silt loam
Bk1—2 to 11 inches; silt loam
Bk2—11 to 17 inches; sandy clay loam
2Bk3—17 to 45 inches; silt loam
3Bk4—45 to 49 inches; sandy clay loam
3Bk5—49 to 65 inches; gravelly clay loam

Hawaikuh soils

Geomorphic position: Fan remnants on valley sides and stream terraces on valley floors
Parent material: Fan and stream alluvium derived from sandstone and shale
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 10.1 inches (high)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 4 mmhos/cm (very slightly saline)
Sodicity maximum: About 2 SAR (slightly sodic)
Ecological site: Clayey
Present native vegetation: alkali sacaton, western wheatgrass, galleta, Indian ricegrass, blue grama, bottlebrush squirreltail, broom snakeweed, fourwing saltbush, threeawn, winterfat, mat muhly, spike muhly
Land capability (irrigated): 3e
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4

Typical Profile:
A—0 to 3 inches; silt loam
Btk1—3 to 12 inches; silty clay loam
Btk2—12 to 29 inches; clay loam
Bk1—29 to 39 inches; sandy clay loam
Bk2—39 to 54 inches; sandy loam
Bk3—54 to 65 inches; silty clay loam

Minor Components

Venadito and similar soils
Composition: About 10 percent
Slope: 0 to 1 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Clayey Bottomland

Tintero and similar soils
Composition: About 6 percent
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat excessively drained
Ecological site: Sandy

Mido and similar soils
Composition: About 4 percent
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Excessively drained
Ecological site: Deep Sand

Figure 4.—Typical landscape of Aquima-Hawaikuh silt loams, 1 to 5 percent slopes. Fourwing saltbush and galleta grass dominate this unit.

230—Sparank-San Mateo-Zia complex, 0 to 3 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,300 to 6,900 feet (1,920 to 2,090 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Average annual air temperature: 49 to 54 degrees F (9 to 12 degrees C)
Frost-free period: 120 to 140 days

Map Unit Composition

Sparank and similar soils: 40 percent
San Mateo and similar soils: 35 percent
Zia and similar soils: 20 percent
Minor components: 5 percent

Component Descriptions

Sparank soils

Geomorphic position: Flood plains on valley floors and alluvial fans on valley sides
Parent material: Fan and stream alluvium derived from sandstone and shale
Slope: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.03 in/hr (very slow)
Available water capacity: About 10.0 inches (high)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: Occasional
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: High
Calcium carbonate maximum: About 5 percent
Gypsum maximum: None
Salinity maximum: About 4 mmhos/cm (very slightly saline)
Sodicity maximum: About 5 SAR (slightly sodic)
Ecological site: Clayey Bottomland
Present native vegetation: western wheatgrass, alkali sacaton, fourwing saltbush, galleta, blue grama, spike muhly, mat muhly, broom snakeweed, rabbitbrush
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4CC

Typical Profile:
A—0 to 2 inches; silty clay loam
C1—2 to 25 inches; clay
C2—25 to 65 inches; clay

San Mateo soils

Geomorphic position: Flood plains on valley floors and alluvial fans on valley sides
Parent material: Fan and stream alluvium derived from sandstone and shale
Slope: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 10.6 inches (high)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: Occasional
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 5 percent
Gypsum maximum: None
Salinity maximum: About 4 mmhos/cm (very slightly saline)
Sodicity maximum: About 5 SAR (slightly sodic)
Ecological site: Bottomland
Present native vegetation: alkali sacaton, western wheatgrass, fourwing saltbush, blue grama, galleta, spike muhly, mat muhly, sand dropseed, spineless horsebrush
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4

Typical Profile:
A—0 to 2 inches; clay loam
C1—2 to 15 inches; clay loam
C2—15 to 30 inches; sandy clay loam
C3—30 to 39 inches; clay loam
C4—39 to 45 inches; sandy loam
C5—45 to 65 inches; clay loam

Zia soils

Geomorphic position: Stream terraces on valley floors and alluvial fans on valley sides
Parent material: Eolian material and fan and stream alluvium derived from sandstone
Slope: 1 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat excessively drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 8.0 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: Rare
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very low
Calcium carbonate maximum: About 5 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 2 SAR (slightly sodic)
Ecological site: Sandy
Present native vegetation: blue grama, western wheatgrass, Indian ricegrass, fourwing saltbush, sand dropseed, needleandthread, spike dropseed, winterfat, galleta, ring muhly, rabbitbrush, sand sagebrush, spineless horsebrush
Land capability (irrigated): 4e
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 3

Typical Profile:
A—0 to 3 inches; fine sandy loam
Bw—3 to 12 inches; fine sandy loam
2C1—12 to 20 inches; fine sandy loam
2C2—20 to 28 inches; sandy loam
2C3—28 to 70 inches; fine sandy loam

Minor Components

Querencia and similar soils
Composition: About 3 percent
Slope: 1 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Loamy

Penistaja and similar soils
Composition: About 2 percent
Slope: 1 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Loamy

235—Notal-Hamburn complex, 0 to 2 percent slopes

Map Unit Setting

MLRA: 37
Elevation: 5,600 to 6,000 feet (1,707 to 1,829 meters)
Mean annual precipitation: 7 to 9 inches (178 to 229 millimeters)
Average annual air temperature: 50 to 55 degrees F (10 to 13 degrees C)
Frost-free period: 130 to 150 days

Map Unit Composition

Notal and similar soils: 45 percent
Hamburn and similar soils: 40 percent
Minor components: 15 percent

Component Descriptions

Notal soils

Geomorphic position: Stream terraces on valley floors (fig. 5)
Parent material: Stream alluvium derived from sandstone and shale
Slope: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.01 in/hr (very slow)
Available water capacity: About 9.1 inches (high)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: Rare
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: High
Calcium carbonate maximum: About 5 percent
Gypsum maximum: About 1 percent
Salinity maximum: About 16 mmhos/cm (moderately saline)
Sodicity maximum: About 30 SAR (strongly sodic)
Ecological site: Clay Loam Terrace (sodic) 5-8" P.z.
Present native vegetation: alkali sacaton, mound saltbush, galleta, greasewood
Land capability (nonirrigated): 7c
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 1 inches; loam
C—1 to 3 inches; clay loam
Cn1—3 to 13 inches; sandy clay loam
Cn2—13 to 27 inches; clay loam
Cnkz1—27 to 44 inches; silty clay
Cnkz2—44 to 65 inches; sandy clay loam

Hamburn soils

Geomorphic position: Flood plains on valley floors
Parent material: Stream alluvium derived from sandstone and shale
Slope: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained

Figure 5.—Typical landscape of Notal-Hamburn complex, 0 to 2 percent slopes. These soils can produce an abundance of alkali sacaton.

Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 9.6 inches (high)
Shrink-swell potential: About 5.0 LEP (moderate)
Flooding hazard: Occasional
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 5 percent
Gypsum maximum: About 1 percent
Salinity maximum: About 4 mmhos/cm (very slightly saline)
Sodicity maximum: About 5 SAR (slightly sodic)
Ecological site: Saline Bottom 5-8" P.z.
Present native vegetation: alkali sacaton, galleta, Indian ricegrass, mound saltbush, western wheatgrass, perennial forbs, black greasewood, fourwing saltbush
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 10

Typical Profile:
AC—0 to 3 inches; clay loam
C1—3 to 8 inches; stratified clay loam
C2—8 to 29 inches; sandy clay loam
Cky1—29 to 52 inches; sandy clay loam
Cky2—52 to 70 inches; clay loam

Minor Components

Yelives and similar soils
Composition: About 10 percent
Slope: 1 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Loamy Upland

Razito and similar soils
Composition: About 5 percent
Slope: 1 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Excessively drained
Ecological site: Sandy Upland

240—Breadsprings and Nahodish soils, 0 to 2 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,100 to 6,800 feet (1,859 to 2,195 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Average annual air temperature: 46 to 49 degrees F (8 to 9 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

Breadsprings and similar soils: 35 percent
Nahodish and similar soils: 35 percent
Minor components: 30 percent
Urban land

In the City of Gallup, components of this map unit are covered by buildings, parking lots, roads, and sidewalks. The percentage of Urban land ranges from less than 10 percent on the city's periphery to 60 percent in densely developed residential sections. There are also many areas that have been cut and filled with a variety of earthen materials or man-made soils.

Component Descriptions

Breadsprings soils

Geomorphic position: Stream terraces on valley floors (fig. 6)
Parent material: Stream alluvium derived from sandstone and shale
Slope: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 9.8 inches (high)
Shrink-swell potential: About 2.0 LEP (low)
Flooding hazard: Rare
Ponding hazard: Rare
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 15 percent
Gypsum maximum: About 2 percent
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 5 SAR (slightly sodic)
Ecological site: Salty Bottomland
Present native vegetation: alkali sacaton, western wheatgrass, fourwing saltbush, blue grama, bottlebrush squirreltail, greasewood, inland saltgrass, mound saltbush, mat muhly, rabbitbrush
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4

Typical Profile:
A—0 to 3 inches; loam
Bw1—3 to 7 inches; loam
Bw2—7 to 14 inches; stratified clay loam

Bk—14 to 22 inches; fine sandy loam
Ck1—22 to 29 inches; stratified silt loam
Ck2—29 to 36 inches; stratified loam
Ck3—36 to 70 inches; stratified silt loam

Nahodish soils

Geomorphic position: Stream terraces on valley floors
Parent material: Stream alluvium derived from sandstone and shale
Slope: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 10.9 inches (high)
Shrink-swell potential: About 2.0 LEP (low)
Flooding hazard: Rare
Ponding hazard: Rare
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: High
Calcium carbonate maximum: About 10 percent
Gypsum maximum: About 10 percent
Salinity maximum: About 4 mmhos/cm (slightly saline)
Sodicity maximum: About 10 SAR (slightly sodic)
Ecological site: Salty Bottomland
Present native vegetation: alkali sacaton, western wheatgrass, fourwing saltbush, blue grama, bottlebrush squirreltail, greasewood, inland saltgrass, mound saltbush, mat muhly, rabbitbrush
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 1 inches; silt loam
Bw1—1 to 9 inches; silty clay loam
Bw2—9 to 17 inches; silty clay
Bk1—17 to 31 inches; silty clay
Bk2—31 to 36 inches; clay loam
2Bk3—36 to 58 inches; silt loam
3Bky—58 to 80 inches; clay

Minor Components

Nahodish Sodic and similar soils
Composition: About 15 percent
Slope: 0 to 1 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Salty Bottomland

Breadsprings Sodic and similar soils
Composition: About 10 percent
Slope: 0 to 1 percent
Depth to restrictive feature: None within 60 inches

Figure 6.—Typical landscape of Breadsprings and Nahodish soils, 0 to 2 percent slopes. Black greasewood has taken over many of these areas.

Drainage class: Well drained
Ecological site: Salty Bottomland

Berryhill and similar soils
Composition: About 5 percent
Slope: 0 to 1 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Clayey

241—Mentmore loam, 1 to 8 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,100 to 6,900 feet (1,859 to 2,103 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Average annual air temperature: 45 to 49 degrees F (7 to 9 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

Mentmore and similar soils: 85 percent
Minor components: 15 percent
Urban land
In the City of Gallup, components of this map unit are covered by buildings, parking lots, roads, and sidewalks. The percentage of Urban land ranges from less than 10 percent on the city's periphery to 60 percent in densely developed residential sections. There are also many areas that have been cut and filled with a variety of earthen materials or man-made soils.

Component Descriptions

Mentmore soils

Geomorphic position: Fan remnants on valley sides and drainageways on dipslopes on cuestas (fig. 7)
Parent material: Fan and slope alluvium derived from sandstone and shale
Slope: 1 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 11.6 inches (high)
Shrink-swell potential: About 5.0 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Loamy
Present native vegetation: blue grama, western wheatgrass, Indian ricegrass, big sagebrush, galleta, bottlebrush squirreltail, fourwing saltbush, needleandthread, oneseed juniper, sand dropseed, spineless horsebrush, rabbitbrush, twoneedle pinyon
Conservation Tree/Shrub Group: 5

Typical Profile:
A—0 to 1 inches; loam
Bt1—1 to 2 inches; clay loam
Bt2—2 to 7 inches; sandy clay loam
Btk1—7 to 13 inches; clay loam
Btk2—13 to 22 inches; clay loam
Bk—22 to 70 inches; clay loam

Minor Components

Atrac and similar soils
Composition: About 10 percent
Slope: 1 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Loamy

Gish and similar soils
Composition: About 5 percent
Slope: 1 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Clayey

242—Gish-Mentmore complex, 1 to 8 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,100 to 7,200 feet (1,859 to 2,195 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Average annual air temperature: 46 to 49 degrees F (8 to 9 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

Gish and similar soils: 45 percent
Mentmore and similar soils: 35 percent
Minor components: 20 percent

Figure 7.—Mentmore loam, 1 to 8 percent slopes, is in the foreground. Coal Mine Land is in the background. Coal mining is a major commercial activity within the survey area.

Component Descriptions

Gish soils

Geomorphic position: Alluvial fans on valley sides and drainageways
Parent material: Fan alluvium derived from shale
Slope: 1 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 9.2 inches (high)
Shrink-swell potential: About 8.0 LEP (high)
Flooding hazard: Rare
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: High
Calcium carbonate maximum: About 10 percent
Gypsum maximum: About 2 percent
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 2 SAR (slightly sodic)
Ecological site: Clayey
Present native vegetation: alkali sacaton, western wheatgrass, galleta, Indian ricegrass, blue grama, bottlebrush squirreltail, broom snakeweed, fourwing saltbush, threeawn, winterfat, mat muhly, spike muhly
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4C

Typical Profile:
A—0 to 3 inches; clay loam
Bw—3 to 13 inches; clay
Bky1—13 to 27 inches; clay
Bky2—27 to 55 inches; clay
Bky3—55 to 64 inches; clay loam
Bky4—64 to 70 inches; clay

Mentmore soils

Geomorphic position: Fan remnants on valley sides
Parent material: Slope and fan alluvium derived from sandstone and shale
Slope: 1 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 11.7 inches (high)

Shrink-swell potential: About 5.0 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 2 percent
Gypsum maximum: About 2 percent
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (slightly sodic)
Ecological site: Loamy
Present native vegetation: blue grama, western wheatgrass, Indian ricegrass, big sagebrush, galleta, bottlebrush squirreltail, fourwing saltbush, needleandthread, oneseed juniper, sand dropseed, spineless horsebrush, rabbitbrush, twoneedle pinyon
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 5

Typical Profile:
A—0 to 2 inches; fine sandy loam
Bw—2 to 4 inches; clay loam
Bt1—4 to 13 inches; clay loam
Bt2—13 to 24 inches; clay loam
Bk1—24 to 44 inches; clay loam
Bk2—44 to 62 inches; clay loam
By—62 to 70 inches; clay loam

Minor Components

Berryhill and similar soils
Composition: About 10 percent
Slope: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Clayey

Nahodish and similar soils
Composition: About 10 percent
Slope: 1 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Salty Bottomland

244—Buckle fine sandy loam, 1 to 8 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,400 to 6,800 feet (1,951 to 2,073 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Average annual air temperature: 45 to 49 degrees F (7 to 9 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

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

Component Descriptions

Buckle soils

Geomorphic position: Drainageways and fan remnants on valley sides
Parent material: Eolian material and fan alluvium derived from sandstone and shale
Slope: 1 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 10.3 inches (high)
Shrink-swell potential: About 7.0 LEP (high)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Low
Calcium carbonate maximum: About 5 percent
Gypsum maximum: About 1 percent
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Loamy
Present native vegetation: blue grama, western wheatgrass, Indian ricegrass, big sagebrush, galleta, bottlebrush squirreltail, oneseed juniper, winterfat, sand dropseed, spineless horsebrush, twoneedle pinyon, rabbitbrush
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4C

Typical Profile:
A—0 to 4 inches; fine sandy loam
Bt1—4 to 14 inches; sandy clay loam
Bt2—14 to 22 inches; sandy clay loam
Btk1—22 to 34 inches; loam
Btk2—34 to 48 inches; clay loam
Btk3—48 to 62 inches; clay loam
Btk4—62 to 75 inches; clay loam

Minor Components

Gapmesa and similar soils
Composition: About 10 percent
Slope: 1 to 3 percent

Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Loamy

Zia and similar soils
Composition: About 5 percent
Slope: 1 to 6 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat excessively drained
Ecological site: Sandy

245—Buckle-Gapmesa-Barboncito complex, 1 to 6 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,400 to 6,800 feet (1,951 to 2,073 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Average annual air temperature: 45 to 49 degrees F (7 to 9 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

Buckle and similar soils: 35 percent
Gapmesa and similar soils: 30 percent
Barboncito and similar soils: 25 percent
Minor components: 10 percent
Urban land

In the City of Gallup, components of this map unit are covered by buildings, parking lots, roads, and sidewalks. The percentage of Urban land ranges from less than 10 percent on the city's periphery to 60 percent in densely developed residential sections. There are also many areas that have been cut and filled with a variety of earthen materials or man-made soils.

Component Descriptions

Buckle soils

Geomorphic position: Summits and sideslopes on ridges and hills and dipslope on cuestas
Parent material: Eolian material and slope alluvium derived from sandstone and shale
Slope: 1 to 6 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 9.3 inches (high)
Shrink-swell potential: About 2.0 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Loamy
Present native vegetation: blue grama, western wheatgrass, Indian ricegrass, big sagebrush, galleta, bottlebrush squirreltail, fourwing saltbush, needleandthread, oneseed juniper, sand dropseed, spineless horsebrush, rabbitbrush, twoneedle pinyon
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4

Typical Profile:
A—0 to 1 inches; loamy fine sand
Bt1—1 to 7 inches; clay loam
Bt2—7 to 25 inches; sandy clay loam
Btk—25 to 35 inches; clay loam
Bk—35 to 80 inches; fine sandy loam

Gapmesa soils

Geomorphic position: Summits on hills and ridges and dipslopes on cuestas
Parent material: Eolian material and slope alluvium derived from sandstone and shale
Slope: 1 to 3 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 5.6 inches (low)
Shrink-swell potential: About 4.0 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: High
Calcium carbonate maximum: About 5 percent
Gypsum maximum: About 5 percent
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (slightly sodic)
Ecological site: Loamy
Present native vegetation: blue grama, western wheatgrass, Indian ricegrass, big sagebrush, galleta, bottlebrush squirreltail, fourwing saltbush, needleandthread, oneseed juniper, sand dropseed, spineless horsebrush, rabbitbrush, twoneedle pinyon
Land capability (nonirrigated): 6c

Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 1 inches; fine sandy loam
Bt—1 to 9 inches; loam
Btk1—9 to 20 inches; loam
Btk2—20 to 31 inches; clay loam
R—31 inches; sandstone bedrock

Barboncito soils

Geomorphic position: Summits on hills and ridges and dipslopes on cuestas
Parent material: Eolian material and slope alluvium derived from sandstone and shale
Slope: 1 to 3 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 1.8 inches (very low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: About 5 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Loamy
Present native vegetation: blue grama, western wheatgrass, Indian ricegrass, big sagebrush, galleta, bottlebrush squirreltail, fourwing saltbush, needleandthread, oneseed juniper, sand dropseed, spineless horsebrush, rabbitbrush, twoneedle pinyon
Land capability (nonirrigated): 7s
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 2 inches; loamy fine sand
Bt1—2 to 6 inches; sandy clay loam
Btk—6 to 11 inches; clay loam
R—11 inches; sandstone bedrock

Minor Components

Rock outcrop
Composition: About 5 percent
Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments.

Betonnie and similar soils
Composition: About 5 percent
Slope: 1 to 6 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat excessively drained
Ecological site: Sandy

250—Hospah-Skyvillage-Rock outcrop complex, 2 to 35 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,400 to 7,000 feet (1,951 to 2,134 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Average annual air temperature: 49 to 54 degrees F (9 to 12 degrees C)
Frost-free period: 120 to 140 days

Map Unit Composition

Hospah and similar soils: 35 percent
Skyvillage and similar soils: 30 percent
Rock outcrop: 25 percent
Minor components: 10 percent

Component Descriptions

Hospah soils

Geomorphic position: Sideslopes on hills and ridges and breaks
Parent material: Colluvium and residuum derived from sandstone and shale
Slope: 2 to 35 percent
Surface fragments: About 66 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 1.9 inches (very low)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: About 5 percent
Gypsum maximum: About 5 percent
Salinity maximum: About 4 mmhos/cm (very slightly saline)
Sodicity maximum: About 13 SAR (moderately sodic)
Ecological site: Shale Hills
Present native vegetation: alkali sacaton, galleta, Indian ricegrass, blue grama, bottlebrush squirreltail, fourwing saltbush, little bluestem, needleandthread, sideoats grama, western

wheatgrass, mound saltbush, shadscale saltbush, Bigelow's sagebrush, oneseed juniper, winterfat
Land capability (nonirrigated): 7e
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 3 inches; extremely cobbly clay loam
2BC—3 to 15 inches; clay
2Cr—15 inches; shale

Skyvillage soils

Geomorphic position: Structural benches and summits on hills and ridges and breaks
Parent material: Eolian material and slope alluvium derived from sandstone
Slope: 2 to 15 percent
Surface fragments: About 45 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 1.0 inches (very low)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (slightly sodic)
Ecological site: Shallow Sandstone
Present native vegetation: Bigelow's sagebrush, blue grama, fourwing saltbush, galleta, Indian ricegrass, New Mexico feathergrass, little bluestem, shadscale saltbush, sideoats grama, winterfat, cliffrose, Mormon tea, oneseed juniper, twoneedle pinyon
Land capability (nonirrigated): 7s
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 1 inches; very channery sandy loam
C1—1 to 5 inches; sandy loam
C2—5 to 8 inches; channery sandy clay loam
2R—8 inches; hard sandstone

Rock outcrop

Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments.

Minor Components

Hagerwest and similar soils
Composition: About 5 percent
Slope: 1 to 5 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Loamy

Bond and similar soils
Composition: About 5 percent
Slope: 1 to 5 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Shallow Sandstone

255—Farview-Rock outcrop complex, 2 to 15 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,500 to 6,900 feet (1,981 to 2,103 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Average annual air temperature: 46 to 49 degrees F (8 to 9 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

Farview and similar soils: 50 percent
Rock outcrop: 35 percent
Minor components: 15 percent

Component Descriptions

Farview soils

Geomorphic position: Dipslopes on cuestas
Parent material: Eolian material derived from sandstone
Slope: 2 to 15 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Somewhat excessively drained
Slowest permeability: About 1.98 in/hr (moderately rapid)
Available water capacity: About 2.3 inches (very low)
Shrink-swell potential: About 2.0 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None

Salinity maximum: About 0 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Pinyon-Juniper Forest
Land capability (nonirrigated): 7s
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 1 inches; loamy fine sand
C—1 to 10 inches; fine sandy loam
Ck—10 to 17 inches; fine sandy loam
R—17 inches; sandstone bedrock

Rock outcrop

Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments.

Minor Components

Gapmesa and similar soils
Composition: About 8 percent
Slope: 1 to 5 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Loamy

Mido and similar soils
Composition: About 7 percent
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Excessively drained
Ecological site: Deep Sand

258—Eagleye-Atchee-Rock outcrop complex, 2 to 35 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,500 to 7,000 feet (1,981 to 2,134 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Average annual air temperature: 46 to 49 degrees F (8 to 9 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

Eagleye and similar soils: 40 percent
Atchee and similar soils: 35 percent
Rock outcrop: 20 percent
Minor components: 5 percent
Urban land

In the City of Gallup, components of this map unit are covered by buildings, parking lots, roads, and sidewalks. The percentage of Urban land ranges from less than 10 percent on the city's periphery to 60 percent in densely developed residential sections. There are also many areas that have been cut and filled with a variety of earthen materials or man-made soils.

Component Descriptions

Eagleye soils

Geomorphic position: Sideslopes on hills and ridges (fig. 8)
Parent material: Slope alluvium over residuum derived from shale
Slope: 5 to 35 percent
Surface fragments: About 16 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 1.6 inches (very low)
Shrink-swell potential: About 8.0 LEP (high)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: None
Gypsum maximum: About 2 percent
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 1 SAR (slightly sodic)
Ecological site: Clayey
Present native vegetation: alkali sacaton, western wheatgrass, galleta, blue grama, bottlebrush squirreltail, broom snakeweed, threeawn, mat muhly, oneseed juniper, spike muhly, twoneedle pinyon
Land capability (nonirrigated): 7e
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 2 inches; gravelly clay loam
Cy—2 to 10 inches; clay
Cr—10 inches; shale

Atchee soils

Geomorphic position: Summits on hills and ridges
Parent material: Slope alluvium over residuum derived from sandstone and shale
Slope: 2 to 10 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Well drained

Figure 8.—Typical landscape of the Eagleye-Atchee-Rock outcrop complex, 2 to 35 percent slopes. Steep, broken slopes provide wildlife habitat.

Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 1.3 inches (very low)
Shrink-swell potential: About 5.0 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: About 1 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 1 SAR (slightly sodic)
Ecological site: Clayey
Present native vegetation: alkali sacaton, western wheatgrass, galleta, Indian ricegrass, black sagebrush, blue grama, bottlebrush squirreltail, broom snakeweed, oneseed juniper, threeawn, twoneedle pinyon, mat muhly, spike muhly
Land capability (nonirrigated): 7e
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 2 inches; fine sandy loam
C1—2 to 12 inches; extremely channery sandy clay loam
C2—12 to 14 inches; extremely channery sandy clay loam
R—14 inches; sandstone bedrock

Rock outcrop

Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments.

Minor Components

Lockerby and similar soils
Composition: About 3 percent
Slope: 2 to 15 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Clayey

Barboncito and similar soils
Composition: About 2 percent
Slope: 2 to 5 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Loamy

260—Quarries and Pits

This unit consists of limestone quarries and gravel and borrow pits. This unit occurs throughout the county and on a wide variety of different soils. Included in this unit is the demolition area on Ft. Wingate. This unit is used for the excavation of construction materials. Recommendations on use, reclamation, and revegetation need to be made on a site-specific basis.

261—Coal Mine Land

This unit consists of all areas associated with coal mine activities. These areas include the actual mines, barren tailings, and reclaimed areas. This unit occurs in the northwest part of Mckinley county, from Gallup to near Window Rock, Arizona. Recommendations on use, revegetation, and reclamation need to be made on a site-specific basis.

265—Uranium Mined Lands

This unit consists of all areas associated with uranium mine activities. These areas include the actual mines, shafts, structures, borrow pits, barren tailings and waste rock piles, evaporation ponds, and contaminated waste yards. This unit occurs throughout the county and on a wide variety of different soils. These areas, unless reclaimed or revegetated, have no agricultural uses. Recommendations on use, revegetation and reclamation need to be made on a site-specific basis.

270—Alesna-Rock outcrop complex, 15 to 55 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,500 to 7,600 feet (1,981 to 2,316 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Average annual air temperature: 49 to 54 degrees F (9 to 12 degrees C)
Frost-free period: 120 to 140 days

Map Unit Composition

Alesna and similar soils: 70 percent
Rock outcrop: 20 percent
Minor components: 10 percent

Component Descriptions

Alesna soils

Geomorphic position: Volcanic cones and escarpments on lava plateaus
Parent material: Slope alluvium and colluvium derived from basalt, shale, and sandstone
Slope: 15 to 55 percent
Surface fragments: About 65 percent
Depth to restrictive feature: 40 to 60 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 8.0 inches (moderate)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: About 40 percent
Gypsum maximum: None
Salinity maximum: About 4 mmhos/cm (very slightly saline)
Sodicity maximum: About 5 SAR (slightly sodic)
Ecological site: Foothills
Present native vegetation: blue grama, galleta, sideoats grama, alkali sacaton, black grama, bottlebrush squirreltail, fourwing saltbush, little bluestem, needleandthread, winterfat, common wolfstail, oneseed juniper, twoneedle pinyon, narrowleaf yucca
Land capability (nonirrigated): 7e
Conservation Tree/Shrub Group: 4K

Typical Profile:
A—0 to 1 inches; extremely cobbly loam
Bt—1 to 10 inches; gravelly clay loam
Btk1—10 to 20 inches; very gravelly clay
Btk2—20 to 26 inches; clay
Btk3—26 to 52 inches; clay loam
2Cr—52 inches; basalt bedrock

Rock outcrop

Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments.

Minor Components

Azabache and similar soils
Composition: About 4 percent
Slope: 5 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Loamy Upland (sodic)

Hagerwest and similar soils
Composition: About 3 percent
Slope: 5 to 8 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Loamy

Bond and similar soils
Composition: About 3 percent
Slope: 5 to 8 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Shallow Sandstone

275—Eldado gravelly fine sandy loam, 1 to 5 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,300 to 7,300 feet (1,920 to 2,225 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Average annual air temperature: 49 to 54 degrees F (9 to 12 degrees C)
Frost-free period: 120 to 140 days

Map Unit Composition

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

Component Descriptions

Eldado soils

Geomorphic position: Relict stream terraces on valley floors
Parent material: Eolian and stream alluvium derived from basalt and sandstone
Slope: 1 to 5 percent
Surface fragments: About 15 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 3.8 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Low
Calcium carbonate maximum: About 50 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 2 SAR (slightly sodic)
Ecological site: Gravelly
Present native vegetation: blue grama, sideoats grama, Indian ricegrass, black grama, bottlebrush squirreltail, little bluestem, needleandthread, western wheatgrass, winterfat, fourwing saltbush, galleta, oneseed juniper, rabbitbrush, sand dropseed, twoneedle pinyon
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 6GK

Typical Profile:
A—0 to 2 inches; gravelly fine sandy loam
Btk1—2 to 9 inches; sandy clay loam
Btk2—9 to 13 inches; sandy clay loam
Bk1—13 to 25 inches; sandy clay loam
2Bk2—25 to 43 inches; extremely gravelly loamy coarse sand
2C—43 to 72 inches; extremely gravelly coarse sand

Minor Components

Eldado and similar soils
Composition: About 15 percent
Slope: 5 to 30 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Gravelly

280—Azabache extremely gravelly clay loam, 2 to 8 percent slopes

Map Unit Setting

MLRA: 37
Elevation: 6,500 to 6,900 feet (1,981 to 2,103 meters)
Mean annual precipitation: 8 to 10 inches (229 to 254 millimeters)
Average annual air temperature: 50 to 54 degrees F (9 to 12 degrees C)
Frost-free period: 130 to 140 days

Map Unit Composition

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

Component Descriptions

Azabache soils

Geomorphic position: Lava plateaus, volcanic cones, and stream terraces on valley floors
Parent material: Slope alluvium derived from basalt, shale, and sandstone
Slope: 2 to 8 percent
Surface fragments: About 76 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.01 in/hr (very slow)
Available water capacity: About 4.3 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: About 15 percent
Gypsum maximum: About 1 percent
Salinity maximum: About 16 mmhos/cm (moderately saline)
Sodicity maximum: About 30 SAR (strongly sodic)
Ecological site: Loamy Upland (sodic) 5-8" P.z.
Present native vegetation: alkali sacaton, mound saltbush, galleta, Indian ricegrass, blue grama, sand dropseed, shadscale saltbush
Land capability (nonirrigated): 7s
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 1 inches; extremely gravelly clay loam
Btn—1 to 5 inches; clay
Btknz1—5 to 17 inches; gravelly sandy clay loam
Btknz2—17 to 32 inches; extremely gravelly sandy clay loam
Btknz3—32 to 50 inches; extremely gravelly fine sandy loam
2Btnz—50 to 62 inches; very gravelly fine sandy loam

Minor Components

Eldado and similar soils
Composition: About 15 percent
Slope: 2 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Gravelly

290—Rock outcrop-Westmion-Skyvillage complex, 30 to 80 percent slopes

Map Unit Setting

Elevation: 6,400 to 8,100 feet (1,951 to 2,469 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Mean annual air temperature: 49 to 54 degrees F (9.4 to 12.0 degrees C)
Frost-free period: 120 to 140 days

Map Unit Composition

Rock outcrop: 45 percent
Westmion and similar soils: 30 percent
Skyvillage and similar soils: 15 percent
Minor components: 10 percent

Component Descriptions

Rock outcrop

Rock outcrop consists of barren or nearly barren areas of exposed sandstone. Slopes range from about 5 to 15 percent on treads (structural benches) to almost vertical cliffs on the risers (escarpment face).

Westmion soils

Landform: Escarpments on mesas and cuestas
Parent material: Slope alluvium and colluvium over residuum derived from shale
Slope: 30 to 50 percent
Surface fragments: About 30 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: .06 to 0.2 in/hr (slow)
Available water capacity: About 2.1 inches (very low)
Shrink-swell potential: About 7.5 percent (high)
Runoff class: Very high
Calcium carbonate maximum: About 5 percent
Gypsum maximum: About 1 percent
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodium adsorption ratio maximum: About 5 (slightly sodic)
Ecological site: Foothills
Potential native vegetation: Indian ricegrass, Mormon tea, blue grama, cliffrose, fourwing saltbush, galleta, little bluestem, mountainmahogany, sideoats grama, winterfat, oneseed juniper, twoneedle pinyon
Land capability subclass (nonirrigated): 7e
Typical Profile:
A—0 to 2 inches; gravelly clay loam

2C—2 to 14 inches; clay
2Cr—14 to 20 inches; weathered bedrock

Skyvillage soils

Landform: Structural benches on escarpments on mesas and cuestas
Parent material: Eolian material and slope alluvium derived from sandstone
Slope: 30 to 40 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: 2.0 to 6.0 in/hr (moderately rapid)
Available water capacity: About 1.6 inches (very low)
Shrink-swell potential: About 1.5 percent (low)
Runoff class: Medium
Calcium carbonate maximum: About 15 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodium adsorption ratio maximum: About 0 (nonsodic)
Ecological site: Shallow Sandstone
Potential native vegetation: Bigelow sagebrush, blue grama, fourwing saltbush, galleta, Indian ricegrass, New Mexico feathergrass, little bluestem, shadscale saltbush, sideoats grama, winterfat, cliffrose, mormon tea, oneseed juniper, twoneedle pinyon
Land capability subclass (nonirrigated): 7s

Typical Profile:
A—0 to 2 inches; sandy loam
C—2 to 13 inches; sandy loam
R—13 to 20 inches; unweathered bedrock

Minor Components

Hospah and similar soils
Composition: About 6 percent
Slope: 30 to 80 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Shale Hills

Vessilla and similar soils
Composition: About 2 percent
Slope: 2 to 15 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Somewhat excessively drained
Ecological site: Shallow Sandstone

Skyvillage and similar soils
Composition: About 2 percent
Slope: 2 to 20 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Shallow Sandstone

291—Rock outcrop-Eagleye-Atchee complex, 35 to 70 percent slopes

Map Unit Setting

Elevation: 6,500 to 7,500 feet (1,981 to 2,286 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Mean annual air temperature: 46 to 49 degrees F (8.0 to 9.4 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

Rock outcrop: 50 percent
Eagleye and similar soils: 25 percent
Atchee and similar soils: 15 percent
Minor components: 10 percent

Component Descriptions

Rock outcrop

Rock outcrop consists of barren or nearly barren areas of exposed sandstone. Slopes range from about 5 to 15 percent on treads (structural benches) to almost vertical cliffs on the risers (escarpment face).

Eagleye soils

Landform: Escarpments on cuestas and mesas
Parent material: Slope alluvium over residuum derived from shale
Slope: 35 to 70 percent
Surface fragments: About 25 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: 0.2 to 0.6 in/hr (moderately slow)
Available water capacity: About 2.6 inches (very low)
Shrink-swell potential: About 5.0 percent (moderate)
Runoff class: Very high
Calcium carbonate maximum: None
Gypsum maximum: About 2 percent
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodium adsorption ratio maximum: About 0 (nonsodic)
Ecological site: Draft Clayey 9-14" P.z.
Potential native vegetation: western wheatgrass, alkali sacaton, big sagebrush, blue grama, bottlebrush

squirreltail, fourwing saltbush, galleta, Indian ricegrass, rabbitbrush, winterfat
Land capability subclass (nonirrigated): 7e

Typical Profile:
A—0 to 2 inches; very gravelly silty clay loam
C1—2 to 7 inches; silty clay loam
C2—7 to 13 inches; silty clay loam
Cr—13 to 20 inches; weathered bedrock

Atchee soils

Landform: Structural benches on escarpments on cuestas and mesas
Parent material: Slope alluvium over residuum derived from sandstone
Slope: 35 to 50 percent
Surface fragments: About 57 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: 0.6 to 2.0 in/hr (moderate)
Available water capacity: About 1.1 inches (very low)
Shrink-swell potential: About 2.0 percent (low)
Runoff class: Medium
Calcium carbonate maximum: About 5 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodium adsorption ratio maximum: About 0 (nonsodic)
Ecological site: Draft Clayey 9-14" P.z.
Potential native vegetation: alkali sacaton, western wheatgrass, galleta, Indian ricegrass, blue grama, bottlebrush squirreltail, broom snakeweed, oneseed juniper, threeawn, twoneedle pinyon, winterfat, mat muhly, spike muhly
Land capability subclass (nonirrigated): 7e

Typical Profile:
A—0 to 2 inches; very gravelly fine sandy loam
C—2 to 8 inches; very channery fine sandy loam
R—8 to 20 inches; unweathered bedrock

Minor Components

Gapmesa and similar soils
Composition: About 5 percent
Slope: 2 to 10 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Loamy

Atchee and similar soils
Composition: About 5 percent
Slope: 2 to 35 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Clayey

300—Regracic gravelly sandy clay loam, 2 to 6 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 7,400 to 7,700 feet (2,256 to 2,347 meters)
Mean annual precipitation: 13 to 16 inches (330 to 406 millimeters)
Average annual air temperature: 47 to 53 degrees F (8 to 12 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

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

Component Descriptions

Regracic soils

Geomorphic position: Stream terraces on valley floors
Parent material: Stream alluvium derived from sandstone, shale, and conglomerate
Slope: 2 to 6 percent
Surface fragments: About 31 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 8.1 inches (moderate)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 40 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 1 SAR (slightly sodic)
Ecological site: Pinyon-Juniper Forest
Present native vegetation: Rocky Mountain juniper, blue grama, muttongrass, oneseed juniper, ponderosa pine, rabbitbrush, twoneedle pinyon, western wheatgrass
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4C

Typical Profile:
A—0 to 2 inches; gravelly sandy clay loam

Bt—2 to 31 inches; clay, clay loam
2Btk1—31 to 45 inches; very gravelly sandy clay
2Btk2—45 to 50 inches; clay loam
2Btk3—50 to 60 inches; stratified very gravelly sandy clay loam
3BCk—60 to 80 inches; gravelly sandy loam

Minor Components

Tuces and similar soils
Composition: About 10 percent
Slope: 2 to 10 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Pinyon-Juniper Forest

Venzuni and similar soils
Composition: About 10 percent
Slope: 1 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Meadow

305—Celavar-Atarque complex, 1 to 8 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,500 to 7,500 feet (1,981 to 2,286 meters)
Mean annual precipitation: 13 to 14 inches (330 to 356 millimeters)
Average annual air temperature: 49 to 53 degrees F (9 to 12 degrees C)
Frost-free period: 115 to 135 days

Map Unit Composition

Celavar and similar soils: 50 percent
Atarque and similar soils: 35 percent
Minor components: 15 percent

Component Descriptions

Celavar soils

Geomorphic position: Dipslopes on cuestas and summits on mesas
Parent material: Eolian material and slope alluvium derived from sandstone and shale
Slope: 1 to 8 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 4.7 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Low
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 1 SAR (slightly sodic)
Ecological site: Savannah
Present native vegetation: blue grama, western wheatgrass, Indian ricegrass, Mormon tea needleandthread, oneseed juniper, sand dropseed, twoneedle pinyon, muttongrass, rabbitbrush, winterfat, Bigelow's sagebrush, bottlebrush squirreltail, spineless horsebrush
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 6D

Typical Profile:
A—0 to 2 inches; loam
Bt1—2 to 24 inches; sandy clay loam
Bt2—24 to 31 inches; sandy clay loam
2R—31 inches; sandstone bedrock

Atarque soils

Geomorphic position: Dipslopes on cuestas and summits on mesas
Parent material: Eolian material and slope alluvium derived from sandstone and shale
Slope: 1 to 8 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 2.0 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: High
Calcium carbonate maximum: About 3 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Shallow Sandstone
Present native vegetation: Indian ricegrass, New Mexico feathergrass, blue grama, little bluestem, sideoats grama, Bigelow's sagebrush, fourwing saltbush, galleta, rabbitbrush, twoneedle pinyon, Mormon tea, oneseed juniper
Land capability (nonirrigated): 7s

Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 3 inches; sandy loam
Bt—3 to 14 inches; sandy clay loam
2R—14 inches; sandstone bedrock

Minor Components

Rock outcrop
Composition: About 9 percent
Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments.

Flugle and similar soils
Composition: About 6 percent
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Loamy

308—Fikel-Venzuni complex, 1 to 6 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 7,000 to 7,600 feet (2,134 to 2,316 meters)
Mean annual precipitation: 13 to 16 inches (330 to 406 millimeters)
Average annual air temperature: 49 to 53 degrees F (9 to 12 degrees C)
Frost-free period: 115 to 135 days

Map Unit Composition

Fikel and similar soils: 50 percent
Venzuni and similar soils: 40 percent
Minor components: 10 percent

Component Descriptions

Fikel soils

Geomorphic position: Fan remnants on valley sides
Parent material: Fan alluvium derived from sandstone and shale
Slope: 2 to 6 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 9.0 inches (moderate)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: High
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (very slightly saline)
Sodicity maximum: About 5 SAR (slightly sodic)
Ecological site: Clayey
Present native vegetation: alkali sacaton, western wheatgrass, galleta, Indian ricegrass, blue grama, bottlebrush squirreltail, broom snakeweed, fourwing saltbush, threeawn, winterfat, mat muhly, spike muhly
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4C

Typical Profile:
A—0 to 3 inches; clay loam
Bt—3 to 14 inches; clay
Btk1—14 to 32 inches; clay
Btk2—32 to 50 inches; sandy clay loam
Btk3—50 to 65 inches; clay
Btk4—65 to 70 inches; sandy clay loam

Venzuni soils

Geomorphic position: Stream terraces on valley floors
Parent material: Stream alluvium derived from sandstone and shale
Slope: 1 to 6 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.01 in/hr (very slow)
Available water capacity: About 7.9 inches (moderate)
Shrink-swell potential: About 8.0 LEP (high)
Flooding hazard: Rare
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 5 SAR (slightly sodic)
Ecological site: Clayey
Present native vegetation: alkali sacaton, western wheatgrass, galleta, Indian ricegrass, blue grama, bottlebrush squirreltail, broom snakeweed, fourwing saltbush, threeawn, winterfat, mat muhly, spike muhly
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4C
Typical Profile:
A—0 to 7 inches; clay
Bss1—7 to 22 inches; clay
Bss2—22 to 42 inches; clay

Bk1—42 to 56 inches; sandy clay
2Bk2—56 to 75 inches; sandy clay loam

Minor Components

Celavar and similar soils
Composition: About 5 percent
Slope: 1 to 6 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Savannah

Bluewater
Composition: About 5 percent
Slope: 0 to 1 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat poorly drained
Ecological site: Meadow

310—Parkelei sandy loam, 1 to 8 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,500 to 7,800 feet (1,981 to 2,377 meters)
Mean annual precipitation: 13 to 16 inches (330 to 406 millimeters)
Average annual air temperature: 46 to 49 degrees F (8 to 9 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

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

Component Descriptions

Parkelei soils

Geomorphic position: Summits on plateaus and mesas, dipslopes on cuestas, and drainageways
Parent material: Eolian material and fan and slope alluvium derived from sandstone and shale
Slope: 1 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 9.0 inches (moderate)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Low
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 1 SAR (slightly sodic)
Ecological site: Loamy
Present native vegetation: western wheatgrass, Indian ricegrass, big sagebrush, blue grama, bottlebrush squirreltail, galleta, needleandthread, winterfat, broom snakeweed, muttongrass, rabbitbrush, spineless horsebrush, oneseed juniper, twoneedle pinyon
Land capability (irrigated): 2e
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4C

Typical Profile:
A—0 to 2 inches; sandy loam
Bt—2 to 21 inches; sandy clay loam
Btk1—21 to 55 inches; sandy clay loam
Btk2—55 to 65 inches; clay loam

Minor Components

Fraguni and similar soils
Composition: About 10 percent
Slope: 1 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat excessively drained
Ecological site: Sandy

Evpark and similar soils
Composition: About 5 percent
Slope: 1 to 8 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Loamy

Galzuni and similar soils
Composition: About 3 percent
Slope: 1 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Clayey

Bryway and similar soils
Composition: About 2 percent
Slope: 2 to 8 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Loamy

312—Bluewater loam, 0 to 1 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 7,200 to 7,600 feet (2,195 to 2,316 meters)
Mean annual precipitation: 13 to 16 inches (330 to 406 millimeters)
Average annual air temperature: 48 to 53 degrees F (9 to 12 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

Bluewater: 90 percent
Minor components: 10 percent

Component Descriptions

Bluewater

Geomorphic position: Stream terraces on valley floors
Parent material: Stream alluvium derived from sandstone and shale
Slope: 0 to 1 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat poorly drained
Slowest permeability: About 0.01 in/hr (very slow)
Available water capacity: About 11.2 inches (high)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: Rare
Seasonal water table minimum depth: About 36 inches
Runoff class: Low
Calcium carbonate maximum: About 30 percent
Gypsum maximum: About 1 percent
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 5 SAR (slightly sodic)
Ecological site: Meadow
Present native vegetation: western wheatgrass, rush, sedge, California brome, bottlebrush squirreltail, slender wheatgrass, willow, clover
Land capability (irrigated): 3s
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 1K

Typical Profile:
A—0 to 2 inches; loam
Btk1—2 to 11 inches; clay loam
Btk2—11 to 28 inches; clay loam
Btk3—28 to 50 inches; clay loam
Btk4—50 to 70 inches; clay
Bk—70 to 80 inches; clay

Minor Components

Venzuni and similar soils
Composition: About 5 percent
Slope: 1 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Clayey

Fikel and similar soils
Composition: About 5 percent
Slope: 1 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Clayey

315—Flugle-Fragua complex, 1 to 10 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,400 to 7,300 feet (1,951 to 2,225 meters)
Mean annual precipitation: 13 to 14 inches (330 to 356 millimeters)
Average annual air temperature: 49 to 53 degrees F (9 to 12 degrees C)
Frost-free period: 115 to 135 days

Map Unit Composition

Flugle and similar soils: 50 percent
Fragua and similar soils: 40 percent
Minor components: 10 percent

Component Descriptions

Flugle soils

Geomorphic position: Fan remnants on valley sides, summits on mesas, and dipslopes on cuestas
Parent material: Eolian material and fan and slope alluvium derived from sandstone and shale
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 8.9 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium

Calcium carbonate maximum: About 5 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (slightly sodic)
Ecological site: Pinyon-Juniper Forest
Present native vegetation: Indian ricegrass, blue grama, bottlebrush squirreltail, broom snakeweed, buckwheat, galleta, muttongrass, oneseed juniper, sand dropseed, spineless horsebrush, threeawn, twoneedle pinyon, narrowleaf yucca
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4C

Typical Profile:
A—0 to 3 inches; loam
Bt1—3 to 10 inches; sandy clay loam
Bt2—10 to 28 inches; clay loam
Bk—28 to 65 inches; sandy loam

Fragua soils

Geomorphic position: Fan remnants on valley sides, summits on mesas, and dipslopes on cuestas
Parent material: Eolian material and fan and slope alluvium derived from sandstone
Slope: 1 to 10 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat excessively drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 7.0 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Low
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (slightly sodic)
Ecological site: Sandy Slopes
Present native vegetation: Indian ricegrass, blue grama, western wheatgrass, galleta, needleandthread, rabbitbrush, sand dropseed, spineless horsebrush, threeawn, oneseed juniper, ring muhly, twoneedle pinyon
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 5

Typical Profile:
A—0 to 2 inches; loamy fine sand
Btk—2 to 19 inches; sandy loam
Bk—19 to 65 inches; sandy loam

Minor Components

Celavar and similar soils
Composition: About 5 percent
Slope: 1 to 5 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Pinyon-Juniper Forest

Royosa and similar soils
Composition: About 5 percent
Slope: 1 to 10 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Excessively drained
Ecological site: Sandy Plains

316—Royosa loamy fine sand, 1 to 15 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,400 to 7,000 feet (1,951 to 2,134 meters)
Mean annual precipitation: 13 to 16 inches (330 to 406 millimeters)
Average annual air temperature: 46 to 49 degrees F (8 to 9 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

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

Component Descriptions

Royosa soils

Geomorphic position: Dunes
Parent material: Eolian material derived from sandstone
Slope: 1 to 15 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Excessively drained
Slowest permeability: About 6.00 in/hr (rapid)
Available water capacity: About 5.9 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very low
Calcium carbonate maximum: None
Gypsum maximum: None

Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Sandy Plains
Present native vegetation: blue grama, Indian ricegrass, big sagebrush, oneseed juniper, sand sagebrush, little bluestem, rabbitbrush, twoneedle pinyon, antelope bitterbrush, cliffrose, spineless horsebrush
Land capability (nonirrigated): 6e
Conservation Tree/Shrub Group: 7

Typical Profile:
A1—0 to 2 inches; loamy fine sand
A2—2 to 6 inches; loamy fine sand
C—6 to 65 inches; fine sand

Minor Components

Parkelei and similar soils
Composition: About 10 percent
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Loamy

Fraguni and similar soils
Composition: About 5 percent
Slope: 1 to 10 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat excessively drained
Ecological site: Sandy

Plumasano and similar soils
Composition: About 5 percent
Slope: 5 to 15 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Sandy Slopes

317—Highdye-Evpark-Bryway complex, 2 to 20 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,800 to 7,600 feet (2,073 to 2,316 meters)
Mean annual precipitation: 13 to 16 inches (330 to 406 millimeters)
Average annual air temperature: 46 to 49 degrees F (8 to 9 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

Highdye and similar soils: 35 percent
Evpark and similar soils: 30 percent
Bryway and similar soils: 20 percent
Minor components: 15 percent

Component Descriptions

Highdye soils

Geomorphic position: Sideslopes and summits on hills and ridges, dipslopes on cuestas, and summits on mesas
Parent material: Eolian material and slope alluvium over residuum derived from sandstone and shale
Slope: 2 to 20 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 1.8 inches (very low)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: High
Calcium carbonate maximum: None
Gypsum maximum: None
Salinity maximum: About 0 mmhos/cm (nonsaline)
Sodicity maximum: About 2 SAR (slightly sodic)
Ecological site: Pinyon-Juniper Forest
Present native vegetation: Gambel's oak, antelope bitterbrush, banana yucca, big sagebrush, blue grama, bottlebrush squirreltail, broom snakeweed, buckwheat, cliffrose, fringed sagewort, muttongrass, oneseed juniper, pingue hymenoxys, prairie junegrass, threeawn, twoneedle pinyon
Land capability (nonirrigated): 7s
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 3 inches; fine sandy loam
Bt1—3 to 5 inches; clay loam
2Bt2—5 to 12 inches; clay
2R—12 inches; sandstone bedrock

Evpark soils

Geomorphic position: Sideslopes and summits on hills and ridges, dipslopes on cuestas, and summits on mesas
Parent material: Eolian material and slope alluvium derived from sandstone and shale
Slope: 2 to 8 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)

Available water capacity: About 3.9 inches (low)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: High
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (slightly sodic)
Ecological site: Pinyon-Juniper Forest
Present native vegetation: Gambel's oak, antelope bitterbrush, banana yucca, big sagebrush, blue grama, bottlebrush squirreltail, broom snakeweed, buckwheat, muttongrass, oneseed juniper, prairie junegrass, twoneedle pinyon, western wheatgrass
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 6D

Typical Profile:
A—0 to 5 inches; loam
Bt1—5 to 10 inches; clay loam
Bt2—10 to 24 inches; sandy clay loam
R—24 inches; unweathered bedrock

Bryway soils

Geomorphic position: Sideslopes on hills and ridges, dipslopes on cuestas, and summits on mesas
Parent material: Slope alluvium over residuum derived from shale and sandstone
Slope: 2 to 8 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 3.3 inches (low)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: About 5 percent
Gypsum maximum: None
Salinity maximum: About 0 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Pinyon-Juniper Forest
Present native vegetation: Gambel's oak, Indian ricegrass, banana yucca, big sagebrush, blue grama, bottlebrush squirreltail, broom snakeweed, buckwheat, mountainmahogany, muttongrass, oneseed juniper, pingue hymenoxys, prairie junegrass, twoneedle pinyon, western wheatgrass
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4C

Typical Profile:
A—0 to 4 inches; sandy loam
Bt1—4 to 10 inches; clay
Bt2—10 to 23 inches; clay
2Cr—23 inches; shale

Minor Components

Vessilla and similar soils
Composition: About 5 percent
Slope: 2 to 4 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Somewhat excessively drained
Ecological site: Shallow Sandstone

Galzuni and similar soils
Composition: About 5 percent
Slope: 2 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Clayey

Parkelei and similar soils
Composition: About 5 percent
Slope: 2 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Pinyon-Juniper Forest

320—Parkelei-Fraguni complex, 1 to 8 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,500 to 7,500 feet (1,981 to 2,286 meters)
Mean annual precipitation: 13 to 16 inches (330 to 406 millimeters)
Average annual air temperature: 46 to 49 degrees F (8 to 9 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

Parkelei and similar soils: 45 percent
Fraguni and similar soils: 40 percent
Minor components: 15 percent

Component Descriptions

Parkelei soils

Geomorphic position: Dipslopes on cuestas, summits

on mesas and plateaus, and fan remnants on valley sides
Parent material: Eolian material and fan and slope alluvium derived from sandstone and shale (fig. 9)
Slope: 1 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 8.6 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Low
Calcium carbonate maximum: About 5 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Pinyon-Juniper Forest
Present native vegetation: Gambel's oak, Indian ricegrass, banana yucca, big sagebrush, blue grama, bottlebrush squirreltail, buckwheat, muttongrass, oneseed juniper, prairie junegrass, twoneedle pinyon, western wheatgrass
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4

Typical Profile:
A—0 to 4 inches; fine sandy loam
Bt1—4 to 18 inches; sandy clay loam
Bt2—18 to 28 inches; sandy clay loam
Bt3—28 to 39 inches; sandy clay loam
Btk—39 to 52 inches; sandy clay loam
Bk—52 to 70 inches; fine sandy loam

Fraguni soils

Geomorphic position: Dipslopes on cuestas, summits on mesas and plateaus, and fan remnants on valley sides
Parent material: Eolian material and fan and slope alluvium derived from sandstone
Slope: 1 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat excessively drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 7.2 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very low
Calcium carbonate maximum: About 1 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Pinyon-Juniper Forest
Present native vegetation: Indian ricegrass, banana yucca, big sagebrush, blue grama, bottlebrush squirreltail, broom snakeweed, buckwheat, muttongrass, oneseed juniper, twoneedle pinyon, western wheatgrass
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 5

Typical Profile:
A—0 to 4 inches; loamy fine sand
Bt1—4 to 20 inches; fine sandy loam
Bt2—20 to 46 inches; loamy fine sand
Bt3—46 to 58 inches; sandy clay loam
BC—58 to 70 inches; fine sandy loam

Minor Components

Evpark and similar soils
Composition: About 8 percent
Slope: 1 to 5 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Pinyon-Juniper Forest

Bryway and similar soils
Composition: About 7 percent
Slope: 2 to 8 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Pinyon-Juniper Forest

325—Venzuni silty clay, 1 to 3 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,700 to 7,600 feet (2,042 to 2,316 meters)
Mean annual precipitation: 13 to 16 inches (330 to 406 millimeters)
Average annual air temperature: 46 to 49 degrees F (8 to 9 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

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

Component Descriptions

Venzuni soils

Geomorphic position: Stream terraces on valley floors and alluvial fans on valley sides
Parent material: Fan and stream alluvium derived from shale
Slope: 1 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.01 in/hr (very slow)
Available water capacity: About 9.0 inches (moderate)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: Rare
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: About 5 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 5 SAR (slightly sodic)
Ecological site: Clayey
Present native vegetation: western wheatgrass, rush, sedge, slender wheatgrass, California brome, muttongrass, willow
Land capability (irrigated): 3s
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4CC

Typical Profile:
A—0 to 2 inches; silty clay
BC—2 to 12 inches; silty clay
Bss—12 to 46 inches; clay
2Bss—46 to 65 inches; clay

Minor Components

Nutreeah and similar soils
Composition: About 5 percent
Slope: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained
Ecological site: Meadow

Suwanee and similar soils
Composition: About 5 percent
Slope: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Bottomland

332—Evpark-Arabrab complex, 2 to 6 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,800 to 8,000 feet (2,073 to 2,438 meters)
Mean annual precipitation: 13 to 16 inches (330 to 406 millimeters)
Average annual air temperature: 46 to 49 degrees F (8 to 9 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

Evpark and similar soils: 50 percent
Arabrab and similar soils: 40 percent
Minor components: 10 percent

Component Descriptions

Evpark soils

Geomorphic position: Dipslopes on cuestas and summits on mesas
Parent material: Eolian material and slope alluvium derived from sandstone and shale
Slope: 2 to 6 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 7.0 inches (moderate)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: None
Gypsum maximum: None
Salinity maximum: About 0 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Pinyon-Juniper Forest
Present native vegetation: Gambel's oak, antelope bitterbrush, banana yucca, big sagebrush, blue grama, bottlebrush squirreltail, broom snakeweed, buckwheat, muttongrass, oneseed juniper, prairie junegrass, twoneedle pinyon, western wheatgrass
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 6D

Figure 9.—Typical landscape of Parklei-Fraguni complex, 1 to 8 percent slopes. Profile of the Parklei soil in a roadcut.

Typical Profile:
A—0 to 2 inches; fine sandy loam
Bt1—2 to 9 inches; loam
Bt2—9 to 36 inches; clay loam
R—36 inches; sandstone bedrock

Arabrab soils

Geomorphic position: Dipslopes on cuestas and summits on mesas
Parent material: Eolian material and slope alluvium over residuum derived from sandstone
Slope: 2 to 6 percent
Surface fragments: About 23 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Shrink-swell potential: About 4.0 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: High
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Pinyon-Juniper Forest
Present native vegetation: big sagebrush, muttongrass, Utah serviceberry, banana yucca, bottlebrush squirreltail, cliff fendlerbush, thrifty goldenweed, toadflax penstemon, oneseed juniper, twoneedle pinyon
Land capability (nonirrigated): 7s
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 2 inches; gravelly fine sandy loam
Bt1—2 to 7 inches; sandy clay loam
Bt2—7 to 12 inches; clay loam
Btk—12 to 17 inches; gravelly clay loam
R—17 inches; sandstone bedrock

Minor Components

Highdye and similar soils
Composition: About 3 percent

Slope: 2 to 6 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Pinyon-Juniper Forest

Parkelei and similar soils
Composition: About 5 percent
Slope: 2 to 6 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Pinyon-Juniper Forest

Rock outcrop
Composition: About 2 percent
Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments.

335—Venadito clay, 1 to 3 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,600 to 7,100 feet (2,012 to 2,164 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Average annual air temperature: 49 to 53 degrees F (9 to 12 degrees C)
Frost-free period: 120 to 140 days

Map Unit Composition

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

Component Descriptions

Venadito soils

Geomorphic position: Swales, depressions, and flood plains on valley floors and alluvial fans on valley sides
Parent material: Fan and stream alluvium derived from shale
Slope: 1 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.01 in/hr (very slow)
Available water capacity: About 8.9 inches (moderate)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: Frequent
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: About 10 percent
Gypsum maximum: About 1 percent
Salinity maximum: About 4 mmhos/cm (very slightly saline)
Sodicity maximum: About 10 SAR (slightly sodic)
Ecological site: Clayey Bottomland
Present native vegetation: western wheatgrass, alkali sacaton, fourwing saltbush, galleta, blue grama, spike muhly, mat muhly, broom snakeweed, rabbitbrush
Land capability (irrigated): 4w
Land capability (nonirrigated): 6w
Conservation Tree/Shrub Group: 4CC

Typical Profile:
A—0 to 3 inches; clay
BCss1—3 to 30 inches; clay
BCss2—30 to 65 inches; clay

Minor Components

Suwanee and similar soils
Composition: About 10 percent
Slope: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Bottomland

Nuffel and similar soils
Composition: About 5 percent
Slope: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Bottomland

336—Nuffel-Venadito complex, 1 to 3 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,100 to 6,500 feet (1,859 to 1,981 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Average annual air temperature: 49 to 53 degrees F (9 to 12 degrees C)
Frost-free period: 120 to 140 days

Map Unit Composition

Nuffel and similar soils: 45 percent
Venadito and similar soils: 35 percent
Minor components: 20 percent

Component Descriptions

Nuffel soils

Geomorphic position: Flood plains on valley floors

Parent material: Stream alluvium derived from siltstone and shale
Slope: 1 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 10.5 inches (high)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: Frequent
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 5 SAR (slightly sodic)
Ecological site: Bottomland
Present native vegetation: alkali sacaton, western wheatgrass, fourwing saltbush, blue grama, galleta, spike muhly, mat muhly, sand dropseed, spineless horsebrush
Land capability (irrigated): 4w
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 8

Typical Profile:
A—0 to 2 inches; silt loam
C1—2 to 10 inches; sandy loam
C2—10 to 17 inches; silt loam
C3—17 to 20 inches; loam
C4—20 to 47 inches; silty clay loam
2Ab—47 to 65 inches; silty clay

Venadito soils

Geomorphic position: Flood plains, depressions and swales on valley floors
Parent material: Stream alluvium derived from shale
Slope: 1 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.03 in/hr (very slow)
Available water capacity: About 7.7 inches (moderate)
Shrink-swell potential: About 11.0 LEP (very high)
Flooding hazard: Frequent
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 4 mmhos/cm (very slightly saline)
Sodicity maximum: About 10 SAR (slightly sodic)
Ecological site: Clayey Bottomland
Present native vegetation: western wheatgrass, alkali sacaton, fourwing saltbush, galleta, blue grama, spike muhly, mat muhly, broom snakeweed, rabbitbrush
Land capability (irrigated): 4w
Land capability (nonirrigated): 6w
Conservation Tree/Shrub Group: 4CC

Typical Profile:
A—0 to 2 inches; clay
BCss1—2 to 9 inches; clay
BCss2—9 to 11 inches; silty clay
BCss3—11 to 65 inches; clay

Minor Components

Hawaikuh and similar soils
Composition: About 8 percent
Slope: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Clayey

Aquima and similar soils
Composition: About 8 percent
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Loamy

Penistaja and similar soils
Composition: About 4 percent
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Loamy

338—Zyme-Lockerby association, 5 to 35 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,500 to 7,200 feet (1,981 to 2,195 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Average annual air temperature: 46 to 49 degrees F (8 to 9 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

Zyme and similar soils: 50 percent
Lockerby and similar soils: 40 percent

Minor components: 10 percent

Component Descriptions

Zyme soils

Geomorphic position: Sideslopes and summits on hills and ridges
Parent material: Residuum derived from shale
Slope: 5 to 35 percent
Surface fragments: About 16 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 2.4 inches (very low)
Shrink-swell potential: About 8.0 LEP (high)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: About 5 percent
Gypsum maximum: About 2 percent
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Clayey
Present native vegetation: alkali sacaton, western wheatgrass, galleta, Indian ricegrass, blue grama, bottlebrush squirreltail, broom snakeweed, fourwing saltbush, threeawn, winterfat, mat muhly, spike muhly
Land capability (nonirrigated): 7s
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 3 inches; channery silty clay loam
Cky1—3 to 8 inches; silty clay
Cky2—8 to 15 inches; channery clay
Cr—15 inches; shale

Lockerby soils

Geomorphic position: Sideslopes on hills and ridges
Parent material: Residuum derived from shale
Slope: 5 to 15 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.03 in/hr (very slow)
Available water capacity: About 4.0 inches (low)
Shrink-swell potential: About 8.0 LEP (high)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: About 5 percent
Gypsum maximum: About 1 percent
Salinity maximum: About 4 mmhos/cm (very slightly saline)
Sodicity maximum: About 2 SAR (slightly sodic)
Ecological site: Clayey
Present native vegetation: alkali sacaton, western wheatgrass, galleta, Indian ricegrass, blue grama, bottlebrush squirreltail, broom snakeweed, fourwing saltbush, threeawn, winterfat, mat muhly, spike muhly
Land capability (nonirrigated): 7e
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 1 inches; silty clay loam
Bw—1 to 11 inches; clay
Bss—11 to 15 inches; clay
Bssy—15 to 26 inches; clay
Cr—26 inches; shale

Minor Components

Rock outcrop
Composition: About 6 percent
Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments.

Marianolake and similar soils
Composition: About 4 percent
Slope: 5 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Loamy

345—Rock outcrop-Tuces complex, 20 to 70 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 7,400 to 8,000 feet (2,256 to 2,438 meters)
Mean annual precipitation: 13 to 16 inches (330 to 406 millimeters)
Average annual air temperature: 46 to 49 degrees F (8 to 9 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

Rock outcrop: 40 percent
Tuces and similar soils: 40 percent
Minor components: 20 percent

Component Descriptions

Rock outcrop

Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments.

Tuces soils

Geomorphic position: Escarpments on cuestas
Parent material: Slope alluvium and colluvium over residuum derived from sandstone and shale
Slope: 20 to 40 percent
Surface fragments: About 75 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 3.5 inches (low)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 1 SAR (slightly sodic)
Ecological site: Pinyon-Juniper Forest
Present native vegetation: Gambel's oak, banana yucca, blue grama, bottlebrush squirreltail, buckwheat, cliffrose, fourwing saltbush, galleta, mountainmahogany, muttongrass, needlegrass, oneseed juniper, sideoats grama, threeawn, twoneedle pinyon
Land capability (nonirrigated): 8
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 1 inches; extremely gravelly clay loam
Bk1—1 to 4 inches; clay
Bk2—4 to 24 inches; clay
Cr—24 inches; shale

Minor Components

Vessilla and similar soils
Composition: About 10 percent
Slope: 2 to 15 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Somewhat excessively drained
Ecological site: Shallow Sandstone

Fikel and similar soils
Composition: About 5 percent
Slope: 2 to 6 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Clayey

Venzuni and similar soils
Composition: About 5 percent
Slope: 1 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Meadow

350—Toldohn-Vessilla-Rock outcrop complex, 8 to 35 percent slopes

Map Unit Setting

Elevation: 6,800 to 8,000 feet (2,073 to 2,438 meters)
Mean annual precipitation: 13 to 16 inches (330 to 406 millimeters)
Mean annual air temperature: 46 to 49 degrees F (8.0 to 9.4 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

Toldohn and similar soils: 35 percent
Vessilla and similar soils: 30 percent
Rock outcrop: 20 percent
Minor components: 15 percent

Component Descriptions

Toldohn soils

Landform: Breaks, ridges, hills
Parent material: Slope alluvium over residuum derived from shale
Slope: 8 to 35 percent
Surface fragments: About 25 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: .06 to 0.2 in/hr (slow)
Available water capacity: About 1.5 inches (very low)
Shrink-swell potential: About 7.5 percent (high)
Runoff class: Very high
Calcium carbonate maximum: About 5 percent
Gypsum maximum: None
Salinity maximum: About 0 mmhos/cm (nonsaline)
Sodium adsorption ratio maximum: About 2 (slightly sodic)

Ecological site: pinyon-juniper forest
Potential native vegetation:
Common trees: oneseed juniper, Rocky Mountain juniper, Gambel oak, twoneedle pinyon
Other plants: Gambel oak, antelope bitterbrush, banana yucca, big sagebrush, blue grama, bottlebrush squirreltail, broom snakeweed, buckwheat, little bluestem, mountainmahogany, muttongrass, oneseed juniper, prairie junegrass, sideoats grama, twoneedle pinyon
Land capability subclass (nonirrigated): 7s

Typical Profile:
A—0 to 4 inches; gravelly clay loam
2BC—4 to 11 inches; clay
2Cr—11 to 20 inches; weathered bedrock

Vessilla soils

Landform: Breaks, structural benches on ridges, structural benches on hills
Parent material: Eolian and slope alluvium derived from sandstone
Slope: 8 to 15 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Somewhat excessively drained
Slowest permeability: 2.0 to 6.0 in/hr (moderately rapid)
Available water capacity: About 1.5 inches (very low)
Runoff class: Medium
Calcium carbonate maximum: About 5 percent
Gypsum maximum: None
Salinity maximum: About 0 mmhos/cm (nonsaline)
Sodium adsorption ratio maximum: About 0 (nonsodic)
Ecological site: pinyon-juniper forest
Potential native vegetation:
Common trees: oneseed juniper, Rocky Mountain juniper, Gambel oak, twoneedle pinyon
Other plants: Gambel oak, antelope bitterbrush, banana yucca, big sagebrush, blue grama, broom snakeweed, buckwheat, little bluestem, mountainmahogany, muttongrass, oneseed juniper, prairie junegrass, sideoats grama, twoneedle pinyon
Land capability subclass (nonirrigated): 7s

Typical Profile:
A—0 to 2 inches; fine sandy loam
C—2 to 11 inches; fine sandy loam
2R—11 to 20 inches; unweathered bedrock

Rock outcrop

Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments.

Minor Components

Galzuni and similar soils
Composition: About 5 percent
Slope: 5 to 8 percent
Drainage class: Well drained
Ecological site: Clayey

Parkelei and similar soils
Composition: About 5 percent
Slope: 5 to 8 percent
Drainage class: Well drained
Ecological site: Pinyon-Juniper Forest

Bryway and similar soils
Composition: About 5 percent
Slope: 5 to 8 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Pinyon-Juniper Forest

351—Rock outcrop-Vessilla complex, 35 to 70 percent slopes

Map Unit Setting

Elevation: 6,800 to 8,000 feet (2,073 to 2,438 meters)
Mean annual precipitation: 13 to 16 inches (330 to 406 millimeters)
Mean annual air temperature: 46 to 49 degrees F (8.0 to 9.4 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

Rock outcrop: 60 percent
Vessilla and similar soils: 30 percent
Minor components: 10 percent

Component Descriptions

Rock outcrop

Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale. Slopes range from about 5 to 15 percent on treads (structural benches) to almost vertical cliffs on the risers (escarpment face).

Vessilla soils

Landform: Escarpments on cuestas, escarpments on mesas
Parent material: Eolian material and slope alluvium derived from sandstone

Slope: 35 to 50 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Somewhat excessively drained
Slowest permeability: 2.0 to 6.0 in/hr (moderately rapid)
Available water capacity: About 0.7 inches (very low)
Shrink-swell potential: About 1.5 percent (low)
Runoff class: Medium
Calcium carbonate maximum: About 5 percent
Gypsum maximum: None
Salinity maximum: About 0 mmhos/cm (nonsaline)
Sodium adsorption ratio maximum: About 0 (nonsodic)
Ecological site: Draft Shallow Savannah 9-14" P.z.
Potential native vegetation: Gambel oak, antelope bitterbrush, banana yucca, big sagebrush, blue grama, broom snakeweed, buckwheat, little bluestem, mountainmahogany, muttongrass, oneseed juniper, prairie junegrass, sideoats grama
Land capability subclass (nonirrigated): 7s

Typical Profile:
A—0 to 5 inches; fine sandy loam
2R—5 to 20 inches; unweathered bedrock

Minor Components

Rubble Land
Composition: About 3 percent
Depth to restrictive feature: 0 inches to bedrock (lithic)

Mido and similar soils
Composition: About 3 percent
Slope: 5 to 10 percent
Drainage class: Excessively drained
Ecological site: Deep Sand

Toldohn and similar soils
Composition: About 2 percent
Slope: 20 to 35 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Clayey

Vessilla and similar soils
Composition: About 2 percent
Slope: 5 to 35 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Shallow Sandstone

352—Zia sandy loam, 1 to 5 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,000 to 6,800 feet (1,829 to 2,073 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Average annual air temperature: 49 to 53 degrees F (9 to 12 degrees C)
Frost-free period: 120 to 140 days

Map Unit Composition

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

Component Descriptions

Zia soils

Geomorphic position: Stream terraces on valley floors and alluvial fans on valley sides
Parent material: Eolian material and fan and stream alluvium derived from sandstone
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat excessively drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 7.1 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very low
Calcium carbonate maximum: About 5 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 2 SAR (slightly sodic)
Ecological site: Sandy
Present native vegetation: blue grama, western wheatgrass, Indian ricegrass, fourwing saltbush, sand dropseed, needleandthread, spike dropseed, winterfat, galleta, ring muhly, rabbitbrush, sand sagebrush, spineless horsebrush
Land capability (irrigated): 3e
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 5

Typical Profile:
A—0 to 3 inches; sandy loam

C1—3 to 31 inches; sandy loam
C2—31 to 65 inches; fine sandy loam

Minor Components

Mido and similar soils
Composition: About 10 percent
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Excessively drained
Ecological site: Deep Sand

Penistaja and similar soils
Composition: About 5 percent
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Loamy

Aquima and similar soils
Composition: About 5 percent
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Loamy

353—Mido loamy fine sand, 1 to 6 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,300 to 6,700 feet (1,920 to 2,042 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Average annual air temperature: 49 to 53 degrees F (9 to 12 degrees C)
Frost-free period: 120 to 140 days

Map Unit Composition

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

Component Descriptions

Mido soils

Geomorphic position: Dunes on valley sides and valley floors
Parent material: Eolian material derived from sandstone
Slope: 1 to 6 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Excessively drained
Slowest permeability: About 6.00 in/hr (rapid)
Available water capacity: About 4.8 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Negligible
Calcium carbonate maximum: About 1 percent
Gypsum maximum: None
Salinity maximum: About 0 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Deep Sand
Present native vegetation: Indian ricegrass, blue grama, antelope bitterbrush, broom snakeweed, fourwing saltbush, sand dropseed, sandhill muhly
Land capability (irrigated): 3e
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 5

Typical Profile:
A—0 to 3 inches; loamy fine sand
C—3 to 65 inches; loamy fine sand

Minor Components

Redpen and similar soils
Composition: About 5 percent
Slope: 1 to 6 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Loamy

Fragua and similar soils
Composition: About 5 percent
Slope: 1 to 6 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat excessively drained
Ecological site: Sandy Slopes

354—Knifehill loam, 1 to 5 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,900 to 7,500 feet (2,103 to 2,286 meters)
Mean annual precipitation: 13 to 16 inches (330 to 406 millimeters)
Average annual air temperature: 46 to 49 degrees F (8 to 9 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

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

Component Descriptions

Knifehill soils

Geomorphic position: Stream terraces on valley floors and fan remnants on valley sides
Parent material: Fan and stream alluvium derived from sandstone and shale
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 9.4 inches (high)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: High
Calcium carbonate maximum: About 15 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Meadow
Present native vegetation: western wheatgrass, rush, sedge, slender wheatgrass, California brome, muttongrass, willow
Land capability (irrigated): 3c
Land capability (nonirrigated): 4c
Conservation Tree/Shrub Group: 4C

Typical Profile:
A—0 to 2 inches; loam
Bw—2 to 6 inches; clay loam
Bt1—6 to 11 inches; clay loam
Bt2—11 to 26 inches; clay
Btk—26 to 35 inches; clay
Bk—35 to 65 inches; clay

Minor Components

Silcat and similar soils
Composition: About 10 percent
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Clayey

Parkelei and similar soils
Composition: About 10 percent
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Loamy

355—Rizno-Tekapo-Rock outcrop complex, 2 to 45 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,200 to 6,700 feet (1,890 to 2,042 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Average annual air temperature: 49 to 54 degrees F (9 to 12 degrees C)
Frost-free period: 120 to 140 days

Map Unit Composition

Rizno and similar soils: 35 percent
Tekapo and similar soils: 30 percent
Rock outcrop: 20 percent
Minor components: 15 percent

Component Descriptions

Rizno soils

Geomorphic position: Structural benches on escarpments on cuestas and mesas
Parent material: Eolian material over residuum derived from sandstone
Slope: 2 to 20 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 0.9 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Shallow Sandstone
Present native vegetation: Indian ricegrass, New Mexico feathergrass, blue grama, little bluestem, sideoats grama, Bigelow's sagebrush, fourwing saltbush, galleta, sand dropseed, antelope bitterbrush, cliffrose, Mormon tea, oneseed juniper
Land capability (nonirrigated): 7s
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 3 inches; fine sandy loam
C—3 to 8 inches; sandy loam
2R—8 inches; sandstone bedrock

Tekapo soils

Geomorphic position: Escarpments on mesas and cuestas
Parent material: Slope alluvium and colluvial material over residuum derived from shale and siltstone
Slope: 10 to 45 percent
Surface fragments: About 20 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 1.6 inches (very low)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: About 5 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Shale Hills
Present native vegetation: alkali sacaton, galleta, Indian ricegrass, blue grama, bottlebrush squirreltail, fourwing saltbush, little bluestem, needleandthread, sideoats grama, western wheatgrass, mound saltbush, shadscale saltbush, Bigelow's sagebrush, oneseed juniper, winterfat
Land capability (nonirrigated): 7s
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 2 inches; channery silty clay loam
C—2 to 10 inches; silty clay
2Cr—10 inches; shale

Rock outcrop

Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments.

Minor Components

Aquima and similar soils
Composition: About 5 percent
Slope: 2 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Loamy

Mido and similar soils
Composition: About 5 percent
Slope: 2 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Excessively drained
Ecological site: Deep Sand

Monpark and similar soils
Composition: About 5 percent
Slope: 2 to 5 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Clayey

357—Heshotauthla clay, 0 to 1 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,300 to 7,000 feet (1,920 to 2,134 meters)
Mean annual precipitation: 13 to 16 inches (330 to 406 millimeters)
Average annual air temperature: 46 to 49 degrees F (8 to 9 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

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

Component Descriptions

Heshotauthla soils

Geomorphic position: Stream terraces on valley floors and flood plains on valley floors
Parent material: Stream alluvium derived from sandstone and shale
Slope: 0 to 1 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.01 in/hr (very slow)
Available water capacity: About 5.4 inches (low)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: Occasional
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: High
Calcium carbonate maximum: About 5 percent
Gypsum maximum: About 1 percent
Salinity maximum: About 16 mmhos/cm (moderately saline)

Sodicity maximum: About 40 SAR (strongly sodic)
Ecological site: Salty Bottomland
Present native vegetation: alkali sacaton, western wheatgrass, fourwing saltbush, big sagebrush, blue grama, bottlebrush squirreltail, greasewood, inland saltgrass, mat muhly, rabbitbrush
Land capability (irrigated): 4w
Land capability (nonirrigated): 7s
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 3 inches; clay
Btn—3 to 18 inches; clay
Btkz—18 to 65 inches; clay

Minor Components

Hosta and similar soils
Composition: About 5 percent
Slope: 1 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Loamy

Knifehill and similar soils
Composition: About 5 percent
Slope: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Meadow

Concho and similar soils
Composition: About 5 percent
Slope: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Clayey

360—Hosta-Concho association, 0 to 5 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,800 to 7,000 feet (2,073 to 2,134 meters)
Mean annual precipitation: 13 to 16 inches (330 to 406 millimeters)
Average annual air temperature: 46 to 49 degrees F (8 to 9 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

Hosta and similar soils: 45 percent
Concho and similar soils: 40 percent
Minor components: 15 percent

Component Descriptions

Hosta soils

Geomorphic position: Drainageways and fan remnants on valley sides
Parent material: Fan alluvium derived from sandstone and shale
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 10.0 inches (high)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 5 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 2 SAR (slightly sodic)
Ecological site: Loamy
Present native vegetation: western wheatgrass, Indian ricegrass, big sagebrush, blue grama, bottlebrush squirreltail, galleta, oneseed juniper, winterfat, broom snakeweed, muttongrass, rabbitbrush, spineless horsebrush
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4C

Typical Profile:
A—0 to 2 inches; loam
Bt—2 to 4 inches; clay loam
Btk1—4 to 24 inches; clay loam
Btk2—24 to 51 inches; clay
Bk—51 to 65 inches; sandy clay loam

Concho soils

Geomorphic position: Drainageways and stream terraces on valley floors
Parent material: Fan and stream alluvium derived from sandstone and shale
Slope: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 8.9 inches (moderate)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: Rare

Seasonal water table minimum depth: Greater than 6 feet
Runoff class: High
Calcium carbonate maximum: About 5 percent
Gypsum maximum: None
Salinity maximum: About 4 mmhos/cm (very slightly saline)
Sodicity maximum: About 2 SAR (slightly sodic)
Ecological site: Clayey
Present native vegetation: western wheatgrass, needleandthread, winterfat, Indian ricegrass, big sagebrush, blue grama, bottlebrush squirreltail, galleta, pingue hymenoxys, rabbitbrush
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4C

Typical Profile:
Ap1—0 to 1 inches; clay loam
Ap2—1 to 5 inches; clay
Btss—5 to 32 inches; clay
Btkss—32 to 51 inches; clay
Btkz—51 to 65 inches; clay

Minor Components

Fraguni and similar soils
Composition: About 5 percent
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat excessively drained
Ecological site: Sandy

Parkelei and similar soils
Composition: About 5 percent
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Loamy

Silcat and similar soils
Composition: About 5 percent
Slope: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Clayey

361—Monpark silty clay, 2 to 8 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,000 to 7,000 feet (1,829 to 2,134 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Average annual air temperature: 49 to 53 degrees F (9 to 12 degrees C)
Frost-free period: 120 to 140 days

Map Unit Composition

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

Component Descriptions

Monpark soils

Geomorphic position: Hills and valley sides
Parent material: Slope alluvium over residuum derived from shale
Slope: 2 to 8 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.03 in/hr (very slow)
Available water capacity: About 4.1 inches (low)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: High
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 4 mmhos/cm (very slightly saline)
Sodicity maximum: About 5 SAR (slightly sodic)
Ecological site: Clayey
Present native vegetation: western wheatgrass, alkali sacaton, blue grama, galleta, Indian ricegrass, fourwing saltbush, winterfat, bottlebrush squirreltail, rabbitbrush, broom snakeweed
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4CK

Typical Profile:
A—0 to 4 inches; silty clay
BC—4 to 7 inches; silty clay
2BCss—7 to 27 inches; clay
2Cr—27 inches; shale

Minor Components

Tekapo and similar soils
Composition: About 5 percent
Slope: 2 to 8 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Shale Hills

Rizno and similar soils
Composition: About 5 percent
Slope: 2 to 8 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Somewhat excessively drained
Ecological site: Shallow Sandstone

Venadito and similar soils
Composition: About 5 percent
Slope: 2 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Clayey Bottomland

Aquima and similar soils
Composition: About 5 percent
Slope: 2 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Loamy

365—Vessilla-Rock outcrop complex, 2 to 15 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,500 to 8,000 feet (1,981 to 2,469 meters)
Mean annual precipitation: 13 to 14 inches (330 to 356 millimeters)
Average annual air temperature: 46 to 49 degrees F (8 to 9 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

Vessilla and similar soils: 55 percent
Rock outcrop: 35 percent
Minor components: 10 percent

Component Descriptions

Vessilla soils

Geomorphic position: Summits on mesas and dipslopes on cuestas
Parent material: Eolian material derived from sandstone
Slope: 2 to 15 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 2.1 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 15 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Pinyon-Juniper Forest
Present native vegetation: Bigelow's sagebrush, blue grama, fourwing saltbush, Indian ricegrass, New Mexico feathergrass, galleta, little bluestem, sideoats grama, winterfat, cliffrose, Mormon tea, oneseed juniper, twoneedle pinyon
Land capability (nonirrigated): 7s
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 2 inches; fine sandy loam
Ck1—2 to 6 inches; fine sandy loam
Ck2—6 to 15 inches; fine sandy loam
R—15 to 20 inches; sandstone bedrock

Rock outcrop

Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments.

Minor Components

Arabrab and similar soils
Composition: About 5 percent
Slope: 2 to 8 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Pinyon-Juniper Forest

Evpark and similar soils
Composition: About 3 percent
Slope: 2 to 8 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Pinyon-Juniper Forest

Parkelei and similar soils
Composition: About 2 percent
Slope: 2 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Pinyon-Juniper Forest

366—Bosonoak loam, 1 to 5 percent slopes

Map Unit Setting

MLRA:
Elevation: 6,500 to 7,000 feet (1,981 to 2,134 meters)
Mean annual precipitation: 13 to 16 inches (330 to 406 millimeters)
Average annual air temperature: 46 to 49 degrees F (8 to 9 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

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

Component Descriptions

Bosonoak soils

Geomorphic position: Fan remnants on valley sides and drainageways
Parent material: Fan alluvium derived from siltstone and shale
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 10.8 inches (high)
Shrink-swell potential: About 2.0 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Loamy
Present native vegetation: western wheatgrass, Indian ricegrass, big sagebrush, blue grama, galleta, winterfat, rubber rabbitbrush, oneseed juniper, twoneedle pinyon
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4C

Typical Profile:
A—0 to 2 inches; loam
Bt—2 to 5 inches; clay loam
Btk1—5 to 28 inches; clay loam
Btk2—28 to 40 inches; loam
Btk3—40 to 63 inches; loam
Btk4—63 to 80 inches; silt loam

Minor Components

Royosa and similar soils
Composition: About 5 percent
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Excessively drained
Ecological site: Sandy Plains

367—Chunkmonk very gravelly fine sandy loam, 2 to 10 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 7,000 to 7,700 feet (2,134 to 2,347 meters)
Mean annual precipitation: 13 to 16 inches (330 to 406 millimeters)
Average annual air temperature: 46 to 49 degrees F (8 to 9 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

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

Component Descriptions

Chunkmonk soils

Geomorphic position: Dipslopes on cuestas
Parent material: Eolian material and slope alluvium over residuum derived from sandstone and limestone
Slope: 2 to 10 percent
Surface fragments: About 50 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 1.3 inches (very low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: High
Calcium carbonate maximum: About 40 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Pinyon-Juniper Forest
Present native vegetation: Gambel's oak, antelope bitterbrush, banana yucca, big sagebrush, blue grama, bottlebrush squirreltail, broom snakeweed, buckwheat, muttongrass, oneseed juniper, pingue hymenoxys, prairie junegrass, twoneedle pinyon

Land capability (nonirrigated): 7s
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 1 inches; very gravelly fine sandy loam
Btk1—1 to 4 inches; very cobbly loam
Btk2—4 to 8 inches; gravelly loam
Btk3—8 to 10 inches; gravelly loam
R—10 inches; limestone bedrock

Minor Components

Evpark and similar soils
Composition: About 10 percent
Slope: 2 to 6 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Pinyon-Juniper Forest

Losegate and similar soils
Composition: About 5 percent
Slope: 2 to 6 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Pinyon-Juniper Forest

368—Simitarq-Celavar sandy loams, 2 to 8 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 7,200 to 8,100 feet (2,195 to 2,469 meters)
Mean annual precipitation: 13 to 16 inches (330 to 406 millimeters)
Average annual air temperature: 49 to 53 degrees F (9 to 12 degrees C)
Frost-free period: 115 to 135 days

Map Unit Composition

Simitarq and similar soils: 60 percent
Celavar and similar soils: 20 percent
Minor components: 20 percent

Component Descriptions

Simitarq soils

Geomorphic position: Summits on mesas and dipslopes on cuestas
Parent material: Eolian material and slope alluvium over residuum derived from sandstone
Slope: 2 to 8 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 2.1 inches (very low)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: High
Calcium carbonate maximum: About 5 percent
Gypsum maximum: None
Salinity maximum: About 0 mmhos/cm (nonsaline)
Sodicity maximum: None
Ecological site: Pinyon-Juniper Forest
Land capability (nonirrigated): 7s
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 1 inches; sandy loam
Bt1—1 to 6 inches; sandy clay loam
Bt2—6 to 14 inches; sandy clay
R—14 inches; sandstone bedrock

Celavar soils

Geomorphic position: Summits on mesas and dipslopes on cuestas
Parent material: Eolian material and slope alluvium derived from sandstone and shale
Slope: 2 to 8 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 4.3 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 5 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Pinyon-Juniper Forest
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 6D

Typical Profile:
Oi—0 to 1 inches;
A—1 to 2 inches; sandy loam
Bt—2 to 11 inches; sandy clay loam
Btk1—11 to 27 inches; sandy clay loam

Btk2—27 to 31 inches; sandy clay loam
R—31 inches; sandstone bedrock

Minor Components

Rock outcrop
Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments.

Fikel and similar soils
Composition: About 6 percent
Slope: 2 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Clayey

Tuces and similar soils
Composition: About 5 percent
Slope: 2 to 8 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Pinyon-Juniper Forest

375—Todest-Shadilto complex, 2 to 8 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 7,000 to 7,700 feet (2,134 to 2,347 meters)
Mean annual precipitation: 13 to 16 inches (330 to 406 millimeters)
Average annual air temperature: 49 to 53 degrees F (9 to 12 degrees C)
Frost-free period: 115 to 135 days

Map Unit Composition

Todest and similar soils: 60 percent
Shadilto and similar soils: 25 percent
Minor components: 15 percent

Component Descriptions

Todest soils

Geomorphic position: Dipslopes on cuestas
Parent material: Eolian material and slope alluvium derived from limestone and sandstone
Slope: 2 to 8 percent
Surface fragments: About 55 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 3.8 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 80 percent
Gypsum maximum: None
Salinity maximum: About 0 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Savannah
Present native vegetation: blue grama, western wheatgrass, Indian ricegrass, needleandthread, oneseed juniper, sand dropseed, twoneedle pinyon, muttongrass, rabbitbrush, winterfat, Bigelow's sagebrush, bottlebrush squirreltail, spineless horsebrush
Land capability (nonirrigated): 6e
Conservation Tree/Shrub Group: 6DK

Typical Profile:
A—0 to 1 inches; fine sandy loam
BAt—1 to 3 inches; fine sandy loam
Btk1—3 to 10 inches; sandy clay loam
Btk2—10 to 18 inches; sandy clay loam
Bk—18 to 25 inches; loam
2R—25 inches; limestone bedrock

Shadilto soils

Geomorphic position: Dipslopes on cuestas
Parent material: Eolian material over residuum derived from limestone and sandstone
Slope: 2 to 8 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Somewhat excessively drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 1.6 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: High
Calcium carbonate maximum: About 80 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Shallow
Present native vegetation: New Mexico feathergrass, blue grama, sideoats grama, Indian ricegrass, bottlebrush squirreltail, little bluestem, western wheatgrass, galleta, sand dropseed, threeawn, oneseed juniper, twoneedle pinyon

Land capability (nonirrigated): 7e
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 1 inches; very gravelly sandy loam
Bk1—1 to 9 inches; sandy loam
Bk2—9 to 13 inches; sandy loam
Bk3—13 to 15 inches; sandy loam
R—15 inches; limestone bedrock

Minor Components

Flugle and similar soils
Composition: About 5 percent
Slope: 2 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Loamy

Evpark and similar soils
Composition: About 5 percent
Slope: 2 to 8 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Loamy

Arabrab and similar soils
Composition: About 5 percent
Slope: 2 to 6 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Shallow Sandstone

376—Todest fine sandy loam, 2 to 8 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 7,000 to 7,700 feet (2,134 to 2,347 meters)
Mean annual precipitation: 13 to 16 inches (330 to 406 millimeters)
Average annual air temperature: 49 to 53 degrees F (9 to 12 degrees C)
Frost-free period: 115 to 135 days

Map Unit Composition

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

Component Descriptions

Todest soils

Geomorphic position: Dipslopes on cuestas
Parent material: Eolian material and slope alluvium derived from limestone and sandstone
Slope: 2 to 8 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 3.4 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 80 percent
Gypsum maximum: None
Salinity maximum: About 0 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Savannah
Present native vegetation: blue grama, western wheatgrass, Indian ricegrass, needleandthread, oneseed juniper, sand dropseed, twoneedle pinyon, muttongrass, rabbitbrush, winterfat, Bigelow's sagebrush, bottlebrush squirreltail, spineless horsebrush
Land capability (nonirrigated): 6e
Conservation Tree/Shrub Group: 6KK

Typical Profile:
A—0 to 1 inches; fine sandy loam
Btk1—1 to 8 inches; sandy clay loam
Btk2—8 to 14 inches; sandy clay loam
Bk—14 to 24 inches; cobbly sandy clay loam
2R—24 inches; limestone bedrock

Minor Components

Shadilto and similar soils
Composition: About 10 percent
Slope: 2 to 8 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Somewhat excessively drained
Ecological site: Shallow

Celavar and similar soils
Composition: About 5 percent
Slope: 2 to 8 percent

Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Savannah

Atarque and similar soils
Composition: About 5 percent
Slope: 2 to 8 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Shallow Sandstone

380—Berryhill-Casamero clays, 2 to 10 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 7,000 to 7,800 feet (2,134 to 2,377 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Average annual air temperature: 49 to 53 degrees F (9 to 12 degrees C)
Frost-free period: 120 to 140 days

Map Unit Composition

Berryhill and similar soils: 50 percent
Casamero and similar soils: 45 percent
Minor components: 5 percent

Component Descriptions

Berryhill soils

Geomorphic position: Depressions on valley floors, sideslopes on hills, and valley sides
Parent material: Slope alluvium derived from shale
Slope: 2 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.01 in/hr (very slow)
Available water capacity: About 8.3 inches (moderate)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: None
Ponding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: About 10 percent
Gypsum maximum: About 35 percent
Salinity maximum: About 8 mmhos/cm (slightly saline)
Sodicity maximum: About 8 SAR (slightly sodic)
Ecological site: Clayey
Present native vegetation: western wheatgrass, alkali sacaton, blue grama, galleta, Indian ricegrass, fourwing saltbush, winterfat, bottlebrush squirreltail, rabbitbrush, broom snakeweed
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4CC

Typical Profile:
A—0 to 2 inches; clay
Bw—2 to 12 inches; clay
Bssyz1—12 to 26 inches; clay
Bssyz2—26 to 39 inches; clay
Bssyz3—39 to 70 inches; clay

Casamero soils

Geomorphic position: Sideslopes on hills and valley sides
Parent material: Slope alluvium over residuum derived from shale
Slope: 2 to 10 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.01 in/hr (very slow)
Available water capacity: About 2.5 inches (very low)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: About 10 percent
Gypsum maximum: About 5 percent
Salinity maximum: About 8 mmhos/cm (slightly saline)
Sodicity maximum: About 5 SAR (slightly sodic)
Ecological site: Clayey
Present native vegetation: western wheatgrass, alkali sacaton, blue grama, galleta, Indian ricegrass, fourwing saltbush, winterfat, bottlebrush squirreltail, rabbitbrush, broom snakeweed
Land capability (nonirrigated): 7s
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 3 inches; clay
Bss—3 to 11 inches; clay
Bssyz—11 to 18 inches; clay
Cr—18 inches; shale

Minor Components

Marianolake and similar soils
Composition: About 3 percent
Slope: 2 to 8 percent

Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Loamy

Rock outcrop
Composition: About 2 percent
Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments.

385—Mcorreon-Rock outcrop complex, 10 to 40 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,500 to 8,600 feet (1,981 to 2,621 meters)
Mean annual precipitation: 13 to 16 inches (330 to 406 millimeters)
Average annual air temperature: 47 to 53 degrees F (8 to 12 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

Mcorreon and similar soils: 65 percent
Rock outcrop: 20 percent
Minor components: 15 percent

Component Descriptions

Mcorreon soils

Geomorphic position: Escarpments on lava plateaus
Parent material: Eolian material and slope alluvium over residuum derived from basalt
Slope: 10 to 40 percent
Surface fragments: About 80 percent
Depth to restrictive feature: Greater than 60 inches to bedrock
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 8.4 inches (moderate)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: About 50 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 1 SAR (slightly sodic)
Ecological site: Pinyon-Juniper Forest
Land capability (nonirrigated): 7e
Conservation Tree/Shrub Group: 4C

Typical Profile:
A—0 to 2 inches; extremely cobbly loam
Bt1—2 to 5 inches; clay loam
Bt2—5 to 16 inches; clay
Btk1—16 to 22 inches; clay
Btk2—22 to 70 inches; clay
R—70 inches; basalt bedrock

Rock outcrop

Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments.

Minor Components

Flugle and similar soils
Composition: About 5 percent
Slope: 5 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Pinyon-Juniper Forest

Cabezon and similar soils
Composition: About 5 percent
Slope: 5 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Pinyon-Juniper Forest

Toldohn and similar soils
Composition: About 3 percent
Slope: 10 to 40 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Pinyon-Juniper Forest

Vessilla and similar soils
Composition: About 2 percent
Slope: 2 to 15 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Somewhat excessively drained
Ecological site: Shallow Sandstone

390—Banquito very fine sandy loam, 1 to 3 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 7,200 to 7,800 feet (2,195 to 2,377 meters)
Mean annual precipitation: 13 to 16 inches (330 to 406 millimeters)

Average annual air temperature: 47 to 53 degrees F (8 to 12 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

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

Component Descriptions

Banquito soils

Geomorphic position: Lava plateaus
Parent material: Eolian material and slope alluvium over residuum derived from basalt
Slope: 1 to 3 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 5.5 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 55 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Limy
Present native vegetation: western wheatgrass, blue grama, needleandthread, winterfat, Indian ricegrass, bottlebrush squirreltail, fourwing saltbush, twoneedle pinyon, broom snakeweed, oneseed juniper, rabbitbrush, spineless horsebrush
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 6DK

Typical Profile:
A—0 to 2 inches; very fine sandy loam
Btk1—2 to 9 inches; clay loam
Btk2—9 to 17 inches; loam
Bk1—17 to 22 inches; sandy clay loam
Bk2—22 to 36 inches; sandy loam
2R—36 inches; basalt bedrock

Minor Components

Flugle and similar soils
Composition: About 10 percent
Slope: 1 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Loamy

395—Cabezon-Mcorreon complex, 2 to 8 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,800 to 8,000 feet (2,073 to 2,438 meters)
Mean annual precipitation: 14 to 16 inches (356 to 406 millimeters)
Average annual air temperature: 47 to 53 degrees F (8 to 12 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

Cabezon and similar soils: 60 percent
Mcorreon and similar soils: 30 percent
Minor components: 10 percent

Component Descriptions

Cabezon soils

Geomorphic position: Summits on lava plateaus
Parent material: Eolian material over residuum from basalt
Slope: 2 to 8 percent
Surface fragments: About 50 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 2.1 inches (very low)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: About 0 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 1 SAR (slightly sodic)
Ecological site: Pinyon-Juniper Forest
Land capability (nonirrigated): 7s
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 2 inches; very cobbly loam
Bt1—2 to 6 inches; clay loam

Bt2—6 to 14 inches; clay
Crk—14 to 17 inches; weathered bedrock
R—17 inches; basalt bedrock

Mcorreon soils

Geomorphic position: Summits on lava plateaus
Parent material: Eolian material and slope alluvium over residuum derived from basalt
Slope: 2 to 8 percent
Depth to restrictive feature: Greater than 60 inches to bedrock
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 10.4 inches (high)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: About 50 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 1 SAR (slightly sodic)
Ecological site: Pinyon-Juniper Forest
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4C

Typical Profile:
A—0 to 2 inches; loam
Bt1—2 to 13 inches; clay
Bt2—13 to 19 inches; clay
Btk—19 to 27 inches; clay loam
Bk—27 to 70 inches; clay loam
R—70 inches; basalt bedrock

Minor Components

Rock outcrop
Composition: About 5 percent
Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments.

Banquito and similar soils
Composition: About 5 percent
Slope: 2 to 8 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Limy

400—Shoemaker-Stozuni complex, 2 to 8 percent slopes

Map Unit Setting

MLRA: 39
Elevation: 7,000 to 7,600 feet (2,134 to 2,303 meters)
Mean annual precipitation: 16 to 20 inches (406 to 508 millimeters)
Average annual air temperature: 40 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 90 to 110 days

Map Unit Composition

Shoemaker and similar soils: 45 percent
Stozuni and similar soils: 35 percent
Minor components: 20 percent

Component Descriptions

Shoemaker soils

Geomorphic position: Summits on mesas and dipslopes on cuestas
Parent material: Eolian and slope alluvium derived from sandstone and shale
Slope: 2 to 8 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Moderately well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 4.1 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: High
Calcium carbonate maximum: None
Gypsum maximum: None
Salinity maximum: About 0 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Ponderosa Pine Forest
Present native vegetation: Arizona fescue, Gambel's oak, blue grama, bottlebrush squirreltail, mountain muhly, muttongrass, prairie junegrass
Land capability (nonirrigated): 6e
Conservation Tree/Shrub Group: 6D

Typical Profile:
A—0 to 2 inches; loamy fine sand

Bt1—2 to 7 inches; fine sandy loam
Bt2—7 to 20 inches; sandy clay loam
Bt3—20 to 28 inches; sandy clay loam
2R—28 inches; sandstone bedrock

Stozuni soils

Geomorphic position: Summits on mesas and dipslopes on cuestas
Parent material: Eolian material and slope alluviim derived from sandstone
Slope: 2 to 8 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Somewhat excessively drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 2.1 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: None
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Ponderosa Pine Forest
Present native vegetation: Arizona fescue, Gambel's oak, blue grama, bottlebrush squirreltail, mountain muhly, muttongrass, prairie junegrass
Land capability (nonirrigated): 7s
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 2 inches; sandy loam
C1—2 to 10 inches; fine sandy loam
C2—10 to 15 inches; fine sandy loam
2R—15 inches; sandstone bedrock

Minor Components

Rock outcrop
Composition: About 5 percent
Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments.

Knifehill and similar soils
Composition: About 5 percent
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Meadow

Zunalei and similar soils
Composition: About 5 percent
Slope: 2 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Ponderosa Forest

Valnor and similar soils
Composition: About 5 percent
Slope: 2 to 8 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Ponderosa Forest

403—Valnor-Techado complex, 2 to 25 percent slopes

Map Unit Setting

MLRA: 39
Elevation: 7,100 to 7,800 feet (2,164 to 2,377 meters)
Mean annual precipitation: 16 to 20 inches (406 to 508 millimeters)
Average annual air temperature: 40 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 90 to 110 days

Map Unit Composition

Valnor and similar soils: 50 percent
Techado and similar soils: 30 percent
Minor components: 20 percent

Component Descriptions

Valnor soils

Geomorphic position: Sideslopes on hills and ridges
Parent material: Slope alluvium derived from shale
Slope: 2 to 15 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 5.3 inches (low)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: About 5 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)

Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Ponderosa Pine Forest
Present native vegetation: Arizona fescue, Gambel's oak, blue grama, bottlebrush squirreltail, buckwheat, mountainmahogany, mountain muhly, muttongrass, rabbitbrush
Land capability (nonirrigated): 6e
Conservation Tree/Shrub Group: 4C

Typical Profile:
A—0 to 2 inches; clay loam
Bw—2 to 4 inches; clay loam
Bt—4 to 20 inches; clay
2Ck—20 to 34 inches; clay
2Cr—34 inches; shale

Techado soils

Geomorphic position: Sideslopes on hills and ridges
Parent material: Slope alluvium and colluvium over residuum derived from shale
Slope: 5 to 25 percent
Surface fragments: About 25 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 1.9 inches (very low)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: None
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 1 SAR (slightly sodic)
Ecological site: Ponderosa Pine Forest
Present native vegetation: Arizona fescue, Gambel's oak, blue grama, bottlebrush squirreltail, buckwheat, mountainmahogany, mountain muhly, muttongrass, rabbitbrush
Land capability (nonirrigated): 7s
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 3 inches; gravelly clay
2C—3 to 13 inches; clay
2Cr—13 inches; shale

Minor Components

Zunalei and similar soils
Composition: About 5 percent
Slope: 2 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Ponderosa Pine Forest

Knifehill and similar soils
Composition: About 5 percent
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Meadow

Shoemaker and similar soils
Composition: About 5 percent
Slope: 2 to 8 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Moderately well drained
Ecological site: Ponderosa Pine Forest

Stozuni and similar soils
Composition: About 5 percent
Slope: 2 to 8 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Somewhat excessively drained
Ecological site: Ponderosa Pine Forest

404—Rock outcrop-Techado-Stozuni complex, 5 to 60 percent slopes

Map Unit Setting

Elevation: 6,600 to 8,000 feet (2,012 to 2,438 meters)
Mean annual precipitation: 16 to 20 inches (406 to 508 millimeters)
Mean annual air temperature: 40 to 45 degrees F (4.4 to 7.0 degrees C)
Frost-free period: 90 to 110 days

Map Unit Composition

Rock outcrop: 35 percent
Techado and similar soils: 35 percent
Stozuni and similar soils: 25 percent
Minor components: 5 percent

Component Descriptions

Rock outcrop

Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale. Slopes range from about 5 to 15 percent on treads (structural benches) to almost vertical cliffs on the risers (escarpment face).

Techado soils

Landform: Sideslopes on hills and ridges, and escarpments on cuestas and mesas
Parent material: Slope alluvium and colluvium over residuum derived from shale
Slope: 5 to 60 percent
Surface fragments: About 15 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: .06 to 0.2 in/hr (slow)
Available water capacity: About 2.6 inches (very low)
Shrink-swell potential: About 7.5 percent (high)
Runoff class: Very high
Calcium carbonate maximum: None
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodium adsorption ratio maximum: About 1 (slightly sodic)
Ecological site: Ponderosa Pine Forest
Potential native vegetation:
Common trees: alligator juniper, Rocky Mountain juniper, Gambel oak, twoneedle pinyon, ponderosa pine, Douglas-fir
Other plants: Arizona fescue, Gambel oak, blue grama, bottlebrush squirreltail, buckwheat, mountainmahogany, mountain muhly, muttongrass, rabbitbrush
Land capability subclass (nonirrigated): 8

Typical Profile:
A—0 to 5 inches; channery clay loam
C1—5 to 8 inches; clay
C2—8 to 17 inches; clay
2R—17 to 20 inches; weathered bedrock

Stozuni soils

Landform: Summits on hills and ridges and structural benches on escarpments
Parent material: Eolian material and slope alluvium derived from sandstone
Slope: 5 to 15 percent
Surface fragments: About 25 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Somewhat excessively drained
Slowest permeability: 2.0 to 6.0 in/hr (moderately rapid)
Available water capacity: About 0.7 inches (very low)
Shrink-swell potential: About 1.5 percent (low)
Runoff class: Medium
Calcium carbonate maximum: About 1 percent
Gypsum maximum: None
Salinity maximum: About 0 mmhos/cm (nonsaline)
Sodium adsorption ratio maximum: About 0 (nonsodic)
Ecological site: Ponderosa Pine Forest
Potential native vegetation:
Common trees: Rocky Mountain juniper, alligator juniper, twoneedle pinyon, Gambel oak, ponderosa pine, Douglas-fir
Other plants: Arizona fescue, Gambel oak, blue grama, bottlebrush squirreltail, buckwheat, mountainmahogany, mountain muhly, muttongrass, rabbitbrush
Land capability subclass (nonirrigated): 7s

Typical Profile:
A—0 to 1 inch; gravelly sandy loam
C—1 inch to 7 inches; gravelly sandy loam
R—7 to 20 inches; unweathered bedrock

Minor Components

Valnor and similar soils
Composition: About 3 percent
Slope: 2 to 15 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Ponderosa Pine Forest

Asaayi and similar soils
Composition: About 2 percent
Slope: 2 to 15 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Ponderosa Pine Forest

405—Fortwingate-Owlrock complex, 2 to 8 percent slopes

Map Unit Setting

MLRA: 39
Elevation: 7,200 to 8,200 feet (2,195 to 2,499 meters)
Mean annual precipitation: 16 to 20 inches (406 to 508 millimeters)
Average annual air temperature: 40 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 90 to 110 days

Map Unit Composition

Fortwingate and similar soils: 50 percent
Owlrock and similar soils: 35 percent
Minor components: 15 percent

Component Descriptions

Fortwingate soils

Geomorphic position: Dipslopes on cuestas
Parent material: Slope alluvium over residuum derived from sandstone, shale, and dolomitic limestone
Slope: 2 to 8 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 3.6 inches (low)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: None
Gypsum maximum: None
Salinity maximum: About 0 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Ponderosa Pine Forest
Present native vegetation: Arizona fescue, Gambel's oak, Kentucky bluegrass, Rocky Mountain juniper, antelope bitterbrush, blue grama, bottlebrush squirreltail, mountain muhly, muttongrass, pine dropseed, prairie junegrass, twoneedle pinyon
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4C

Typical Profile:
Oi—0 to 1 inches; slightly decomposed plant material
A—1 to 4 inches; loam
Bt—4 to 9 inches; clay loam
Btss—9 to 26 inches; clay
2R—26 inches; sandstone and limestone bedrock

Owlrock soils

Geomorphic position: Dipslopes on cuestas
Parent material: Residuum derived from dolomitic limestone
Slope: 2 to 8 percent
Surface fragments: About 55 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 1.7 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: High
Calcium carbonate maximum: About 20 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Ponderosa Pine Forest
Present native vegetation: Arizona fescue, Gambel's oak, Rocky Mountain juniper, barberry, blue grama, bottlebrush squirreltail, buckwheat, little bluestem, mountain muhly, muttongrass, sideoats grama
Land capability (nonirrigated): 7s
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 1 inches; very gravelly loam
Btk1—1 to 6 inches; very cobbly loam
Btk2—6 to 13 inches; very cobbly loam
R—13 inches; limestone bedrock

Minor Components

Rock outcrop
Composition: About 5 percent
Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments.

Asaayi and similar soils
Composition: About 5 percent
Slope: 2 to 8 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Ponderosa Pine Forest

Osoridge and similar soils
Composition: About 5 percent
Slope: 2 to 8 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Ponderosa Pine Forest

406—Polich silt loam, 0 to 3 percent slopes

Map Unit Setting

MLRA: 39
Elevation: 7,600 to 8,000 feet (2,316 to 2,438 meters)
Mean annual precipitation: 16 to 20 inches (406 to 508 millimeters)
Average annual air temperature: 40 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 90 to 110 days

Figure 10.—Typical landscape of Polich silt loam, 0 to 3 percent slopes. These soils have a seasonally high water table and provide good livestock grazing. In the background is the Cinnadale-Heckly association, 5 to 40 percent slopes.

Map Unit Composition

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

Component Descriptions

Polich soils

Geomorphic position: Flood plains on valley floors (fig. 10)
Parent material: Stream alluvium derived from sandstone, granite, and limestone
Slope: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat poorly drained
Slowest permeability: About 0.06 in/hr (moderately slow)
Available water capacity: About 11.5 inches (high)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: Frequent
Seasonal water table minimum depth: About 33 inches
Runoff class: Low
Calcium carbonate maximum: About 15 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Meadow
Present native vegetation: redtop, sedge, Rocky Mountain iris, bottlebrush squirreltail, muttongrass, plantain, Kentucky bluegrass, rush, western wheatgrass, clover, smooth brome, western yarrow
Land capability (nonirrigated): 4w
Conservation Tree/Shrub Group: 2

Typical Profile:
A—0 to 13 inches; silt loam
Bw—13 to 23 inches; loam
Bk1—23 to 40 inches; clay loam
Bk2—40 to 48 inches; clay loam
2BCk1—48 to 58 inches; clay loam
2BCk2—58 to 70 inches; loam

Minor Components

Robolata and similar soils
Composition: About 5 percent
Slope: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Mountain Grassland

Ligocki and similar soils
Composition: About 5 percent
Slope: 1 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Ponderosa Pine Forest

407—Cinnadale-Heckly association, 5 to 40 percent slopes

Map Unit Setting

MLRA: 39
Elevation: 7,800 to 8,200 feet (2,377 to 2,499 meters)
Mean annual precipitation: 16 to 20 inches (406 to 508 millimeters)
Average annual air temperature: 40 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 90 to 110 days

Map Unit Composition

Cinnadale and similar soils: 50 percent
Heckly and similar soils: 35 percent
Minor components: 15 percent

Component Descriptions

Cinnadale soils

Geomorphic position: Summits on hills and ridges
Parent material: Slope alluvium over residuum derived from sandstone
Slope: 5 to 15 percent
Surface fragments: About 45 percent gravel
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 1.4 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: None
Gypsum maximum: None
Salinity maximum: About 0 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Ponderosa Pine Forest
Present native vegetation: Arizona fescue, Fendler's ceanothus, blue grama, bottlebrush squirreltail, mountain muhly, muttongrass, pine dropseed, prairie junegrass, yucca
Land capability (nonirrigated): 7s
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 2 inches; very channery fine sandy loam
Bw1—2 to 9 inches; very channery fine sandy loam
Bw2—9 to 15 inches; very channery fine sandy loam
R—15 inches; sandstone bedrock

Heckly soils

Geomorphic position: Sideslopes on hills and ridges
Parent material: Slope alluvium over residuum derived from sandstone and siltstone
Slope: 5 to 40 percent
Surface fragments: About 65 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 5.2 inches (low)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: None
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Ponderosa Pine Forest
Present native vegetation: Arizona fescue, Gambel's oak, blue grama, bottlebrush squirreltail, mountain muhly, muttongrass, pine dropseed, pingue hymenoxys
Land capability (nonirrigated): 7e
Conservation Tree/Shrub Group: 4C

Typical Profile:
A—0 to 3 inches; extremely channery sandy loam
Bt1—3 to 15 inches; channery clay
Bt2—15 to 38 inches; very channery silty clay loam
R—38 inches; shale and siltstone

Minor Components

Rock outcrop
Composition: About 5 percent
Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments

Asaayi and similar soils
Composition: About 5 percent
Slope: 2 to 15 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Ponderosa Pine Forest

Osoridge and similar soils
Composition: About 5 percent
Slope: 2 to 15 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Ponderosa Pine Forest

408—Mirabal-Zuni complex, 1 to 40 percent slopes

Map Unit Setting

MLRA: 39
Elevation: 7,800 to 8,200 feet (2,377 to 2,499 meters)
Mean annual precipitation: 16 to 20 inches (406 to 508 millimeters)
Average annual air temperature: 40 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 90 to 110 days

Map Unit Composition

Mirabal and similar soils: 50 percent
Zuni and similar soils: 40 percent
Minor components: 10 percent

Component Descriptions

Mirabal soils

Geomorphic position: Sideslopes on mountains
Parent material: Colluvial material over residuum derived from gneissic granite
Slope: 5 to 40 percent
Surface fragments: About 90 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 1.6 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: None
Gypsum maximum: None
Salinity maximum: About 0 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Ponderosa Forest
Present native vegetation: Arizona fescue, Fendler's ceanothus, Gambel's oak, bottlebrush squirreltail, little bluestem, mountain muhly, muttongrass, pine dropseed
Land capability (nonirrigated): 7e
Conservation Tree/Shrub Group: 10

Typical Profile:
Oi—0 to 1 inches; slightly decomposed plant material
A—1 to 2 inches; extremely gravelly loamy sand
AC—2 to 6 inches; gravelly sandy loam
C1—6 to 13 inches; very gravelly sandy loam
C2—13 to 30 inches; extremely gravelly sandy loam
R—30 inches; gneissic-granite bedrock

Zuni soils

Geomorphic position: Summits on mountain
Parent material: Residuum derived from gneissic granite
Slope: 1 to 15 percent
Surface fragments: About 31 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 3.3 inches (low)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: High
Calcium carbonate maximum: None
Gypsum maximum: None
Salinity maximum: About 0 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Ponderosa Pine Forest
Present native vegetation: Arizona fescue, Gambel's oak, blue grama, bottlebrush squirreltail, mountain muhly, muttongrass, pine dropseed
Land capability (nonirrigated): 6s
Conservation Tree/Shrub Group: 4C

Typical Profile:
Oi—0 to 1 inches; slightly decomposed plant material
A—1 to 3 inches; gravelly sandy loam
Bt1—3 to 18 inches; gravelly sandy clay
Bt2—18 to 27 inches; gravelly sandy clay
R—27 inches; gneissic-granite bedrock

Minor Components

Rock outcrop
Composition: About 5 percent

Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments.

Asaayi and similar soils
Composition: About 5 percent
Slope: 1 to 15 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Ponderosa Pine Forest

409—Rauster-Rock outcrop complex, 5 to 35 percent slopes

Map Unit Setting

MLRA: 39
Elevation: 7,100 to 8,000 feet (2,164 to 2,438 meters)
Mean annual precipitation: 16 to 20 inches (406 to 508 millimeters)
Average annual air temperature: 40 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 90 to 110 days

Map Unit Composition

Rauster and similar soils: 60 percent
Rock outcrop: 30 percent
Minor components: 10 percent

Component Descriptions

Rauster soils

Geomorphic position: Sideslopes of hills and ridges and escarpments on cuestas
Parent material: Slope alluvium over residuum derived from sandstone and shale
Slope: 5 to 35 percent
Depth to restrictive feature: 40 to 60 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.03 in/hr (very slow)
Available water capacity: About 8.3 inches (moderate)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: About 5 percent
Gypsum maximum: None
Salinity maximum: About 0 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Ponderosa Pine Forest
Present native vegetation: Arizona fescue, Gambel's oak, Kentucky bluegrass, blue grama, bottlebrush squirreltail, mountain muhly, muttongrass, pine dropseed, prairie junegrass
Land capability (nonirrigated): 7e
Conservation Tree/Shrub Group: 4C

Typical Profile:
A—0 to 1 inches; clay loam
Bt—1 to 5 inches; clay
Bssk—5 to 28 inches; clay
Bk—28 to 55 inches; clay
Cr—55 inches; shale

Rock outcrop

Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments.

Minor Components

Morclay and similar soils
Composition: About 5 percent
Slope: 5 to 10 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Clayey

Osoridge and similar soils
Composition: About 4 percent
Slope: 5 to 10 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Ponderosa Pine Forest

Asaayi and similar soils
Composition: About 1 percent
Slope: 5 to 10 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Ponderosa Pine Forest

410—Montillo-Tsoodzil complex, 5 to 35 percent slopes

Map Unit Setting

MLRA: 39
Elevation: 7,800 to 9,000 feet (2,377 to 2,743 meters)
Mean annual precipitation: 16 to 20 inches (406 to 508 millimeters)
Average annual air temperature: 40 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 90 to 110 days

Map Unit Composition

Montillo and similar soils: 50 percent
Tsoodzil and similar soils: 40 percent
Minor components: 10 percent

Component Descriptions

Montillo soils

Geomorphic position: Cinder cones and lava plateaus
Parent material: Eolian material and slope alluvium over residuum derived from basalt
Slope: 5 to 15 percent
Surface fragments: About 36 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 4.2 inches (low)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: About 1 percent
Gypsum maximum: None
Salinity maximum: About 0 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Ponderosa Pine Forest
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4C

Typical Profile:
A—0 to 3 inches; very gravelly loam
Bt1—3 to 8 inches; silty clay loam
Btss1—8 to 15 inches; silty clay
Btss2—15 to 27 inches; clay
2Bt2—27 to 32 inches; very gravelly clay
2R—32 inches; basalt bedrock

Tsoodzil soils

Geomorphic position: Cinder cones and lava plateaus
Parent material: Eolian material and slope alluvium derived from basalt
Slope: 5 to 35 percent
Surface fragments: About 46 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 8.2 inches (moderate)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: About 1 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Ponderosa Pine Forest
Land capability (nonirrigated): 7e
Conservation Tree/Shrub Group: 4C

Typical Profile:
A—0 to 3 inches; very gravelly silt loam
Bt—3 to 10 inches; silty clay loam
Btss1—10 to 21 inches; clay
Btss2—21 to 46 inches; clay
Btss3—46 to 70 inches; gravelly clay

Minor Components

Rock outcrop
Composition: About 5 percent
Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments.

Canoneros and similar soils
Composition: About 5 percent
Slope: 2 to 6 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Shallow

411—Ligocki-Robolata complex, 1 to 5 percent slopes

Map Unit Setting

MLRA: 39
Elevation: 7,700 to 8,000 feet (2,347 to 2,438 meters)
Mean annual precipitation: 16 to 20 inches (406 to 508 millimeters)
Average annual air temperature: 40 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 90 to 110 days

Map Unit Composition

Ligocki and similar soils: 45 percent
Robolata and similar soils: 35 percent
Minor components: 20 percent

Component Descriptions

Ligocki soils

Geomorphic position: Fan remnants on valley sides
Parent material: Fan alluvium derived from sandstone, shale, and granite

Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 8.9 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: High
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Ponderosa Pine Forest (fig. 11)
Present native vegetation: Arizona fescue, Gambel's oak, Kentucky bluegrass, blue grama, bottlebrush squirreltail, mountain muhly, muttongrass, pine dropseed, prairie junegrass
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4

Typical Profile:
A—0 to 2 inches; fine sandy loam
AB—2 to 8 inches; fine sandy loam
Bt1—8 to 21 inches; clay
2Btk1—21 to 30 inches; clay loam
2Btk2—30 to 41 inches; gravelly sandy clay loam
3Btk3—41 to 70 inches; sandy clay loam

Robolata soils

Geomorphic position: Stream terraces on valley floors
Parent material: Stream alluvium derived from sandstone, shale, and granite
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 8.8 inches (moderate)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: Occasional
Seasonal water table minimum depth: Greater than 6 feet

Figure 11.—Typical landscape of Logocki-Robolata complex, 1 to 5 percent slopes. Some areas of these soils have ben cleared of trees for use as high mountain pasture.

Runoff class: High
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Mountain Grassland
Present native vegetation: Arizona fescue, mountain muhly, blue grama, buckwheat, muttongrass, western wheatgrass, pingue hymenoxys, silvery lupine, spineless horsebrush, whorled plantain, Gambel's oak, broom snakeweed
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4C

Typical Profile:
A—0 to 6 inches; loam
Bt1—6 to 12 inches; loam
Bt2—12 to 20 inches; clay
2Bt3—20 to 30 inches; clay loam
2Btk—30 to 50 inches; sandy clay loam
2BC—50 to 70 inches; very gravelly sandy loam

Minor Components

Polich and similar soils
Composition: About 10 percent
Slope: 0 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat poorly drained
Ecological site: Meadow

Mcgaffey and similar soils
Composition: About 5 percent
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Ponderosa Pine Forest

Zuni and similar soils
Composition: About 5 percent
Slope: 1 to 5 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Ponderosa Pine Forest

412—Rock outcrop-Rionutria-Zaster association, 15 to 80 percent slopes

Map Unit Setting

Elevation: 7,000 to 7,600 feet (2,134 to 2,316 meters)
Mean annual precipitation: 16 to 20 inches (406 to 508 millimeters)
Mean annual air temperature: 40 to 45 degrees F (4.4 to 7.0 degrees C)
Frost-free period: 90 to 110 days

Map Unit Composition

Rock outcrop: 50 percent
Rionutria and similar soils: 25 percent
Zaster and similar soils: 25 percent

Component Descriptions

Rock outcrop

Rock outcrop consists of barren or nearly barren areas of exposed limestone and shale. Slopes range from about 5 to 15 percent on treads (structural benches) to almost vertical cliffs on the risers (escarpment face).

Rionutria soils

Landform: Structural benches on escarpments
Parent material: Slope alluvium and colluvium over residuum derived from sandstone, shale, and limestone
Slope: 15 to 20 percent
Surface fragments: About 53 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: 0.2 to 0.6 in/hr (moderately slow)
Available water capacity: About 2.8 inches (very low)
Shrink-swell potential: About 4.5 percent (moderate)
Runoff class: Very high
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodium adsorption ratio maximum: About 0 (nonsodic)
Ecological site: Ponderosa Pine Forest
Potential native vegetation:
Common trees: Rocky Mountain juniper, Douglas-fir, twoneedle pinyon, ponderosa pine
Other plants: Arizona fescue, Gambel oak, Oregongrape, bottlebrush squirreltail, buckwheat, mountainmahogany, mountain muhly, muttongrass, pine dropseed, ponderosa pine, whortleleaf snowberry, yucca
Land capability subclass (nonirrigated): 7s

Typical Profile:
A—0 to 3 inches; very gravelly loam
Btk1—3 to 12 inches; very cobbly clay loam
Btk2—12 to 24 inches; very cobbly clay loam
R—24 to 40 inches; unweathered bedrock

Zaster soils

Landform: Structural benches on escarpments
Parent material: Slope alluvium and colluvium derived from sandstone and limestone
Slope: 15 to 40 percent
Surface fragments: About 75 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: 2.0 to 6.0 in/hr (moderately rapid)
Available water capacity: About 2.2 inches (very low)
Shrink-swell potential: About 1.5 percent (low)
Runoff class: High
Calcium carbonate maximum: About 25 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodium adsorption ratio maximum: About 0 (nonsodic)
Ecological site: pinyon-juniper forest
Potential native vegetation:
Common trees: oneseed juniper, Rocky Mountain juniper, alligator juniper, twoneedle pinyon
Other plants: Gambel oak, antelope bitterbrush, blue grama, bottlebrush squirreltail, mountainmahogany, muttongrass, needlegrass, oneseed juniper, prairie junegrass, twoneedle pinyon, yucca
Land capability subclass (nonirrigated): 7s

Typical Profile:
A—0 to 3 inches; extremely gravelly loam
Bk1—3 to 11 inches; gravelly loam
Bk2—11 to 27 inches; extremely gravelly loam
R—27 to 40 inches; unweathered bedrock

413—Morclay silty clay, 1 to 5 percent slopes

Map Unit Setting

MLRA: 39
Elevation: 7,400 to 7,800 feet (2,256 to 2,377 meters)
Mean annual precipitation: 16 to 20 inches (406 to 508 millimeters)
Average annual air temperature: 40 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 90 to 110 days

Map Unit Composition

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

Component Descriptions

Morclay soils

Geomorphic position: Stream terraces on valley floors and alluvial fans on valley sides
Parent material: Slope alluvium over residuum derived from shale
Slope: 1 to 5 percent
Depth to restrictive feature: Greater than 60 inches to bedrock
Drainage class: Well drained
Slowest permeability: About 0.03 in/hr (very slow)
Available water capacity: About 8.9 inches (moderate)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: About 5 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 1 SAR (slightly sodic)
Ecological site: Clayey
Present native vegetation: western wheatgrass, needleandthread, Indian ricegrass, blue grama, bottlebrush squirreltail, galleta, pingue hymenoxys, rabbitbrush
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4CC

Typical Profile:
A—0 to 1 inches; silty clay
Bk1—1 to 5 inches; clay
Bssk—5 to 48 inches; clay
2Ck1—48 to 56 inches; clay
2Ck2—56 to 70 inches; clay
Cr—70 inches; shale

Minor Components

Rauster and similar soils
Composition: About 10 percent
Slope: 3 to 5 percent
Depth to restrictive feature: 40 to 60 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Ponderosa Pine Forest

Fortwingate and similar soils
Composition: About 3 percent
Slope: 1 to 5 percent

Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Ponderosa Pine Forest

Osoridge and similar soils
Composition: About 2 percent
Slope: 1 to 5 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Ponderosa Pine Forest

414—Zunalei-Corzuni loamy fine sands, 2 to 10 percent slopes

Map Unit Setting

MLRA: 39
Elevation: 7,000 to 7,500 feet (2,134 to 2,286 meters)
Mean annual precipitation: 16 to 20 inches (406 to 508 millimeters)
Average annual air temperature: 45 to 48 degrees F (7 to 9 degrees C)
Frost-free period: 90 to 110 days

Map Unit Composition

Zunalei and similar soils: 50 percent
Corzuni and similar soils: 40 percent
Minor components: 10 percent

Component Descriptions

Zunalei soils

Geomorphic position: Fan remnants on valley sides and dipslopes on cuestas
Parent material: Eolian material and fan alluvium derived from sandstone
Slope: 2 to 10 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 8.4 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 5 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Ponderosa Pine Forest
Present native vegetation: blue grama, bottlebrush squirreltail, broom snakeweed, buckwheat, fringed sagewort, little bluestem, muttongrass, needlegrass, pine dropseed, prairie junegrass
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4

Typical Profile:
A—0 to 1 inches; loamy fine sand
AB—1 to 6 inches; fine sandy loam
Bt1—6 to 20 inches; sandy clay loam
Bt2—20 to 50 inches; fine sandy loam
BCk—50 to 70 inches; fine sandy loam

Corzuni soils

Geomorphic position: Fan remnants on valley sides and dipslopes on cuestas
Parent material: Eolian material and fan alluvium derived from sandstone
Slope: 2 to 10 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat excessively drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 7.9 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Low
Calcium carbonate maximum: About 5 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Ponderosa Pine Forest
Present native vegetation: blue grama, bottlebrush squirreltail, broom snakeweed, buckwheat, fringed sagewort, little bluestem, muttongrass, needlegrass, pine dropseed, prairie junegrass
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 3

Typical Profile:
Oi—0 to 1 inches; slightly decomposed plant material
A—1 to 8 inches; loamy fine sand
Bt1—8 to 29 inches; fine sandy loam
Bt2—29 to 45 inches; fine sandy loam
Bk—45 to 70 inches; fine sandy loam

Minor Components

Knifehill and similar soils
Composition: About 5 percent

Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Meadow

Fikel and similar soils
Composition: About 3 percent
Slope: 2 to 10 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Clayey

Shoemaker and similar soils
Composition: About 2 percent
Slope: 2 to 8 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Moderately well drained
Ecological site: Ponderosa Pine Forest

415—Tsoodzil-Rubble land complex, 10 to 55 percent slopes

Map Unit Setting

MLRA: 39
Elevation: 7,600 to 9,000 feet (2,316 to 2,743 meters)
Mean annual precipitation: 16 to 20 inches (406 to 508 millimeters)
Average annual air temperature: 40 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 90 to 110 days

Map Unit Composition

Tsoodzil and similar soils: 60 percent
Rubble land: 20 percent
Minor components: 20 percent

Component Descriptions

Tsoodzil soils

Geomorphic position: Escarpments on lava plateaus
Parent material: Eolian material and slope alluvium derived from basalt
Slope: 10 to 55 percent
Surface fragments: About 45 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 8.0 inches (moderate)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: About 2 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Ponderosa Pine Forest
Present native vegetation: blue grama, broom snakeweed, little bluestem, muttongrass, pine dropseed
Land capability (nonirrigated): 7e
Conservation Tree/Shrub Group: 4C

Typical Profile:
E—0 to 3 inches; very cobbly loam
Bt—3 to 7 inches; clay loam
Btss1—7 to 22 inches; gravelly clay
Btss2—22 to 65 inches; clay

Rubble land

Rubble land consists of areas of cobbles, stones, and boulders. Most areas are at the base of escarpments.

Slope: 0 to 200 percent
Drainage class: Excessively drained
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Low
Conservation Tree/Shrub Group: 10

Minor Components

Rock outcrop
Composition: About 9 percent
Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments.

Montillo and similar soils
Composition: About 5 percent
Slope: 10 to 15 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Ponderosa Pine Forest

Canoneros and similar soils
Composition: About 3 percent
Slope: 2 to 6 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)

Figure 12.—Typical landscape of Rock outcrop-Bluesky complex, 5 to 80 percent slopes.

Drainage class: Well drained
Ecological site: Shallow

Valnor and similar soils
Composition: About 3 percent
Slope: 10 to 15 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Ponderosa Pine Forest

416—Rock outcrop-Bluesky complex, 5 to 80 percent slopes

Map Unit Setting

Elevation: 7,100 to 7,700 feet (2,164 to 2,347 meters)
Mean annual precipitation: 16 to 20 inches (406 to 508 millimeters)
Mean annual air temperature: 40 to 45 degrees F (4.4 to 7.0 degrees C)
Frost-free period: 90 to 110 days

Map Unit Composition

Rock outcrop: 70 percent
Bluesky and similar soils: 20 percent
Minor components: 10 percent

Component Descriptions

Rock outcrop

Rock outcrop consists of barren or nearly barren areas of exposed sandstone (fig. 12). Slopes range from about 5 to 15 percent on treads (structural benches) to almost vertical cliffs on the risers (escarpment face)

Bluesky soils

Landform: Structural benches on escarpments
Parent material: Eolian material and slope alluvium derived from sandstone
Slope: 5 to 20 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Excessively drained
Slowest permeability: Greater than 20 in/hr (very rapid)
Available water capacity: About 0.5 inches (very low)
Shrink-swell potential: About 1.5 percent (low)
Runoff class: Medium
Calcium carbonate maximum: None
Gypsum maximum: None
Salinity maximum: About 0 mmhos/cm (nonsaline)
Sodium adsorption ratio maximum: About 0 (nonsodic)
Ecological site: Ponderosa Pine Forest
Potential native vegetation:
Common trees: Rocky Mountain juniper, Douglas-fir, twoneedle pinyon, ponderosa pine
Other plants: Gambel oak, Indian ricegrass, blue grama, bottlebrush squirreltail, buckwheat, cliffrose, little bluestem, mountainmahogany, mountain muhly, muttongrass, pine dropseed, sideoats grama, yucca
Land capability subclass (nonirrigated): 8

Typical Profile:
A—0 to 5 inches; fine sand
C—5 to 8 inches; fine sand
R—8 inches; sandstone bedrock

Minor Components

Stozuni and similar soils
Composition: About 5 percent
Slope: 5 to 8 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Somewhat excessively drained
Ecological site: Ponderosa Pine Forest

Shoemaker and similar soils
Composition: About 3 percent
Slope: 5 to 8 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Moderately well drained
Ecological site: Ponderosa Pine Forest

Royosa and similar soils
Composition: About 2 percent
Slope: 1 to 15 percent
Drainage class: Excessively drained
Ecological site: Sandy Plains

418—Asaayi-Osoridge complex, 2 to 15 percent slopes

Map Unit Setting

MLRA: 39
Elevation: 7,500 to 7,900 feet (2,286 to 2,408 meters)
Mean annual precipitation: 16 to 20 inches (406 to 508 millimeters)
Average annual air temperature: 40 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 90 to 110 days

Map Unit Composition

Asaayi and similar soils: 40 percent
Osoridge and similar soils: 35 percent
Minor components: 25 percent

Component Descriptions

Asaayi soils

Geomorphic position: Dipslopes on cuestas
Parent material: Slope alluvium derived from sandstone and shale
Slope: 2 to 15 percent
Surface fragments: About 50 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 2.4 inches (very low)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: High
Calcium carbonate maximum: None
Gypsum maximum: None
Salinity maximum: About 0 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Ponderosa Pine Forest
Present native vegetation: Gambel's oak, blue grama, bottlebrush squirreltail, buckwheat, cliffrose, little bluestem, mountainmahogany, mountain muhly, pine dropseed, sideoats grama
Land capability (nonirrigated): 7s
Conservation Tree/Shrub Group: 10

Typical Profile:
Oi—0 to 1 inches; slightly decomposed plant material
A—1 to 3 inches; very gravelly fine sandy loam
Bt1—3 to 5 inches; fine sandy loam
Bt2—5 to 16 inches; clay loam
R—16 inches; sandstone bedrock

Osoridge soils

Geomorphic position: Dipslopes on cuestas
Parent material: Slope alluvium over residuum derived from sandstone and shale
Slope: 2 to 15 percent
Surface fragments: About 40 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 2.6 inches (very low)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: None
Gypsum maximum: None
Salinity maximum: About 0 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Ponderosa Pine Forest
Present native vegetation: Gambel's oak, blue grama, bottlebrush squirreltail, buckwheat, cliffrose, little bluestem, mountainmahogany, mountain muhly, pine dropseed, sideoats grama
Land capability (nonirrigated): 7s
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 2 inches; very gravelly clay loam
Bt1—2 to 6 inches; clay
Bt2—6 to 18 inches; clay
R—18 inches; shale

Minor Components

Cinnadale and similar soils
Composition: About 10 percent
Slope: 2 to 15 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Ponderosa Pine Forest

Fortwingate and similar soils
Composition: About 10 percent
Slope: 2 to 15 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Ponderosa Pine Forest

Rauster and similar soils
Composition: About 5 percent
Slope: 2 to 15 percent
Depth to restrictive feature: 40 to 60 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Ponderosa Pine Forest

419—Fortwingate-Cinnadale-Rock outcrop complex, 5 to 45 percent slopes

Map Unit Setting

MLRA: 39
Elevation: 7,200 to 8,200 feet (2,195 to 2,499 meters)
Mean annual precipitation: 16 to 20 inches (406 to 508 millimeters)
Average annual air temperature: 40 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 90 to 110 days

Map Unit Composition

Fortwingate and similar soils: 35 percent
Cinnadale and similar soils: 30 percent
Rock outcrop: 20 percent
Minor components: 15 percent

Component Descriptions

Fortwingate soils

Geomorphic position: Sideslopes on hills, ridges, hogbacks and escarpments on cuestas
Parent material: Slope alluvium over residuum derived from sandstone and shale
Slope: 5 to 45 percent
Surface fragments: About 45 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 3.8 inches (low)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: None

Gypsum maximum: None
Salinity maximum: About 0 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Ponderosa Pine Forest
Present native vegetation: Arizona fescue, Gambel's oak, Kentucky bluegrass, blue grama, bottlebrush squirreltail, mountain muhly, muttongrass, pine dropseed, prairie junegrass
Land capability (nonirrigated): 7e
Conservation Tree/Shrub Group: 4C

Typical Profile:
A—0 to 5 inches; very cobbly loam
Bt1—5 to 13 inches; clay
Bt2—13 to 21 inches; clay loam
2Bt3—21 to 26 inches; clay loam
R—26 inches; sandstone bedrock

Cinnadale soils

Geomorphic position: Sideslopes on hills, ridges, hogbacks and structural benches on escarpments on cuestas
Parent material: Slope alluvium over residuum derived from sandstone
Slope: 5 to 15 percent
Surface fragments: About 65 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 0.8 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: None
Gypsum maximum: None
Salinity maximum: About 0 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Ponderosa Pine Forest
Present native vegetation: Arizona fescue, blue grama, bottlebrush squirreltail, mountain muhly, muttongrass, pine dropseed, prairie junegrass, yucca
Land capability (nonirrigated): 7s
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 6 inches; extremely stony sandy loam
Bw—6 to 11 inches; very gravelly fine sandy loam
R—11 inches; sandstone bedrock

Rock outcrop

Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments.

Minor Components

Osoridge and similar soils
Composition: About 8 percent
Slope: 5 to 15 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Ponderosa Pine Forest

Asaayi and similar soils
Composition: About 7 percent
Slope: 5 to 15 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Ponderosa Pine Forest

420—Seco clay loam, 1 to 5 percent slopes

Map Unit Setting

MLRA: 39
Elevation: 8,000 to 8,400 feet (2,438 to 2,560 meters)
Mean annual precipitation: 16 to 20 inches (406 to 508 millimeters)
Average annual air temperature: 40 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 90 to 110 days

Map Unit Composition

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

Component Descriptions

Seco soils

Geomorphic position: Playas on valley floors
Parent material: Alluvium derived from basalt
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained
Slowest permeability: About 0.01 in/hr (very slow)
Available water capacity: About 9.0 inches (high)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: Rare
Seasonal water table minimum depth: Greater than 6 feet

Runoff class: Very high
Calcium carbonate maximum: About 5 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Mountain Grassland
Present native vegetation: Arizona fescue, mountain muhly, blue grama, buckwheat, muttongrass, western wheatgrass, pingue hymenoxys, silvery lupine, spineless horsebrush, whorled plantain, Gambel's oak, broom snakeweed
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4CC

Typical Profile:
A—0 to 3 inches; clay loam
Bt—3 to 11 inches; clay
Btss—11 to 23 inches; clay
Btkss—23 to 58 inches; clay
2BCg—58 to 70 inches; clay

Minor Components

Montillo and similar soils
Composition: About 5 percent
Slope: 1 to 5 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Shallow

Canoneros and similar soils
Composition: About 5 percent
Slope: 1 to 5 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Shallow

Chivato and similar soils
Composition: About 5 percent
Slope: 0 to 1 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained
Ecological site: Playa

425—Montillo-Canoneros complex, 2 to 6 percent slopes

Map Unit Setting

MLRA: 39
Elevation: 7,800 to 9,000 feet (2,377 to 2,743 meters)
Mean annual precipitation: 16 to 20 inches (406 to 508 millimeters)
Average annual air temperature: 40 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 90 to 110 days

Map Unit Composition

Montillo and similar soils: 50 percent
Canoneros and similar soils: 35 percent
Minor components: 15 percent

Component Descriptions

Montillo soils

Geomorphic position: Cinder cones and lava plateaus
Parent material: Slope alluvium over residuum derived from basalt
Slope: 2 to 6 percent
Surface fragments: About 20 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 3.7 inches (low)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: High
Calcium carbonate maximum: None
Gypsum maximum: None
Salinity maximum: About 0 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Shallow
Present native vegetation: Arizona fescue, mountain muhly, blue grama, buckwheat, prairie junegrass, bottlebrush squirreltail, spineless horsebrush, broom snakeweed
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4C

Typical Profile:
A—0 to 2 inches; gravelly loam
Bt1—2 to 8 inches; clay
2Btss—8 to 18 inches; gravelly clay
2Bt2—18 to 35 inches; very cobbly clay
2R—35 inches; basalt bedrock

Canoneros soils

Geomorphic position: Cinder cones and lava plateaus
Parent material: Slope alluvium over residuum derived from basalt
Slope: 2 to 6 percent

Surface fragments: About 40 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 2.0 inches (very low)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: None
Gypsum maximum: None
Salinity maximum: About 0 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Shallow
Present native vegetation: Arizona fescue, mountain muhly, blue grama, buckwheat, prairie junegrass, bottlebrush squirreltail, spineless horsebrush, broom snakeweed
Land capability (nonirrigated): 7s
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 2 inches; very cobbly loam
Bt1—2 to 8 inches; clay loam
Bt2—8 to 13 inches; clay
2R—13 inches; basalt bedrock

Minor Components

Rock outcrop
Composition: About 5 percent
Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments.

Tsoodzil and similar soils
Composition: About 5 percent
Slope: 2 to 6 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Cinder Hills

Seco and similar soils
Composition: About 5 percent
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Mountain Grassland

430—Montillo gravelly loam, 2 to 6 percent slopes

Map Unit Setting

MLRA: 39
Elevation: 7,800 to 9,000 feet (2,377 to 2,743 meters)
Mean annual precipitation: 16 to 20 inches (406 to 508 millimeters)
Average annual air temperature: 40 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 90 to 110 days

Map Unit Composition

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

Component Descriptions

Montillo soils

Geomorphic position: Summits on lava plateaus
Parent material: Slope alluvium over residuum derived from basalt
Slope: 2 to 6 percent
Surface fragments: About 20 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 5.2 inches (low)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: High
Calcium carbonate maximum: About 1 percent
Gypsum maximum: None
Salinity maximum: About 0 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Shallow
Present native vegetation: Arizona fescue, Gambel's oak, mountain muhly, blue grama, bottlebrush squirreltail, prairie junegrass, broom snakeweed, muttongrass, buckwheat, whorled plantain
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4C

Typical Profile:
A—0 to 4 inches; gravelly loam

Bt1—4 to 13 inches; clay
Btss—13 to 31 inches; clay
2Bt2—31 to 38 inches; gravelly clay
2R—38 inches; basalt bedrock

Minor Components

Rock outcrop
Composition: About 9 percent
Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments.

Canoneros and similar soils
Composition: About 6 percent
Slope: 2 to 6 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Shallow

Tsoodzil and similar soils
Composition: About 5 percent
Slope: 2 to 6 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Cinder Hills

435—Tsoodzil-Amcec association, 5 to 50 percent slopes

Map Unit Setting

MLRA: 39
Elevation: 7,600 to 9,200 feet (2,316 to 2,804 meters)
Mean annual precipitation: 16 to 20 inches (406 to 508 millimeters)
Average annual air temperature: 40 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 90 to 110 days

Map Unit Composition

Tsoodzil and similar soils: 50 percent
Amcec and similar soils: 40 percent
Minor components: 10 percent

Component Descriptions

Tsoodzil soils

Geomorphic position: Cinder cones
Parent material: Eolian material and slope alluvium derived from basalt
Slope: 5 to 35 percent
Surface fragments: About 46 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 5.8 inches (low)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 2 SAR (slightly sodic)
Ecological site: Cinder Hills
Present native vegetation: Gambel's oak, Arizona fescue, mountain muhly, blue grama, bottlebrush squirreltail, muttongrass, prairie junegrass, buckwheat
Land capability (nonirrigated): 7e
Conservation Tree/Shrub Group: 4C

Typical Profile:
A—0 to 3 inches; very gravelly loam
Bt1—3 to 11 inches; clay
Bt2—11 to 25 inches; clay
Btk1—25 to 32 inches; gravelly clay
2Btk2—32 to 65 inches; extremely gravelly clay loam

Amcec soils

Geomorphic position: Cinder cones
Parent material: Eolian material and slope alluvium over residuum derived from cinders
Slope: 15 to 50 percent
Surface fragments: About 88 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat excessively drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 1.9 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: High
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 0 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Cinder Hills
Present native vegetation: Arizona fescue, mountain muhly, Gambel's oak, blue grama, bottlebrush squirreltail, muttongrass, prairie junegrass, buckwheat
Land capability (nonirrigated): 7e

Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 4 inches; extremely gravelly loam
Bt—4 to 16 inches; very gravelly loam
Btk1—16 to 39 inches; extremely gravelly coarse sandy loam
Btk2—39 to 53 inches; extremely gravelly loamy coarse sand
Bk—53 to 70 inches; extremely gravelly loamy coarse sand

Minor Components

Rock outcrop
Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments.

Canoneros and similar soils
Composition: About 3 percent
Slope: 2 to 6 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Shallow

Montillo and similar soils
Composition: About 3 percent
Slope: 2 to 6 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Oak Savannah

440—Chivato clay, 0 to 1 percent slopes

Map Unit Setting

MLRA: 39
Elevation: 8,100 to 8,600 feet (2,469 to 2,621 meters)
Mean annual precipitation: 16 to 20 inches (406 to 508 millimeters)
Average annual air temperature: 40 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 90 to 110 days

Map Unit Composition

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

Component Descriptions

Chivato soils

Geomorphic position: Playas on lava plateaus
Parent material: Lacustrine deposits derived from basalt
Slope: 0 to 1 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained
Slowest permeability: About 0.01 in/hr (very slow)
Available water capacity: About 8.3 inches (moderate)
Shrink-swell potential: About 7.5 LEP (high)
Ponding hazard: Occasional
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Negligible
Calcium carbonate maximum: None
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 1 SAR (slightly sodic)
Ecological site: Playa
Present native vegetation: western wheatgrass, curly dock, pingue hymenoxys
Land capability (nonirrigated): 3s
Conservation Tree/Shrub Group: 4CC

Typical Profile:
A—0 to 2 inches; clay
Bss1—2 to 13 inches; clay
Bss2—13 to 40 inches; clay
Bss3—40 to 52 inches; clay
Bssg—52 to 65 inches; clay

Minor Components

Seco and similar soils
Composition: About 10 percent
Slope: 1 to 3 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained
Ecological site: Mountain Grassland

525—Silcat clay loam, 1 to 10 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,800 to 7,500 feet (2,073 to 2,286 meters)
Mean annual precipitation: 13 to 16 inches (330 to 406 millimeters)
Average annual air temperature: 46 to 49 degrees F (8 to 9 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

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

Figure 13.—Typical landscape of Silcat clay loam, 1 to 10 percent slopes. With adequate rainfall, these heavy-textured soils will produce an abundance of western wheatgrass.

Component Descriptions

Silcat soils

Geomorphic position: Stream terraces and depressions on valley floors and alluvial fans on valley sides (fig. 13)
Parent material: Stream alluvium derived from shale
Slope: 1 to 10 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.01 in/hr (very slow)
Available water capacity: About 8.4 inches (moderate)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Very high
Calcium carbonate maximum: About 5 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 2 SAR (slightly sodic)
Ecological site: Clayey
Present native vegetation: western wheatgrass, needleandthread, winterfat, Indian ricegrass, big sagebrush, blue grama, bottlebrush squirreltail, galleta, pingue hymenoxys, rabbitbrush
Land capability (irrigated): 4e
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4CC

Typical Profile:
A—0 to 2 inches; clay loam
2BCss—2 to 38 inches; clay
Bk—38 to 65 inches; clay

Minor Components

Galzuni and similar soils
Composition: About 8 percent
Slope: 1 to 10 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Clayey

Bryway and similar soils
Composition: About 7 percent
Slope: 1 to 10 percent

Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Pinyon-Juniper Forest

550—Bryway-Galzuni loams, 1 to 8 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,800 to 7,600 feet (2,073 to 2,316 meters)
Mean annual precipitation: 13 to 16 inches (330 to 406 millimeters)
Average annual air temperature: 46 to 49 degrees F (8 to 9 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

Bryway and similar soils: 50 percent
Galzuni and similar soils: 35 percent
Minor components: 15 percent

Component Descriptions

Bryway soils

Geomorphic position: Sideslopes on hills, dipslopes on cuestas, and summits on mesas
Parent material: Slope alluvium over residuum derived from shale and sandstone
Slope: 2 to 8 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 4.8 inches (low)
Shrink-swell potential: About 7.5 LEP (high)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: High
Calcium carbonate maximum: About 5 percent
Gypsum maximum: None
Salinity maximum: About 0 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Pinyon-Juniper Forest
Present native vegetation: Gambel's oak, Indian ricegrass, banana yucca, big sagebrush, blue grama, bottlebrush squirreltail, broom snakeweed, buckwheat, mountainmahogany, muttongrass, oneseed juniper, pingue hymenoxys, prairie junegrass, twoneedle pinyon, western wheatgrass
Land capability (irrigated): 4e
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4C

Typical Profile:
E—0 to 2 inches; loam
Bt—2 to 6 inches; clay loam
Btk—6 to 32 inches; clay
2Cr—32 inches; shale

Galzuni soils

Geomorphic position: Sideslopes on hills, dipslopes on cuestas, and summits on mesas
Parent material: Eolian material and slope alluvium derived from shale and sandstone
Slope: 1 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 9.6 inches (high)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: High
Calcium carbonate maximum: About 5 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 2 SAR (slightly sodic)
Ecological site: Clayey
Present native vegetation: western wheatgrass, needleandthread, winterfat, Indian ricegrass, big sagebrush, blue grama, bottlebrush squirreltail, galleta, pingue hymenoxys, rabbitbrush, spineless horsebrush
Land capability (irrigated): 4e
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4C

Typical Profile:
A—0 to 2 inches; loam
Bt1—2 to 4 inches; clay
Bt2—4 to 23 inches; clay
Btk—23 to 32 inches; clay loam
Bk1—32 to 52 inches; sandy clay
Bk2—52 to 65 inches; sandy clay loam

Minor Components

Highdye and similar soils
Composition: About 6 percent
Slope: 2 to 8 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)

Drainage class: Well drained
Ecological site: Pinyon-Juniper Forest

Evpark and similar soils
Composition: About 5 percent
Slope: 2 to 8 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Pinyon-Juniper Forest

Parkelei and similar soils
Composition: About 4 percent
Slope: 2 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Pinyon-Juniper Forest

555—Parkelei-Evpark fine sandy loams, 2 to 8 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,800 to 8,000 feet (2,073 to 2,438 meters)
Mean annual precipitation: 13 to 16 inches (330 to 406 millimeters)
Average annual air temperature: 46 to 49 degrees F (8 to 9 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

Parkelei and similar soils: 45 percent
Evpark and similar soils: 35 percent
Minor components: 20 percent

Component Descriptions

Parkelei soils

Geomorphic position: Sideslopes on ridges, dipslopes on cuestas, and summits on mesas
Parent material: Eolian material and slope alluvium derived from sandstone and shale
Slope: 2 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 8.1 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: High
Calcium carbonate maximum: About 5 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 1 SAR (slightly sodic)
Ecological site: Pinyon-Juniper Forest
Present native vegetation: Gambel's oak, antelope bitterbrush, banana yucca, big sagebrush, blue grama, bottlebrush squirreltail, broom snakeweed, buckwheat, muttongrass, oneseed juniper, prairie junegrass, twoneedle pinyon, western wheatgrass
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4

Typical Profile:
A—0 to 3 inches; fine sandy loam
Bt1—3 to 12 inches; clay loam
Bt2—12 to 21 inches; sandy clay loam
Bk—21 to 65 inches; sandy loam

Evpark soils

Geomorphic position: Sideslopes and summits on ridges, dipslopes on cuestas, and summits on mesas
Parent material: Eolian material and slope alluvium derived from sandstone and shale
Slope: 2 to 8 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 6.1 inches (moderate)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: High
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 1 SAR (slightly sodic)
Ecological site: Pinyon-Juniper Forest
Present native vegetation: Gambel's oak, antelope bitterbrush, banana yucca, big sagebrush, blue grama, bottlebrush squirreltail, broom snakeweed, buckwheat, muttongrass, oneseed juniper, prairie junegrass, twoneedle pinyon, western wheatgrass
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 6D

Typical Profile:
A—0 to 3 inches; fine sandy loam
Bt1—3 to 16 inches; clay loam

Bt2—16 to 20 inches; clay loam
Bt3—20 to 29 inches; sandy clay loam
Btk—29 to 35 inches; sandy clay loam
2R—35 inches; sandstone bedrock

Minor Components

Arabrab and similar soils
Composition: About 10 percent
Slope: 2 to 8 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Pinyon-Juniper Forest

Highdye and similar soils
Composition: About 5 percent
Slope: 2 to 8 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Pinyon-Juniper Forest

Bryway and similar soils
Composition: About 5 percent
Slope: 2 to 8 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Pinyon-Juniper Forest

560—Flugle-Teczuni complex, 1 to 5 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,800 to 7,200 feet (2,073 to 2,195 meters)
Mean annual precipitation: 13 to 14 inches (330 to 356 millimeters)
Average annual air temperature: 49 to 53 degrees F (9 to 12 degrees C)
Frost-free period: 115 to 135 days

Map Unit Composition

Flugle and similar soils: 45 percent
Teczuni and similar soils: 35 percent
Minor components: 20 percent

Component Descriptions

Flugle soils

Geomorphic position: Sideslopes on hills, fan remnants on valley sides, and dipslopes on cuestas
Parent material: Eolian material and fan and slope alluvium derived from sandstone and shale
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 8.6 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Low
Calcium carbonate maximum: About 15 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 1 SAR (slightly sodic)
Ecological site: Loamy
Present native vegetation: blue grama, bottlebrush squirreltail, western wheatgrass, Indian ricegrass, needleandthread, winterfat, fringed sagewort, broom snakeweed, oneseed juniper, rabbitbrush, spineless horsebrush, twoneedle pinyon
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4

Typical Profile:
A—0 to 3 inches; fine sandy loam
Bt—3 to 35 inches; sandy clay loam
Bk—35 to 65 inches; fine sandy loam

Teczuni soils

Geomorphic position: Sideslopes on hills, fan remnants on valley sides, and dipslopes on cuestas
Parent material: Eolian material and fan and slope alluvium derived from sandstone and shale
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 10.5 inches (high)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 30 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 2 SAR (slightly sodic)
Ecological site: Loamy
Present native vegetation: blue grama, bottlebrush squirreltail, western wheatgrass, Indian ricegrass, needleandthread, winterfat, fringed sagewort,

broom snakeweed, rabbitbrush, spineless horsebrush, twoneedle pinyon
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4C

Typical Profile:
A—0 to 2 inches; loam
Bt—2 to 16 inches; clay loam
Btk—16 to 33 inches; clay loam
Bk—33 to 65 inches; clay

Minor Components

Fragua and similar soils
Composition: About 10 percent
Slope: 1 to 5 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat excessively drained
Ecological site: Sandy Slopes

Atarque and similar soils
Composition: About 5 percent
Slope: 1 to 5 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Shallow Sandstone

Celavar and similar soils
Composition: About 5 percent
Slope: 1 to 5 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Savannah

561—Flugle-Plumasano association, 2 to 8 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,200 to 7,200 feet (1,890 to 2,195 meters)
Mean annual precipitation: 13 to 14 inches (330 to 356 millimeters)
Average annual air temperature: 49 to 53 degrees F (9 to 12 degrees C)
Frost-free period: 115 to 135 days

Map Unit Composition

Flugle and similar soils: 50 percent
Plumasano and similar soils: 40 percent
Minor components: 10 percent

Component Descriptions

Flugle soils

Geomorphic position: Dipslopes on cuestas, sideslopes on ridges, and fan remnants on valley sides
Parent material: Eolian material and fan and slope alluvium derived from sandstone and shale
Slope: 2 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 8.4 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 10 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 1 SAR (slightly sodic)
Ecological site: Pinyon-Juniper Forest
Present native vegetation: Indian ricegrass, antelope bitterbrush, blue grama, bottlebrush squirreltail, broom snakeweed, buckwheat, cliffrose, galleta, muttongrass, oneseed juniper, sand dropseed, spineless horsebrush, threeawn, twoneedle pinyon, yucca
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4

Typical Profile:
A—0 to 3 inches; fine sandy loam
Bt—3 to 17 inches; sandy clay loam
Bk—17 to 65 inches; fine sandy loam

Plumasano soils

Geomorphic position: Dipslopes on cuestas, sideslopes on ridges
Parent material: Eolian material and slope alluvium derived from sandstone
Slope: 2 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat excessively drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 7.8 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Low

Calcium carbonate maximum: About 15 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Pinyon-Juniper Forest
Present native vegetation: Bigelow's sagebrush, Indian ricegrass, antelope bitterbrush, blue grama, cliffrose, galleta, muttongrass, oneseed juniper, rabbitbrush, ring muhly, sand dropseed, sideoats grama, twoneedle pinyon, yucca
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 5

Typical Profile:
A—0 to 2 inches; sandy loam
Bw—2 to 11 inches; sandy loam
Bk1—11 to 27 inches; sandy loam
Bk2—27 to 43 inches; fine sandy loam
Bk3—43 to 53 inches; fine sandy loam
Bk4—53 to 65 inches; sandy clay loam

Minor Components

Royosa and similar soils
Composition: About 5 percent
Slope: 2 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Excessively drained
Ecological site: Sandy Slopes

Rizno and similar soils
Composition: About 3 percent
Slope: 2 to 8 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Somewhat excessively drained
Ecological site: Shallow Sandstone

Tekapo and similar soils
Composition: About 2 percent
Slope: 2 to 8 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Shale Hills

565—Plumasano-Rock outcrop complex, 15 to 40 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,500 to 7,200 feet (1,981 to 2,195 meters)
Mean annual precipitation: 13 to 14 inches (330 to 356 millimeters)
Average annual air temperature: 49 to 53 degrees F (9 to 12 degrees C)
Frost-free period: 115 to 135 days

Map Unit Composition

Plumasano and similar soils: 65 percent
Rock outcrop: 20 percent
Minor components: 15 percent

Component Descriptions

Plumasano soils

Geomorphic position: Sideslopes on ridges and escarpments on plateaus and cuestas
Parent material: Eolian material and slope alluvium derived from sandstone
Slope: 15 to 40 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat excessively drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 6.5 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 15 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: None
Ecological site: Sandy Slopes
Present native vegetation: blue grama, galleta, sand dropseed, Indian ricegrass, antelope bitterbrush, cliffrose, muttongrass, oneseed juniper, rabbitbrush, ring muhly, sideoats grama, twoneedle pinyon, yucca
Land capability (nonirrigated): 7e
Conservation Tree/Shrub Group: 5

Typical Profile:
A—0 to 3 inches; sandy loam
Bk1—3 to 24 inches; sandy loam
Bk2—24 to 36 inches; loamy sand
Bk3—36 to 65 inches; fine sandy loam

Rock outcrop

Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments.

Minor Components

Rizno and similar soils
Composition: About 5 percent

Slope: 5 to 10 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Somewhat excessively drained
Ecological site: Shallow Sandstone

Teczuni and similar soils
Composition: About 5 percent
Slope: 5 to 10 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Loamy

Flugle and similar soils
Composition: About 5 percent
Slope: 5 to 10 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Loamy

566—Bamac extremely gravelly sandy loam, 5 to 50 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,200 to 6,500 feet (1,890 to 1,981 meters)
Mean annual precipitation: 13 to 14 inches (330 to 356 millimeters)
Average annual air temperature: 49 to 53 degrees F (9 to 12 degrees C)
Frost-free period: 115 to 135 days

Map Unit Composition

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

Component Descriptions

Bamac soils

Geomorphic position: Hills and ridges
Parent material: Slope alluvium derived from sandstone and conglomerate
Slope: 5 to 50 percent
Surface fragments: About 70 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Excessively drained
Slowest permeability: About 5.95 in/hr (very rapid)
Available water capacity: About 1.6 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 15 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 0 SAR (nonsodic)
Ecological site: Gravelly
Present native vegetation: sideoats grama, black grama, galleta, Indian ricegrass, New Mexico feathergrass, antelope bitterbrush, blue grama, muttongrass, Bigelow's sagebrush, Mormon tea, oneseed juniper, twoneedle pinyon
Land capability (nonirrigated): 8
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 2 inches; extremely gravelly sandy loam
Ck1—2 to 8 inches; gravelly sandy loam
Ck2—8 to 30 inches; extremely gravelly coarse sand
Ck3—30 to 63 inches; very cobbly coarse sand

Minor Components

Plumasano and similar soils
Composition: About 5 percent
Slope: 5 to 40 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Sandy Slopes

Royosa and similar soils
Composition: About 5 percent
Slope: 5 to 10 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Excessively drained
Ecological site: Sandy Plains

575—Ramah-Pescado association, 1 to 8 percent slopes

Map Unit Setting

MLRA: 36
Elevation: 6,400 to 7,000 feet (1,951 to 2,134 meters)
Mean annual precipitation: 13 to 14 inches (330 to 356 millimeters)
Average annual air temperature: 46 to 49 degrees F (8 to 9 degrees C)
Frost-free period: 100 to 135 days

Map Unit Composition

Ramah and similar soils: 45 percent
Pescado and similar soils: 35 percent
Minor components: 20 percent

Component Descriptions

Ramah soils

Geomorphic position: Lava flows on valley floors
Parent material: Eolian and alluvial material derived from sandstone
Slope: 1 to 4 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 10.4 inches (high)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 30 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: About 1 SAR (slightly sodic)
Ecological site: Loamy
Present native vegetation: western wheatgrass, Indian ricegrass, big sagebrush, blue grama, bottlebrush squirreltail, galleta, oneseed juniper, winterfat, broom snakeweed, muttongrass, rabbitbrush, spineless horsebrush, twoneedle pinyon
Land capability (irrigated): 3c
Land capability (nonirrigated): 6c
Conservation Tree/Shrub Group: 4C

Typical Profile:
A—0 to 3 inches; sandy loam
Bt1—3 to 8 inches; sandy clay loam
Bt2—8 to 15 inches; clay loam
Btk—15 to 33 inches; clay loam
Bk1—33 to 41 inches; clay loam
Bk2—41 to 62 inches; sandy clay loam

Pescado soils

Geomorphic position: Lava flows on valley floors
Parent material: Eolian material derived from sandstone
Slope: 1 to 8 percent
Depth to restrictive feature: 5 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 2.7 inches (very low)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: Greater than 6 feet
Runoff class: Medium
Calcium carbonate maximum: About 5 percent
Gypsum maximum: None
Salinity maximum: About 2 mmhos/cm (nonsaline)
Sodicity maximum: None
Ecological site: Malpais
Present native vegetation: big sagebrush, blue grama, galleta, western wheatgrass, Indian ricegrass, bottlebrush squirreltail, little bluestem, muttongrass, needleandthread, sideoats grama, winterfat, oneseed juniper, twoneedle pinyon
Land capability (nonirrigated): 7s
Conservation Tree/Shrub Group: 10

Typical Profile:
A—0 to 3 inches; fine sandy loam
Bt1—3 to 10 inches; sandy clay loam
Bt2—10 to 16 inches; clay loam
2R—16 inches; basalt bedrock

Minor Components

Rock outcrop
Composition: About 9 percent
Rock outcrop consists of barren or nearly barren areas of exposed sandstone and shale on ridges, ledges, and escarpments.

Evpark and similar soils
Composition: About 6 percent
Slope: 2 to 6 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Loamy

Parkelei and similar soils
Composition: About 5 percent
Slope: 2 to 8 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Ecological site: Loamy

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. The ratings in these tables are both verbal and numerical.

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, slightly limited, somewhat limited,* and *very limited*. The suitability ratings are expressed as *well suited, moderately well suited, poorly suited,* and *unsuited* or as *good, fair,* and *poor*.

Numerical Ratings

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

Prime Farmland and Farmland of Statewide and Local Importance

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. There is no farmland in the survey that meets the criteria for prime farmland. In addition, no farmlands meet the criteria for statewide importance. Statewide important farmlands are those having an irrigated land capability class of IV or better and are irrigated with a supply of irrigation water that will meet crop needs throughout the growing season.

In some local areas there is a need for certain additional farmlands for the production of food, feed, fiber, and forage, even though these lands are not identified as having national or statewide importance. Where appropriate, these lands are to be identified by the local agency or agencies concerned. In places, additional farmlands of local importance may include tracts of land that have been designated for agriculture by local ordinance.

The map units in the survey area that are considered farmlands of local importance are listed in table 5. Areas in the survey where these soils exist are mostly on the Zuni Indian Reservation, the upper reaches of the Rio Nutria, along the Rio Pescado, the Ramah Valley, and small areas west of Vanderwagon, NM. 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 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.”

Crops and Pasture

By Edward J. Oliver Jr., district conservationist, Natural Resources Conservation Service.

General management needed for crops and pasture is suggested in this section. The estimated yields of the main crops and pasture plants are listed, the system of land capability classification used by the Natural Resources Conservation Service is explained, and prime farmland is described.

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.

Approximately 2,100 acres in the survey area is irrigated cropland. The supply of irrigation water is limited in most areas. The irrigation reservoirs in the survey area are limited by capacity and/or runoff capacity. Dryland farming acreage is limited to small plots of corn planted mostly for ceremonial purposes. Given a mean annual precipitation range of 10 to 16 inches, moisture is not dependable enough to allow producers to expect reliable yields in any given year. The number of frost-free days in the survey area ranges from 100 to 150 days, depending on the elevation.

In the Ramah Valley area, the main use of irrigated water is to produce pasture grasses for grazing domestic livestock. A small acreage in the area is used for growing small grains, such as wheat and oats. Irrigation water in the valley comes from the Ramah reservoir a few miles to the north.

There are five irrigated areas on the Zuni Reservation. Water for the irrigation areas is provided by reservoirs, which store water from several rivers. The main crops grown are alfalfa, corn, rye, and oats. Also grown is an assortment of garden vegetables, including pumpkins, squash, beans, cucumbers, and chili peppers.

The main objectives in cropland management are proper irrigation, maintenance of good soil tilth and fertility, and control of water erosion and soil blowing. Measures that reduce salinity or sodicity and improve drainage also are needed in some areas. Salinity and sodicity can be reduced by leaching or by applying soil amendments.

Using a suitable cropping system helps to maintain

good soil tilth, structure, aeration, and fertility. A single crop can be grown for many years on some soils with little adverse effect on yields. Other soils deteriorate rapidly if low-residue crops are grown unless large amounts of organic matter are added annually. Rotating crops helps to control insects, disease, and weeds.

Applying adequate amounts of irrigation water in a timely manner and avoiding over-irrigation are essential for high yields. The irrigation system should be adapted to the soil and the crops grown. Over-irrigation leaches nutrients from the root zone, results in excessive wetness of the lower part of the soil, and reduces aeration in the root zone.

Good management practices such as planting adapted varieties, timely planting and harvesting, and applying fertilizer according to needs of the crops can increase yields of annual crops, hay crops and pasture plants. Control of weeds, insects and disease also helps to increase yields.

Good pasture management includes such practices as applying adequate fertilizer, clipping after grazing to remove excess forage and weeds and rotation grazing.

Yields per Acre

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

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby 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 5 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

The *productivity index* is a relative rating of the capacity of a soil to produce a specific plant under a defined management system. The index is determined from yield data on a few benchmark soils and is used to calculate yields, the net returns from crops, land assessment values and taxes, and to perform risk analysis when land management decisions are made.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes.

Land capability classifications for the individual soils in this survey can be found in the “Detailed Soil Map Units” section.

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

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.

Rangeland

About 80 percent of the survey area is range or grazable woodland. A large portion of the farm income is derived from the production of cattle and some sheep. Cow-calf-yearling operations are the most common. On many ranches the forage produced on rangeland is supplemented with hay and protein supplements. There are ranches of up to 250,000 acres and smaller ranches that average about 3,000 acres or less. Most tribal ranches, Navajo and Zuni, average about 4,000 acres in size.

Prior to the introduction of domestic livestock by the Spanish explorers, the main grazers and browsers of the land were small numbers of buffalo, mule deer, and elk, and larger numbers of desert bighorn sheep, antelope, and prairie dogs.

About 48 percent of the grazing land is administered by the Bureau of Indian Affairs, and about 41 percent is under private management. About 9 percent is managed by the Bureau of Land Management, about 1 percent is managed by the U.S. Forest Service, and approximately another 1 percent is overseen by the National Park Service and the State of New Mexico.

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 6 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 6 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 in chapter 4 of the National Range and Pasture Handbook, which is available in local offices of the Natural Resources Conservation Service.

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.

Forest Productivity and Management

The two major types of forestland in the survey area are ponderosa pines mixed with Douglas fir and Englemann spruce at the higher elevations, and pinyon-juniper forests. Logging in the Zuni Mountains began in the 1890's. Areas were logged extensively from the 1900's to the 1940's. In the Zuni Mountains, a narrow-gauge railroad was used to transport logs to the sawmills. From the late 1930's through World War II, areas that had appreciable amounts of ponderosa pine were cut over for the production of railroad ties.

The many periods of heavy cutting and the subsequent farming, overgrazing, and control of fires have resulted in the present forest conditions. Some wooded areas are understocked. The residual trees in these areas are of poor quality for timber. Many second-growth stands are overstocked and require thinning before optimum growth and yields can be achieved.

The dominant timber species in the survey area is ponderosa pine. Ponderosa pine grows best at elevations above 8,000 feet, but it also grows at elevations as low as 7,300 feet. Douglas fir grows best on the north-facing slopes between elevations of 7,800 and 8,300 feet. Small areas of Douglas fir are on the cooler, north-facing slopes in the Zuni Mountains. The main species at elevations above 8,800 feet are Engelman spruce and corkbar fir. Narrow bands of blue spruce are along some of the drainageways at the higher elevations.

The Corzuni, Fortwingate, and Zunalei soils have the highest potential for timber production. Timber can also be produced on the Asaayi and Osoridge soils.

Twoneedle pinyon and oneseed juniper are common at elevations of 7,100 to 7,800 feet, but they also grow on the south-facing slopes at elevations as high as 8,100 feet. Rocky Mountain juniper and alligator juniper are included in the overstory at the higher elevations. Although twoneedle pinyon and oneseed juniper are not considered commercial species, they are used extensively for fuel wood, fenceposts, Christmas trees and ornamental plantings. Pinyon also provides edible nuts.

Most of the understory in the areas of pinyon and juniper is used for livestock grazing. Understory vegetation consists of grasses, forbs, shrubs, and other plants. If well managed, some forestland can produce enough understory vegetation to support grazing by livestock or wildlife, or both, without damage to the trees.

The quantity and quality of understory vegetation vary with the kind of soil, the age and kind of trees in the canopy, the density of the canopy, and the depth and condition of the litter. The density of the canopy determines the amount of light that understory plants receive; therefore, the production of understory plants can be increased by thinning the trees in the overstory. In the section "Detailed Soil Map Units," the common understory plants are specified for the soils in the survey area that are used as forestland.

The Flugle, Parkelei, and Fragua soils support the

best stands of pinyon and juniper. The Fraguni and Celavar soils also support pinyon and juniper.

Good forestland management includes protection against fire, insects and disease; thinning and pruning to improve growth and quality; reforestation; cutting to improve the stocking level; and proper watershed management.

The United States Forest Service, New Mexico Division of Forestry, and private individuals oversee fire prevention and control. Proper silviculture practices provide protection against insects (bark beetles) and diseases (dwarf mistletoe and red rot). Thinning and pruning of selected trees can improve the quality of the timber and the growth potential of the site.

Reforestation can be achieved by natural regeneration and by planting. Proper site preparation may be needed to provide a good seedbed and minimize competition from shrubs and grasses.

Watershed management includes the proper location of skid trails, logging roads and landing, and the proper treatment of all areas disturbed by logging activities. Constructing water bars, cross ditching, building out-sloping roads, and then seeding grasses, forbs and browse species are practices that help control water erosion. Leaving a buffer strip of undisturbed soil and vegetation on both sides of watercourses also helps to control erosion and minimizes the amount of sediment reaching streams.

The tables in this section can help forest owners or managers plan the use of soils for wood crops. They show the potential productivity of the soils for wood crops and rate the soils according to the limitations that affect various aspects of forest management.

Forest Productivity

In table 7, the *potential productivity* of merchantable or *common trees* on a soil is expressed as a site index and as a volume number. The *site index* is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that forest managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability. More detailed information regarding site index is available in the National Forestry Manual, which is available in local offices of the Natural Resources Conservation Service or on the Internet.

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

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

Forest Management

In table 8a and table 8b, interpretive ratings are given for various aspects of forest management. The ratings are both verbal and numerical.

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

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

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

Ratings in the column *hazard of off-road or off-trail erosion* are based on slope and on soil erodibility factor K. The soil loss is caused by sheet or rill erosion in off-

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

Ratings in the column *hazard of erosion on roads and trails* are based on the soil erodibility factor K, slope, and content of rock fragments. The ratings apply to unsurfaced roads and trails. The hazard is described as slight, moderate, or severe. A rating of *slight* indicates that little or no erosion is likely; *moderate* indicates that some erosion is likely, that the roads or trails may require occasional maintenance; and that simple erosion-control measures are needed; and *severe* indicates that significant erosion is expected, that the roads or trails require frequent maintenance, and that costly erosion-control measures are needed.

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

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

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

Windbreaks and Environmental Plantings

Windbreaks protect livestock, buildings, and yards from wind and snow. They also protect fruit trees and gardens, and they furnish habitat for wildlife. Several rows of low and high-growing broadleaf and coniferous trees and shrubs provide the most protection.

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 erodibilty of the soil. Field windbreaks protect cropland and crops from wind, help to keep snow on the fields, and provide food and cover for wildlife.

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.

The trees or shrubs selected for planting in windbreaks should be those that are suited to the soils on the site. Selecting suitable species helps to ensure the survival, rapid growth, and longevity of windbreaks. The soil characteristics that greatly affect the growth rate of trees and shrubs are permeability, available water capacity, and depth to bedrock.

Grazing can be detrimental to windbreaks and environmental plantings because livestock compact the soil and remove the lower branches of the trees and shrubs. Compaction retards growth and removal of the lower branches reduces the effectiveness and esthetic value of the windbreaks. Weeds and insects prevent trees from achieving their maximum growth rates. Weeds can be controlled by clean cultivation and herbicide applications. An insufficient moisture supply hinders the survival of trees in urban areas and on cropland. Drip irrigation or other methods of irrigation are needed to reduce the seedling mortality rate and ensure continued growth. Fallowing a year before planting helps to provide a sufficient soil moisture supply for the establishment of seedlings.

In the section “Detailed Soil Map Units,” the Conservation Tree/Shrub Group is provided. This grouping can be used to reference tables and charts that show the height that locally grown trees and shrubs are expected to reach in 20 years on various soils. The estimates 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 along with guidance on their proper care can be obtained from the local offices of the Natural Resources Conservation Service, the Cooperative Extension Service, or from a commercial nursery.

Recreation

The soils of the survey area are rated in table 9a and table 9b according to limitations that affect their suitability for recreation. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the recreational uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

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

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

The information in tables 9a and 9b can be supplemented by other information in this survey, for example, interpretations for building site development, construction materials, sanitary facilities, and water management.

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

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

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Playgrounds require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil

properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

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

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

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

Wildlife Habitat

David Seery, Wildlife Biologist, Natural Resources Conservation Service, helped prepare this section.

There are six general areas containing wildlife habitat in the McKinley County Area:

1.) Plateaus, mesas, and terraces
2.) Mountains
3.) River and stream valleys
4.) Wetlands
5.) Breaks
6.) Rock outcrops

Plateaus, mesas, and terraces contain soils that have grasslands and pinyon-juniper forests on the gently undulating to steep slopes. Grasses and shrubs grow on soils that range from very shallow to very deep.

The summits of plateaus and mesas support pinyon-juniper forests. Elevations range from 6,800 to 7,800 feet. Various wildlife species also use these areas, for example, gray squirrels, cottontail rabbits, prairie rattlesnakes, and pinyon jays.

Fan remnants and stream terraces form old land surfaces near valleys and mountains. These upland sites are home to badger, striped skunk, prairie dogs, prairie rattlesnakes, black-tailed jackrabbit, and hawks. Antelope could be reintroduced in the northern half of the survey if given protection until established. Badgers and other burrowing animals make extensive use of areas of coarse and moderately coarse textured soils.

Mountains occur in the southern portion of the survey area east of Gallup and north of Grants.

The Zuni Mountains and the Mt. Taylor area contain some of the most important wildlife habitat in the survey area. Woodlands of ponderosa pine, Douglas-fir, pinyon, juniper, and Gambel oak provide habitat for turkey, mule deer, elk, black bear, porcupine, cottontail rabbits, gray squirrel, band-tailed pigeons, owls, hawks, prairie rattlesnakes, and songbirds.

Open grassy valleys are home to prairie dogs and possibly the endangered black-footed ferret. The long-tailed weasel also occurs in these areas. Local wetlands are important for many birds, waterfowl, and local mammals. Steep slopes and variable topography also play important roles in wildlife habitat.

River and stream valleys occur along such streams as the Puerco, Chaco, Cottonwood, Pescado, Rio Nutria, Zuni, and San Jose River. They contain riparian vegetation and water for wildlife use. These areas are used by all local wildlife for some part of their needs.

Songbirds nest in cottonwood and willow trees in large numbers. Cavity-nesting birds find many nest sites in holes within large cottonwood trees. Quail use the thick vegetation for cover and seed sources. The abundant prey species attract many predators such as coyote, hawks, prairie rattlesnakes, and bobcat. Mule deer may spend their whole lives in these river bottoms.

The potential for competition between livestock and wildlife is high. The plant communities in these riparian areas must be maintained in good condition to provide wildlife habitat, flood protection, water quality, and soil erosion control.

Wetlands are areas containing hydrophytic vegetation, hydric soils, and wetland hydrology. Marshes are wetlands dominated by grasses and grass-like plants, and they occur in few areas of the

survey area. Some are in channels of the Rio Nutria, Pescado, and Cottonwood River valleys and are produced by ground water. Other small marshes are human-induced and formed by irrigation impoundments.

All of these wetlands are used extensively by a large variety of wildlife species. Predators and prey species alike gather at these oases in an otherwise dry landscape.

Wetlands provide natural protection from flooding, enhance water quality, furnish habitat for wildlife, and conserve water. Wetlands need protection from excessive grazing, drainage projects, and poorly planned urban development.

Breaks are the steep, broken lands on the escarpments of mesas and plateaus. Breaks are very eroded and dissected, with many small ridges and gullies. Vegetation on the soils occurs in breaks, but not in large amounts. Although annual production of air-dry vegetation is generally low, plant diversity is high. This botanic diversity, along with the physical cover provided by the terrain, provides an attractive habitat for wildlife. Mule deer hide in breaks and feed on browse plants such as true mountainmahogany. Coyote and red fox find cover in the intricate, rocky landscapes. Trees growing on breaks at higher elevations provide nest sites and hunting perches for raptors, such as the red-tailed hawk.

Rock outcrops furnish wildlife habitat when they occur as cliffs below rims of plateaus, mesas, and canyons. Although little or no vegetation grows on rock outcrops, they are still important to many species. Eagles, hawks, turkey vultures, owls, diamondback rattlers, and swallows utilize cliffs and ledges. Migratory bats seasonally roost in cracks and caves. Foxes, bobcats, bears, and cougars have dens in alcoves and caves.

Engineering

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

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

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

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

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

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

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

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

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

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

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

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

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can

be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

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

Sanitary Facilities

Table 11a and table 11b show the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

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

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

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

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick

enough over bedrock or a cemented pan to make land smoothing practical.

A *trench sanitary landfill* is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a cemented pan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

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

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

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

In an *area sanitary landfill*, solid waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, depth to a water table, ponding, slope, and depth to bedrock or a cemented pan.

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

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

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

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

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.

Construction Materials

Table 12a and table 12b 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.

The soils are rated *good, fair,* or *poor* as potential sources of topsoil, reclamation material, and roadfill. The features that limit the soils as sources of these materials are specified in the tables. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of topsoil, reclamation material, or roadfill. The lower the number, the greater the limitation.

The soils are rated as a *probable* or *improbable* source of sand and gravel. A rating of *probable* means that the source material is likely to be in or below the soil. The numerical ratings in these columns indicate

the degree of probability. The number 0.00 indicates that the soil is an improbable source. A number between 0.00 and 1.00 indicates the degree to which the soil is a probable source of sand or gravel.

Sand and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 12a, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the lowest layer of the soil contains sand or gravel, the soil is rated as a probable source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

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.

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).

Water Management

Table 13 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives for each soil the restrictive features that affect drainage, irrigation, terraces and diversions, and grassed waterways.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil

and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, a cemented pan, or other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; subsidence of organic layers; and the potential for frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, and sulfur. Availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock or a cemented pan. The performance of a system is affected by the depth of the root zone, the amount of salts or sodium, and soil reaction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock or a cemented pan affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of wind erosion or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock or a cemented pan affect the construction of grassed waterways. A hazard of wind erosion, low available water capacity, restricted rooting depth, toxic substances such as salts and sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey.

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 14 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, 1998) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 1998).

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. The AASHTO classification for soils tested, with group index numbers in parentheses, is given in table 14.

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

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

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter.

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

The 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 15, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

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

Erosion factors are shown in table 15 as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of several factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

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

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 coarse fragments on the surface or because of surface wetness.

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

Chemical Properties

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

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

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

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

Soil reaction is a measure of acidity or alkalinity. 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 17 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

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

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are

thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

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

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

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

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

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

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

Water table refers to a saturated zone in the soil. Table 18 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 various times of the year 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 18 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 (USDA, 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 19 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 Alfisol.

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 Ustalfs (*Ust*, meaning burnt or dry, plus *alf*, from Alfisol).

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 Haplustalfs (*Hapl*, meaning minimal horizonation, plus *ustalf*, the suborder of the Alfisols that has a 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. The adjective *Aridic* identifies the subgroup that typifies the great group. An example is Aridic Haplustalfs.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle size, mineral content, soil temperature regime, soil depth, and reaction. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is the Flugle series, which is a fine-loamy, mixed, superactive, mesic Aridic Haplustalf.

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

The map units of each soil series are described in the section "Detailed Soil Map Units."

Alesna Series

Taxonomic class: Fine, mixed, superactive, mesic Ustic Calciargids
Depth class: Deep
Drainage class: Well drained

Permeability: Slow
Geomorphic position: Lava plateaus and volcanic cones
Parent material: Slope alluvium and colluvium derived from basalt, shale, and sandstone
Slope range: 15 to 55 percent
Elevation: 6,500 to 7,600 feet
Mean annual air temperature: 49 to 54 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 120 to 140 days

Typical Pedon

Alesna extremely cobbly loam, in an area of mapping unit 270, Alesna-Rock outcrop complex, 15 to 55 percent slopes; McKinley County, New Mexico; Cerro Alesna Quadrangle; 3,800 feet west and 200 feet north of the southeast corner of sec. 2, T. 14 N., R. 7 W.; latitude 35 degrees, 27 minutes, 52 seconds and longitude 107 degrees, 33 minutes, 09 seconds.

The surface is covered by 35 percent gravel, 25 percent cobbles, and 5 percent stones.

A—0 to 1 inches; pale brown (10YR 6/3) extremely cobbly loam, brown (10YR 4/3) moist; weak medium platy structure parting to moderate very fine granular; soft, very friable, slightly sticky and slightly plastic; many very fine and fine and few medium roots; common fine irregular pores; 35 percent gravel, 25 percent cobbles, and 5 percent stones; slightly effervescent; moderately alkaline (pH 8.0); clear wavy boundary.

Bt—1 to 10 inches; brown (10YR 5/3) gravelly clay loam, brown (10YR 4/3) moist; moderate fine subangular blocky structure; slightly hard, friable, very sticky and plastic; many very fine and fine and few medium roots; many fine irregular pores; common distinct clay films bridging sand grains and on faces of peds; 20 percent gravel and 1 percent cobbles; moderately alkaline (pH 8.0); clear wavy boundary.

Btk1—10 to 20 inches; light olive brown (2.5Y 5/3) very gravelly clay, olive brown (2.5Y 4/3) moist; moderate medium prismatic structure parting to strong fine angular blocky; very hard, very firm, sticky and very plastic; many very fine and fine and few medium roots; common fine tubular pores; many prominent clay films on faces of peds; 35 percent gravel, 5 percent cobbles; strongly effervescent; many fine weakly cemented concretions of calcium carbonate and coating rock fragments; 8 percent calcium carbonate equivalent; strongly alkaline (pH 8.6); clear wavy boundary.

Btk2—20 to 26 inches; light olive brown (2.5Y 5/3) clay, olive brown (2.5Y 4/3) moist; very hard, very firm, sticky and very plastic; common very fine and fine roots; common fine tubular pores; many prominent clay films on faces of peds; 1 percent gravel and 1 percent cobbles; strongly effervescent; many medium and coarse masses of calcium carbonate and coating rock fragments; 12 percent calcium carbonate equivalent; strongly alkaline (pH 8.6); clear wavy boundary.

Btk3—26 to 52 inches; very pale brown (10YR 7/3) clay loam, brown (10YR 5/3) moist; weak fine and medium subangular blocky structure; very hard, very firm, very sticky and very plastic; few very fine and fine roots; common fine irregular pores; many distinct clay films bridging sand grains and on faces of peds; 8 percent gravel, 1 percent cobbles, and 1 percent stones; violently effervescent; rock fragments are coated with calcium carbonate; 20 percent calcium carbonate equivalent; strongly alkaline (pH 8.8).

2Cr—52 inches; shale

Range in Characteristics

Particle-size control section: 40 to 55 percent clay with 5 to 34 percent rock fragments
Depth to paralithic contact: 40 to 60 inches to shale, or shale interbedded with sandstone
Depth to calcic horizon: 10 to 35 inches with 15 to 40 percent calcium carbonate equivalent
Sodicity: SAR of 1 to 5

A horizon:
Hue: 7.5YR or 10YR
Value: 4 to 6 dry, 3 or 4 moist
Chroma: 3 or 4 dry or moist
Rock fragments: 60 to 80 percent total; 35 to 50 percent gravel; 20 to 40 percent cobbles; 0 to 5 percent stones; 0 to 1 percent boulders. All fragments are basalt and sandstone.
Reaction: neutral to moderately alkaline

Bt horizon:
Hue: 5YR, 7.5YR, or 10YR
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 3 or 4 dry or moist
Texture: clay loam or clay
Rock fragments: 0 to 50 percent total; 0 to 50 percent gravel; 0 to 10 percent cobbles. All fragments are basalt and sandstone.
Note: When this horizon has more than 35 percent rock fragments, it is too thin or is below the particle size control section to affect the particle size class.
Reaction: slightly or moderately alkaline

Btk horizon:
Hue: 7.5YR, 10YR, or 2.5Y

Value: 4 to 7 dry, 3 to 5 moist
Chroma: 3 to 6 dry or moist
Texture: clay loam or clay
Rock fragments: 1 to 40 percent total; 0 to 40 percent gravel; 0 to 5 percent cobbles; 0 to 1 percent stones. All fragments are basalt and sandstone.
Note: When this horizon has more than 35 percent rock fragments, it is too thin or is too far below the particle size control section to affect the particle size class.
Calcium carbonate equivalent: 5 to 40 percent
Reaction: slightly to strongly alkaline

Bk horizon (when present):
Hue: 7.5YR or 10YR
Value: 4 to 6 dry, 4 or 5 moist
Chroma: 4 or 5 dry, 4 to 6 moist
Rock fragments: 20 to 50 percent total; 20 to 45 percent gravel; 0 to 5 percent cobbles. All fragments are basalt and sandstone.
Calcium carbonate equivalent: 15 to 40 percent
Reaction: moderately or strongly alkaline

Amcec Series

Taxonomic class: Loamy-skeletal, mixed, superactive, frigid Vitrandic Haplustalfs
Depth class: Very deep
Drainage class: Somewhat excessively drained
Permeability: Moderate
Geomorphic position: Cinder cones
Parent material: Eolian material and slope alluvium over residuum derived from cinders
Slope range: 10 to 50 percent
Elevation: 7,600 to 9,200 feet
Mean annual air temperature: 40 to 45 degrees F
Mean annual precipitation: 16 to 20 inches
Frost-free period: 90 to 110 days

Typical Pedon

Amcec extremely gravelly loam, in an area of mapping unit 435, Tsoodzil-Amcec association, 5 to 50 percent slopes; McKinley County, New Mexico; latitude 35 degrees, 20 minutes, 55 seconds and longitude 107 degrees, 20 minutes, 41 seconds.

The surface is covered by 80 percent gravel, 5 percent cobbles, and 3 percent stones.

A—0 to 4 inches; dark reddish brown (5YR 3/4) extremely gravelly loam, dark reddish brown (2.5YR 2.5/4) moist; moderate fine granular structure; soft, friable, slightly sticky and slightly plastic; many very fine and fine roots; common fine irregular pores; 80 percent gravel, 5 percent cobbles, and 3 percent stones, neutral (pH 6.8); clear smooth boundary.
Bt—4 to 16 inches; dark reddish brown (2.5YR 3/4) very gravelly loam, dark reddish brown (2.5YR 2.5/4) moist, slightly hard, firm, sticky and plastic; many very fine and fine roots; common fine irregular pores; many distinct clay films on faces of peds; 40 percent gravel and 5 percent cobbles, slightly alkaline (pH 7.4); clear wavy boundary.
Btk1—16 to 39 inches; dark reddish brown (5YR 3/4) extremely gravelly coarse sandy loam, dark reddish brown (2.5YR 2.5/4) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium roots; common distinct clay films bridging sand grains; 85 percent gravel and 5 percent cobbles; violently effervescent; rock fragments are coated with calcium carbonate; 1 percent calcium carbonate equivalent; slightly alkaline (pH 7.8); gradual wavy boundary.
Btk2—39 to 53 inches; dark reddish brown (2.5YR 3/4) extremely gravelly loamy coarse sand, dark reddish brown (2.5YR 2.5/4) moist; massive; loose, loose, nonsticky and nonplastic; few very fine and fine roots; common distinct clay films bridging sand grains; 80 percent gravel, 5 percent cobbles, 5 percent stones; strongly effervescent; rock fragments are coated with calcium carbonate; 1 percent calcium carbonate equivalent; slightly alkaline (pH 7.8); gradual irregular boundary.
Bk—53 to 70 inches; dark reddish brown (2.5YR 3/4) extremely gravelly loamy coarse sand, dark reddish brown (2.5YR 2.5/4) moist; massive; loose, loose, nonsticky and nonplastic; few very fine and fine roots; 50 percent gravel, 20 percent cobbles, and 20 percent stones; strongly effervescent; rock fragments are coated with calcium carbonate; slightly alkaline (pH 7.8).

Range in Characteristics

Particle-size control section: 20 to 30 percent clay, more than 35 percent sand, and more than 35 percent gravel and cobble-sized cinders
Depth to secondary calcium carbonate: 15 to 25 inches with 1 to 10 percent calcium carbonate equivalent in the Btk and Bk horizons.
Reaction: slightly acid or neutral in the surface and slightly alkaline in the subsoil

A horizon:
Hue: 2.5YR through 10YR
Value: 3 or 4 dry, 2.5 or 3 moist
Chroma: 2 to 4 dry or moist
Rock fragments: 60 to 90 percent total; 20 to 80

percent gravel; 5 to 30 percent cobbles; 0 to 10 percent stones; 0 to 1 percent boulders. All fragments are cinders and basalt.

Bt horizon:
Hue: 2.5YR or 5YR
Value: 3 or 4 dry, 2.5 or 3 moist
Chroma: 3 or 4 dry or moist
Texture: loam, clay loam, or sandy clay loam
Rock fragments: 20 to 60 percent total; 15 to 60 percent gravel; 5 to 20 percent cobbles. All fragments are cinders and basalt.

Btk horizon:
Hue: 2.5YR or 5YR
Value: 3 or 4 dry, 2.5 or 3 moist
Chroma: 3 or 4 dry or moist
Texture: coarse sandy loam, loamy coarse sand, or sandy clay loam
Rock fragments: 50 to 90 percent total; 40 to 85 percent gravel; 5 to 10 percent cobbles; 0 to 5 percent stones. All fragments are cinders and basalt.

Bk horizon (when present):
Hue: 2.5YR or 5YR
Value: 3 or 4 dry, 2.5 or 3 moist
Chroma: 4 or 6 dry or moist
Texture: loamy coarse sand or sandy loam
Rock fragments: 80 to 95 percent total; 40 to 90 percent gravel; 0 to 20 percent cobbles; 0 to 20 percent stones. All fragments are cinders and basalt.

Aquima Series

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ustic Haplocambids
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Geomorphic position: Valley sides and valley floors
Parent material: Fan and stream alluvium derived from siltstone, sandstone, and shale
Slope range: 1 to 5 percent
Elevation: 6,000 to 6,800 feet
Mean annual air temperature: 49 to 54 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 120 to 140 days

Typical Pedon

Aquima silt loam, in an area of mapping unit 225, Aquima-Hawaikuh silt loams, 1 to 5 percent slopes; McKinley County, New Mexico; Ojo Caliente Reservoir Quadrangle; 2,800 feet east and 200 feet north of the southwest corner of sec. 29, T. 9 N., R. 20 W.; latitude 34 degrees, 58 minutes, 27 seconds and longitude 108 degrees, 58 minutes, 09 seconds (fig. 14).

A—0 to 2 inches; reddish brown (2.5YR 5/4) silt loam, reddish brown (2.5YR 4/4) moist; weak thin platy parting to weak fine granular structure; soft, friable, slightly sticky and nonplastic; few very fine and fine roots; common very fine irregular pores; strongly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.

Bk1—2 to 11 inches; reddish brown (2.5YR 5/4) silt loam, reddish brown (2.5YR 4/4) moist; moderate medium subangular blocky structure; soft, friable, slightly sticky and nonplastic; common very fine and fine roots; common fine tubular pores; 2 percent gravel; strongly effervescent; few fine irregular masses and weakly cemented concretions of calcium carbonate; 7 percent calcium carbonate equivalent; moderately alkaline (pH 8.3); abrupt smooth boundary.

Bk2—11 to 17 inches; red (2.5YR 4/6) sandy clay loam, red (2.5YR 4/6) moist; massive; soft, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine irregular pores; 4 percent gravel; strongly effervescent; common fine and medium irregular masses and weakly cemented concretions of calcium carbonate; 8 percent calcium carbonate equivalent; moderately alkaline (pH 8.0); clear smooth boundary.

2Bk3—17 to 26 inches; red (2.5YR 5/6) silt loam, red (2.5YR 4/6) moist; massive; soft, friable, slightly sticky and nonplastic; common very fine and fine roots; common very fine irregular pores; slightly effervescent; 4 percent calcium carbonate equivalent; strongly alkaline (pH 8.8); clear smooth boundary.

2Bk4—26 to 30 inches; red (2.5YR 4/6) silt loam, dark red (2.5YR 3/6) moist; massive; soft, friable, slightly sticky and nonplastic; common very fine and fine roots; common fine irregular pores; slightly effervescent; few fine irregular masses and weakly cemented concretions of calcium carbonate; 5 percent calcium carbonate equivalent; strongly alkaline (pH 8.7); clear smooth boundary.

2Bk5—30 to 33 inches; red (2.5YR 4/6) silt loam, dark red (2.5YR 3/6) moist; massive; soft, friable, slightly sticky and nonplastic; common very fine and fine roots; common fine irregular pores; slightly effervescent; 4 percent calcium carbonate equivalent; strongly alkaline (pH 8.9); clear smooth boundary.

3Bk6—33 to 45 inches; red (2.5YR 4/6) silty clay loam, dark red (2.5YR 3/6) moist; massive; soft, friable,

slightly sticky and slightly plastic; common very fine and fine roots; common fine irregular pores; 1 percent gravel; slightly effervescent; few fine irregular masses and weakly cemented concretions of calcium carbonate; 5 percent calcium carbonate equivalent; strongly alkaline (pH 8.5); clear smooth boundary.

3Bk7—45 to 49 inches; red (2.5YR 4/6) sandy clay loam, dark red (2.5YR 3/6) moist; massive; soft, friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine irregular pores; 5 percent gravel; strongly effervescent; common fine irregular masses and weakly cemented concretions of calcium carbonate; 9 percent calcium carbonate equivalent; moderately alkaline (pH 8.4); clear smooth boundary.

3Bk8—49 to 65 inches; red (2.5YR 4/6) gravelly clay loam, dark red (2.5YR 3/6) moist; massive; soft, friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine irregular pores; 15 percent gravel; strongly effervescent; common fine irregular masses and weakly cemented concretions of calcium carbonate; 8 percent calcium carbonate equivalent; moderately alkaline (pH 8.4).

Range in Characteristics

Particle-size control section: 20 to 35 percent clay
Reaction: Slightly to moderately alkaline in the surface and moderately to strongly alkaline in the subsoil

A horizon:
Hue: 2.5YR or 5YR
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 4 or 6 dry, 3 or 4 moist

Bw horizon:
Hue: 2.5YR or 5YR
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 4 or 6 dry or moist
Texture: Silt loam, silty clay loam, and sandy clay loam
Rock fragments: 0 to 5 percent gravel. All fragments are sandstone.
Calcium carbonate equivalent: 2 to 10 percent

Bk horizons:
Hue: 10R, 2.5YR or 5YR
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 4 or 6 dry, 4 through 8 moist
Texture: clay loam, sandy clay loam, or silty clay loam
Rock fragments: 0 to 20 percent gravel and 0 to 10 percent cobbles. All fragments are sandstone.
Calcium carbonate equivalent: 2 to 10 percent

Some pedons have a C horizon with textures of loamy sand and sand, below 50 inches.

Arabrab Series

Taxonomic class: Loamy, mixed, superactive, mesic Lithic Haplustalfs
Depth class: Shallow
Drainage class: Well drained
Permeability: Moderately slow
Geomorphic position: Mesas and cuestas
Parent material: Eolian material and slope alluvium over residuum derived from sandstone
Slope range: 2 to 6 percent
Elevation: 6,800 to 8,000 feet
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 13 to 16 inches
Frost-free period: 100 to 135 days

Typical Pedon

Arabrab gravelly fine sandy loam, in an area of mapping unit 332, Evpark-Arabrab complex, 2 to 6 percent slopes; McKinley County, New Mexico; Thoreau Quadrangle; 2,100 feet west and 200 feet north of the southeast corner of sec. 35, T.15 N., R.13 W.; latitude 35 degrees, 28 minutes, 52 seconds N. and longitude 108 degrees, 10 minutes, 54 seconds W.

The surface is covered by about 20 percent gravel, 2 percent cobbles, and 1 percent stones.

A—0 to 2 inches; brown (7.5YR 5/4) gravelly fine sandy loam, dark brown (7.5YR 3/4) moist; weak very fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; few very fine tubular pores; about 20 percent gravel, 2 percent cobbles, and 1 percent stones; slightly alkaline (pH 7.4); abrupt smooth boundary.

Bt1—2 to 7 inches; brown (7.5YR 4/4) sandy clay loam, dark brown (7.5YR 3/4) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; few very fine tubular pores; many distinct clay films on faces of peds and bridging sand grains; about 5 percent gravel; slightly alkaline (pH 7.6); clear smooth boundary.

Bt2—7 to 12 inches; strong brown (7.5YR 5/6) clay loam, strong brown (7.5YR 4/6) moist; moderate fine and medium subangular blocky structure; hard, firm, sticky and plastic; common very fine, fine, and few medium roots; few very fine tubular pores; many prominent clay films on faces of

peds; about 5 percent gravel; slightly alkaline (pH 7.6); clear smooth boundary.
Btk—12 to 17 inches; brown (7.5YR 5/4) gravelly clay loam, dark brown (7.5YR 4/4) moist; moderate very fine and fine subangular blocky structure; very hard, very firm, sticky and plastic; few very fine, fine, and medium roots; few very fine tubular pores; many prominent clay films on faces of peds; about 40 percent gravel; slightly effervescent; few very fine and fine filaments and masses of calcium carbonate; slightly alkaline (pH 7.8); abrupt smooth boundary.
2R—17 inches; sandstone

Range in Characteristics

Particle-size control section: 18 to 35 percent clay
Depth to lithic contact: 10 to 20 inches to sandstone

A horizon:
Hue: 5YR to 10YR
Value: 4 to 6 dry, 3 or 4 moist
Chroma: 2 to 4 moist
Rock fragments: 0 to 25 percent total; 0 to 25 percent gravel; 0 to 2 percent cobbles; 0 to 1 percent stones. All fragments are sandstone.
Reaction: neutral or slightly alkaline

Bt horizons:
Hue: 5YR or 7.5YR
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 4 or 6 dry, 3 to 6 moist
Texture: fine sandy loam, sandy clay loam, or clay loam
Rock fragments: 0 to 10 percent sandstone gravel
Reaction: neutral or slightly alkaline

Btk horizon:
Hue: 5YR or 7.5YR
Texture: sandy clay loam or clay loam
Rock fragments: 0 to 40 percent sandstone channers or gravel
Calcium carbonate equivalent: 1 to 5 percent
Reaction: slightly to moderately alkaline

Asaayi Series

Taxonomic class: Loamy, mixed, active, frigid Lithic Haplustalfs
Depth class: Shallow
Drainage class: Well drained
Permeability: Moderately slow
Geomorphic position: Cuestas
Parent material: Slope alluvium derived from sandstone and shale
Slope range: 2 to15 percent
Elevation: 7,500 to 7,900 feet
Mean annual air temperature: 40 to 45 degrees F
Mean annual precipitation: 16 to 20 inches
Frost-free period: 90 to 110 days

Typical Pedon

Asaayi very gravelly fine sandy loam, in an area of mapping unit 418, Asaayi-Osoridge complex, 2 to 15 percent slopes; McKinley County, New Mexico; Page Quadrangle; 3,000 feet west and 500 feet north of the southeast corner of sec. 11, T.12 N., R.16 W.; latitude 35 degrees, 16 minutes, 45 seconds N. and longitude 108 degrees, 29 minutes, 45 seconds W.

Oi—0 to 1 inches; slightly decomposed pine needles and oak leaves.
A—1 to 3 inches; brown (7.5YR 5/4) very gravelly fine sandy loam, dark brown (7.5YR 3/3) moist; weak very fine granular structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; about 40 percent gravel, 10 percent cobbles; neutral; abrupt smooth boundary.
Bt1—3 to 5 inches; brown (7.5YR 5/4) fine sandy loam, brown (7.5YR 4/4) moist; weak very fine and fine subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; many very fine, fine, and few medium roots; few very fine irregular pores; few faint clay films bridging sand grains; about 2 percent gravel; neutral; abrupt smooth boundary.
Bt2—5 to 16 inches; light reddish brown (5YR 6/4) clay loam, reddish brown (5YR 5/4) moist; moderate very fine and fine subangular blocky structure; hard, firm, sticky and plastic; many very fine, fine, and few medium roots; few fine irregular pores; few distinct clay films on faces of peds; about 5 percent gravel; neutral; abrupt smooth boundary.
R—16 inches; sandstone—Chinle formation.

Range in Characteristics

Particle-size control section: 15 to 30 percent clay
Depth to lithic contact: 10 to 20 inches to sandstone
Reaction: neutral

A horizon:
Hue: 5YR to 10YR
Value: 4 to 6 dry, 3 or 4 moist
Chroma: 3 or 4 dry and moist
Rock fragments: 0 to 40 percent total; 0 to 40 percent gravel; 0 to 10 percent cobbles; 0 to 5 percent stones. All fragments are sandstone.

Bt horizons:
Hue: 5YR or 7.5YR
Value: 4 or 5 dry, 3 or 4 moist

Chroma: 2 or 4 dry or moist
Texture: fine sandy loam, sandy clay loam, or clay loam
Rock fragments: 0 to 10 percent total; 0 to 10 percent gravel, 0 to 5 percent cobbles. All fragments are sandstone.

Atarque Series

Taxonomic class: Loamy, mixed, superactive, mesic Lithic Haplustalfs
Depth class: Shallow
Drainage class: Well drained
Permeability: Moderate
Geomorphic position: Mesas and cuestas
Parent material: Eolian material and slope alluvium derived from sandstone and shale
Slope range: 1 to 8 percent
Elevation: 6,500 to 7,500 feet
Mean annual air temperature: 49 to 53 degrees F
Mean annual precipitation: 13 to 14 inches
Frost-free period: 115 to 135 days

Typical Pedon

Atarque sandy loam, in an area of mapping unit 305, Celavar-Atarque complex, 1 to 8 percent slopes; McKinley County, New Mexico; Thoreau NE Quadrangle; 600 feet south of the northeast corner of sec. 8, T. 14 N., R. 11 W.; latitude 35 degrees, 27 minutes, 44 seconds and longitude 108 degrees, 01 minute, 00 seconds.

A—0 to 3 inches; brown (7.5YR 5/4) sandy loam, dark brown (7.5YR 4/4) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; few medium and fine and common very fine roots; common very fine irregular pores; neutral (pH 7.2); abrupt smooth boundary.
Bt1—3 to 9 inches; strong brown (7.5YR 4/6) sandy clay loam, dark brown (7.5YR 4/4) moist; moderate medium subangular blocky structure; soft, friable, slightly sticky and slightly plastic; few medium and fine and common very fine roots; few very fine tubular pores; common prominent clay films bridging sand grains and lining pores; slightly effervescent; slightly alkaline (pH 7.6); clear smooth boundary.
Bt2—9 to 14 inches; yellowish red (5YR 4/6) sandy clay loam, reddish brown (5YR 4/4) moist; moderate medium subangular blocky structure; soft, friable, slightly sticky and slightly plastic; few medium and fine and common very fine roots; few very fine tubular pores; common prominent clay films bridging sand grains and lining pores; slightly effervescent; slightly alkaline (pH 7.6); abrupt smooth boundary.
2R—14 inches; sandstone.

Range in Characteristics

Particle-size control section: 18 to 35 percent clay
Depth to a lithic contact: 10 to 20 inches to sandstone
Reaction: neutral in the surface and slightly alkaline in the subsoil

A horizon:
Hue: 7.5YR or 10YR
Value: 5 dry, 3 to 5 moist
Chroma: 4 dry, 4 to 6 moist
Texture: fine sandy loam or sandy loam

Bt horizon:
Hue: 5YR to 10YR
Value: 4 dry, 3 or 4 moist
Chroma: 6 dry, 3 to 6 moist
Texture: sandy clay loam or clay loam

Atchee Series

Taxonomic class: Loamy-skeletal, mixed, active, calcareous, mesic Lithic Ustic Torriorthents
Depth class: Very shallow and shallow
Drainage class: Well drained
Permeability: Moderate to moderately slow
Geomorphic position: Mesas, cuestas, breaks, hills, and ridges
Parent material: Slope alluvium over residuum derived from sandstone and shale
Slope range: 2 to 20 percent
Elevation: 6,500 to 7,500 feet
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 100 to 135 days

Typical Pedon

Atchee fine sandy loam, in an area of mapping unit 258, Eagleye-Atchee-Rock outcrop complex, 2 to 35 percent slopes; McKinley County, New Mexico; Hunter's Point Quadrangle; about 1,700 feet west and 900 feet south of the northeast corner of sec. 23, T. 16 N., R. 21 W.; latitude 35 degrees, 36 minutes, 50 seconds and longitude 109 degrees, 02 minutes, 45 seconds.

A—0 to 2 inch; yellowish brown (10YR 5/4) fine sandy loam, dark yellowish brown (10YR 4/4) moist; weak very fine granular structure; soft, very friable, nonsticky and nonplastic; common very fine roots; 2 percent gravel; slightly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.

C1—2 to 12 inches; light olive brown (2.5Y 5/4) extremely channery sandy clay loam, olive brown (2.5Y 4/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; few very fine irregular pores; 70 percent channers and 15 percent flagstones; slightly effervescent; slightly alkaline (pH 7.8); abrupt smooth boundary.
C2—12 to 14 inches; light olive brown (2.5Y 5/4) extremely channery sandy clay loam, olive brown (2.5Y 4/4) moist; massive; slightly hard, firm, slightly sticky and slightly plastic; common very fine and few medium roots; few very fine irregular pores; 70 percent channers and 15 percent flagstones; very slightly effervescent; slightly alkaline (pH 7.6); abrupt smooth boundary.
R—12 inches; fractured sandstone.

Range in Characteristics

Particle-size control section: 10 to 27 percent clay and 35 to 90 percent rock fragments
Depth to lithic contact: 5 to 20 inches to sandstone
Calcium carbonate equivalent: 0 to 5 percent
Reaction: slightly or moderately alkaline

A horizon:
Hue: 10YR or 2.5Y
Value: 5 or 6 dry; 4 or 5 moist
Chroma: 4 or 5 dry and moist
Rock fragments: 0 to 50 percent total; 0 to 50 percent channers and gravel; 0 to 20 percent flagstones and cobbles. All fragments are sandstone.

C horizon:
Hue: 2.5Y
Value: 5 or 6 dry, 4 or 5 moist
Chroma: 4 or 5 dry and moist
Textures: sandy loam, fine sandy loam, sandy clay loam, clay loam, or loam
Rock fragments: 35 to 90 percent total; 35 to 90 percent channers and 0 to 20 percent flagstones. All fragments are sandstone.

Azabache Series

Taxonomic class: Fine-loamy, mixed, superactive, mesic Typic Natrargids
Depth class: Very deep
Drainage class: Well drained
Permeability: Very slow
Geomorphic position: Valley floors, lava plateaus, and volcanic cones
Parent material: Slope alluvium derived from basalt, sandstone, and shale.
Slope range: 2 to 8 percent
Elevation: 6,500 to 6,900 feet
Mean annual air temperature: 50 to 54 degrees F
Mean annual precipitation: 8 to 10 inches
Frost-free period: 130 to 140 days

Typical Pedon

Azabache extremely gravelly clay loam, in an area of mapping unit 280, Azabache extremely gravelly clay loam, 2 to 8 percent slopes; McKinley County, New Mexico; Cerro Alesna Quadrangle; 1,900 feet south and 2,300 feet east of the northwest corner of sec. 2, T. 14 N., R. 7 W.; latitude 35 degrees, 28 minutes, 25 seconds and longitude 107 degrees, 32 minutes, 59 seconds.

The surface is covered by 75 percent gravel and 1 percent cobbles.

A—0 to 1 inches; very pale brown (10YR 7/3) extremely gravelly clay loam, brown (10YR 5/3) moist; strong medium and thick platy structure; slightly hard, friable, sticky and plastic; no observed roots; many very fine and fine vesicular pores; 75 percent gravel and 1 percent cobbles; moderately alkaline (pH 8.4); abrupt smooth boundary.
Btn—1 to 5 inches; reddish brown (5YR 4/4) clay, dark reddish brown (5YR 3/4) moist; moderate medium and coarse columnar structure; slightly hard, friable, very sticky and very plastic; common very fine and fine roots; common fine tubular pores; many distinct clay films on faces of peds; 1 percent gravel; EC of 4.9 mmhos/cm; SAR of 22; moderately alkaline (pH 8.4); clear smooth boundary.
2Btknz1—5 to 17 inches; yellowish brown (10YR 5/4) gravelly sandy clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium and coarse prismatic structure parting to moderate medium subangular blocky; very hard, very firm, sticky and very plastic; many very fine and fine and few medium roots; common fine tubular and few very fine vesicular pores; many prominent clay films bridging sand grains and on faces of peds; 30 percent gravel; violently effervescent; many very fine and fine masses of calcium carbonate and coating rock fragments; 9 percent calcium carbonate equivalent; common sodium sulfate crystals; EC of 8.9 mmhos/cm; SAR of 21; strongly alkaline (pH 8.6); clear wavy boundary.
2Btknz2—17 to 25 inches; yellowish brown (10YR 5/4) extremely gravelly sandy clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine angular blocky structure; extremely hard, very firm, sticky and very plastic; few very fine roots; common fine

tubular and vesicular pores; 70 percent gravel and 5 percent cobbles; violently effervescent; many fine and medium masses of calcium carbonate and coating rock fragments; 10 percent calcium carbonate equivalent; common sodium sulfate crystals; EC of 8.5 mmhos/cm; SAR of 21; strongly alkaline (pH 8.6); gradual wavy boundary.

2Btknz3—25 to 32 inches; light yellowish brown (10YR 6/4) extremely gravelly sandy clay loam, yellowish brown (10YR 5/4) moist; moderate fine angular blocky structure; extremely hard, very firm, slightly sticky and plastic; few very fine roots; common fine tubular and vesicular pores; 70 percent gravel and 5 percent cobbles; strongly effervescent; many fine and medium masses of calcium carbonate and coating rock fragments; 5 percent calcium carbonate equivalent; common sodium sulfate crystals; EC of 4.3 mmhos/cm; SAR of 27; strongly alkaline (pH 9.0); gradual wavy boundary.

2Btknz4—32 to 50 inches; light yellowish brown (10YR 6/4) extremely gravelly fine sandy loam, yellowish brown (10YR 5/4) moist; moderate fine angular blocky structure; extremely hard, very firm, slightly sticky and plastic; few very fine roots; common fine tubular and vesicular pores; 70 percent gravel and 5 percent cobbles; strongly effervescent; common fine and medium masses of calcium carbonate and coating rock fragments; 1 percent calcium carbonate equivalent; common sodium sulfate crystals; EC of 5.5 mmhos/cm; SAR of 17; strongly alkaline (pH 9.0); clear wavy boundary.

2Btnz—50 to 62 inches; very pale brown (10YR 7/3) very gravelly fine sandy loam, yellowish brown (10YR 5/4) moist; massive; extremely hard, firm, slightly sticky and plastic; few very fine roots; few fine irregular pores; 35 percent gravel and 1 percent cobbles; strongly effervescent; very few fine masses of calcium carbonate; 1 percent calcium carbonate equivalent; common sodium sulfate crystals; EC of 5.5 mmhos/cm; SAR of 17; strongly alkaline (pH 9.0).

Range in Characteristics

Particle-size control section: 20 to 35 percent clay with greater than 35 percent sand and less than 35 percent rock fragments
Depth to horizons with greater than 35 percent rock fragments: 15 to 40 inches
Depth to sodium sulfate crystals: 5 to 30 inches

A horizon:
Value: 6 or 7 dry, 4 or 5 moist
Chroma: 3 or 4 dry or moist
Rock fragments: 30 to 80 percent total; 30 to 75 percent gravel; 0 to 5 percent cobbles; 0 to 1 percent stones. All fragments are basalt.
Salinity: EC of 0 to 4 mmhos/cm
Sodicity: SAR of 10 to 20
Reaction: slightly or moderately alkaline

Bt horizons:
Hue: 5YR, 7.5YR, or 10YR
Value: 4 to 7 dry, 3 to 5 moist
Chroma: 3 or 4 dry, 4 or 6 moist
Texture: clay, clay loam, or sandy clay in the upper part, with sandy clay loam and fine sandy loam in the lower part with particle size control section less than 35 percent clay
Rock fragments: 1 to 75 percent total; 1 to 70 percent gravel; 0 to 5 percent cobbles. All fragments are basalt.
Note: When a horizon has greater than 35 percent rock fragments, it is too thin or is too far below the particle size control section to affect the particle size class.
Calcium carbonate equivalent: 1 to 15 percent
Salinity: EC of 4 to 16 mmhos/cm
Sodicity: SAR of 20 to 30
Gypsum: 0 to 1 percent
Reaction: moderately through very strongly alkaline

Some pedons have a Bk horizon below the Bt horizons.

Bamac Series

Taxonomic class: Sandy-skeletal, mixed, mesic Aridic Ustorthents
Depth class: Very deep
Drainage class: Excessively drained
Permeability: Very rapid
Geomorphic position: Hills and ridges
Parent material: Slope alluvium derived from sandstone and conglomerate
Slope range: 5 to 50 percent
Elevation: 6,200 to 6,500 feet
Mean annual air temperature: 49 to 53 degrees F
Mean annual precipitation: 13 to 14 inches
Frost-free period: 115 to 135 days

Typical Pedon

Bamac extremely gravelly sandy loam, in an area of mapping unit 566, Bamac extremely gravelly sandy loam, 5 to 50 percent slopes; McKinley County, New Mexico; Tekapo Quadrangle; 1,200 feet west and 1,200 feet north of the southeast corner of sec. 1, T. 9

N., R. 20 W.; latitude 35 degrees, 02 minutes, 08 seconds and longitude 108 degrees, 53 minutes, 42 seconds.

The surface is covered by about 65 percent gravel and 5 percent cobbles.

A—0 to 2 inches; dark yellowish brown (10YR 4/4) extremely gravelly sandy loam, dark yellowish brown (10YR 3/4) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; few medium and many very fine and fine roots; many fine irregular pores; 65 percent gravel and 5 percent cobbles; violently effervescent; 12 percent calcium carbonate equivalent; slightly alkaline; abrupt smooth boundary.

Ck1—2 to 8 inches; brown (7.5YR 5/4) gravelly sandy loam, dark brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few coarse and medium and many very fine and fine roots; many fine irregular pores; 20 percent gravel; violently effervescent; many fine filaments and few fine masses of calcium carbonate; 14 percent calcium carbonate equivalent; slightly alkaline; clear wavy boundary.

Ck2—8 to 30 inches; light brown (7.5YR 6/4) extremely gravelly coarse sand, brown (7.5YR 4/4) moist; massive; loose, very friable, nonsticky and nonplastic; common coarse, few medium and common very fine and fine roots; common very fine irregular pores; 80 percent gravel; violently effervescent; many fine filaments and concretions and few fine masses of calcium carbonate; 12 percent calcium carbonate equivalent; slightly alkaline; gradual wavy boundary.

Ck3—30 to 63 inches; light brown (7.5YR 6/4) very cobbly coarse sand, brown (7.5YR 5/4) moist; massive; loose, very friable, nonsticky and nonplastic; few medium and very fine roots; common very fine irregular pores; 25 percent gravel and 30 percent cobbles; violently effervescent; many fine filaments and concretions and few fine masses of calcium carbonate; 14 percent calcium carbonate equivalent; slightly alkaline.

Range in Characteristics

Particle-size control section: 2 to 5 percent clay and greater that 35 percent rock fragments
Percent calcium carbonate equivalent: 5 to 15 percent
Reaction: slightly to moderately alkaline throughout

A horizon:
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 3 or 4 moist
Rock fragments: 15 to 80 percent total; 15 to 65 percent gravel; 0 to 5 percent cobbles. All fragments are sandstone and siliceous gravel.

Ck horizons:
Hue: 7.5YR or 10YR
Value: 3 to 5 dry, 4 to 6 moist
Chroma: 4 to 6 dry, 3 to 6 moist
Texture: sandy loam, coarse sand, or sand
Rock fragments: 10 to 80 percent total; 10 to 80 percent gravel; 0 to 30 percent cobbles. All fragments are sandstone and siliceous gravel.

Banquito Series

Taxonomic class: Fine-loamy, mixed, superactive, mesic Calcidic Haplustalfs
Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately slow
Geomorphic position: Lava plateaus
Parent material: Eolian material and slope alluvium over residuum derived from basalt
Slope range: 1 to 3 percent
Elevation: 7,200 to 7,800 feet
Mean annual air temperature: 47 to 53 degrees F
Mean annual precipitation: 13 to 16 inches
Frost-free period: 100 to 135 days

Typical Pedon

Banquito very fine sandy loam, in an area of mapping unit 390, Banquito very fine sandy loam, 1 to 3 percent slopes; McKinley County, New Mexico; Cerro Parido Quadrangle; latitude 35 degrees, 33 minutes, 38 seconds and longitude 107 degrees, 22 minutes, 29 seconds.

A—0 to 2 inches; brown (10YR 5/3) very fine sandy loam, brown (10YR 4/3) moist; moderate thin and medium platy structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; many very fine and fine irregular pores; 10 percent gravel and 1 percent cobbles; slightly effervescent; slightly alkaline (pH 7.4); clear smooth boundary.

Btk1—2 to 9 inches; brown (7.5YR 5/3) clay loam, brown (7.5YR 4/3) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; common very fine and fine irregular pores; many distinct clay films bridging sand grains and on faces of peds; 1 percent gravel; violently effervescent; few fine masses and weakly cemented concretions of calcium carbonate; 11 percent calcium carbonate

equivalent; moderately alkaline (pH 8.0); clear wavy boundary.
Btk2—9 to 17 inches; grayish brown (10YR 5/2) loam, brown (7.5YR 4/3) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; common very fine and fine tubular pores; common distinct clay films bridging sand grains and on faces of peds; 5 percent gravel; violently effervescent; many medium weakly cemented concretions and few fine masses of calcium carbonate; 26 percent calcium carbonate equivalent; moderately alkaline (pH 8.2); clear irregular boundary.
Bk1—17 to 22 inches; grayish brown (10YR 5/2) sandy clay loam, brown (7.5YR 4/3) moist; massive; hard, firm, slightly sticky and slightly plastic; common very fine and fine roots; common fine irregular pores; 5 percent gravel; violently effervescent; many fine and medium weakly cemented concretions and masses of calcium carbonate; 45 percent calcium carbonate equivalent; moderately alkaline (pH 8.4); clear wavy boundary.
Bk2—22 to 30 inches; light gray (10YR 7.2) sandy loam, brown (10YR 5/3) moist; massive; hard, firm, slightly sticky and slightly plastic; few very fine and fine roots; few fine irregular pores; 5 percent gravel; violently effervescent; many medium weakly cemented concretions of calcium carbonate; 55 percent calcium carbonate equivalent; moderately alkaline (pH 8.4); clear wavy boundary.
2Bk3—30 to 36 inches; light gray (10YR 7.2) sandy loam, brown (10YR 5/3) moist; massive; hard, firm, slightly sticky and slightly plastic; few very fine and fine roots; few fine irregular pores; 10 percent gravel and 1 percent cobbles with common soft basalt fragments; violently effervescent; many medium weakly cemented concretions of calcium carbonate; 35 percent calcium carbonate equivalent; moderately alkaline (pH 8.4); abrupt irregular boundary.
2R—36 inches; basalt (with many very fine and fine coats of calcium carbonate at the upper contact).

Range in Characteristics

Particle-size control section: 20 to 35 percent clay and greater than 30 percent sand
Depth to lithic contact: 20 to 40 inches to basalt
Depth to calcic horizon: 9 to 25 inches with 15 to 55 percent calcium carbonate equivalent
Reaction: slightly alkaline in the surface and moderately alkaline in the subsoil

A horizon:
Hue: 5YR, 7.5YR, or 10YR
Value: 5 or 6 dry, 3 or 4 moist
Chroma: 3 or 4 dry or moist
Rock fragments: 5 to 15 percent total; 0 to 15 percent gravel; 0 to 2 percent cobbles. All fragments are basalt and sandstone.

Btk horizon:
Hue: 5YR, 7.5YR, or 10YR
Value: 4 or 5 dry, 3 to 5 moist
Chroma: 2 or 3 dry, 2 to 4 moist
Texture: clay loam, loam, or sandy clay loam
Rock fragments: 0 to 5 percent total; 0 to 5 percent gravel; 0 to 5 percent cobbles. All fragments are basalt and sandstone.
Calcium carbonate equivalent: 5 to 30 percent

Bk horizon:
Hue: 5YR, 7.5YR, or 10YR
Value: 5 to 7 dry, 4 or 5 moist
Chroma: 2 to 4 dry or moist
Texture: sandy loam, sandy clay loam or clay loam
Rock fragments: 5 to 15 percent total; 5 to 15 percent gravel; 0 to 5 percent cobbles. All fragments are basalt.
Calcium carbonate equivalent: 15 to 55 percent

Barboncito Series

Taxonomic class: Loamy, mixed, superactive, mesic Lithic Ustic Haplargids
Depth class: Very shallow and shallow
Drainage class: Well drained
Permeability: Moderately slow
Geomorphic position: Cuestas, hills, and ridges
Parent material: Eolian material and slope alluvium derived from sandstone and shale
Slope range: 1 to 3 percent
Elevation: 6,400 to 6,800 feet
Mean annual air temperature: 45 to 49 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 100 to 135 days

Typical Pedon

Barboncito loamy fine sand, in an area of mapping unit 245, Buckle-Gapmesa-Barboncito complex, 1 to 6 percent slopes; McKinley County, New Mexico; Gallup West Quadrangle; 400 feet east and 2,200 feet south of sec. 18, T.16 N., R.18 W.; latitude 35 degrees, 37

minutes, 05 seconds N. and 108 degrees, 47 minutes, 30 seconds W.

A—0 to 2 inches; brown (10YR 5/3) loamy fine sand, brown (10YR 4/3) moist; weak very fine granular structure; loose, very friable, nonsticky and nonplastic; common very fine roots; 1 percent sandstone gravel; slightly alkaline (pH 7.8); abrupt smooth boundary.

Bt1—2 to 6 inches; yellowish brown (10YR 5/4) sandy clay loam, dark yellowish brown (10YR 4/4) moist; weak fine and medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine roots; few very fine irregular pores; few faint clay films on faces of peds; slightly alkaline (pH 7.8); clear smooth boundary.

Btk—6 to 11 inches; yellowish brown (10 YR 5/4) clay loam, yellowish brown (10YR 5/4) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; few very fine irregular pores; few faint clay films on faces of peds; common very fine and fine masses of calcium carbonate; strongly effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.

R—11 inches; sandstone.

Range in Characteristics

Particle-size control section: 18 to 35 percent clay
Depth to lithic contact: 10 to 20 inches

A horizon:
Hue: 10YR
Value: 4 to 6 dry, 3 or 4 moist
Chroma: 3 dry and moist
Textures: loamy fine sand or fine sandy loam
Rock fragments: 0 to 5 percent sandstone gravel
Reaction: slightly alkaline

Bt horizon:
Hue: 10YR
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 3 or 4 dry and moist
*Calcium carbonate equivalent:*1 to 5 percent
Textures: fine sandy loam, loam, or sandy clay loam

Btk horizon:
Hue: 10YR
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 3 dry and moist
Textures: sandy clay loam or clay loam
Rock fragments: 0 to 5 percent sandstone gravel
*Calcium carbonate equivalent:*1 to 5 percent
Reaction: slightly to moderately alkaline

Some pedons have thin Cr horizons above the lithic contact.

Benally Series

Taxonomic class: Fine-loamy, mixed, superactive, mesic Typic Natrargids
Depth class: Deep and very deep
Drainage class: Well drained
Permeability: Moderately slow
Geomorphic position: Valley floors
Parent material: Stream alluvium derived from sandstone and shale
Slope range: 1 to 5 percent
Elevation: 5,800 to 6,800 feet
Mean annual air temperature: 50 to 55 degrees F
Mean annual precipitation: 7 to 9 inches
Frost-free period: 130 to 150 days

Typical Pedon

Benally sandy clay loam, in an area of mapping unit 116, Fajada-Huerfano-Benally complex, 1 to 5 percent slopes; McKinley County, New Mexico; Milk Lake Quadrangle; 508 feet west and 1,980 feet south of the northeast corner of sec. 10, T. 19 N., R. 13 W.; latitude 35 degrees, 53 minutes, 12 seconds and longitude 108 degrees, 12 minutes, 30 seconds.

A—0 to 2 inches; yellowish brown (10YR 5/6) sandy clay loam, yellowish brown (10YR 5/4) moist; moderate fine granular structure; soft, friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine irregular pores; strongly effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.

Btn—2 to 11 inches; yellowish brown (10YR 5/4) sandy clay loam, yellowish brown (10YR 5/4) moist; moderate medium columnar structure; hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine irregular pores; common prominent clay films bridging sand grains and lining pores; strongly effervescent; very strongly alkaline (pH 9.2); clear smooth boundary.

Btkn—11 to 18 inches; dark yellowish brown (10YR 4/6) sandy clay loam, yellowish brown (10YR 5/6) moist; weak medium prismatic structure; hard, friable, slightly sticky and nonplastic; few medium, very fine and fine roots; few very fine irregular pores; common distinct clay films bridging sand grains and lining pores; strongly effervescent; few fine irregular filaments of calcium carbonate; very strongly alkaline (pH 9.2); clear smooth boundary.

Btknz—18 to 45 inches; yellowish brown (10YR 5/6) sandy clay loam, yellowish brown (10YR 5/6) moist; massive; hard, friable, slightly sticky and

nonplastic; few very fine and fine roots; common very fine irregular pores; common distinct clay films bridging sand grains; strongly effervescent; secondary gypsum, calcium carbonate, and sodium sulfate occurs as few fine irregular masses, filaments, and very fine crystals; moderately alkaline (pH 8.2); abrupt smooth boundary.

2Cr—45 inches; weathered sandstone.

Range in Characteristics

Particle-size control section: 18 to 35 percent clay
Depth to paralithic contact: 40 to more than 60 inches to weathered sandstone
Sodicity: SAR of 15 to 30
Calcium carbonate equivalent: 1 to 10 percent

A horizon:
Hues: 10YR or 2.5Y
Value: 5 or 6 dry; 4 or 5 moist
Chroma: 3 to 6 dry
Texture: sandy clay loam or sandy loam
Rock fragments: 0 to 15 percent sandstone gravel
Reaction: moderately alkaline

Btn horizon:
Hues: 10YR or 2.5Y
Value: 3 or 5 moist
Chroma: 3 or 4 moist
Rock fragments: 0 to 10 percent sandstone gravel
Reaction: strongly or very strongly alkaline

Btkn and Btknz horizon:
Hues: 10YR or 2.5Y
Chroma: 4 to 6 moist
Rock fragments: 0 to 10 percent sandstone gravel
Gypsum: 5 to 10 percent
Reaction: moderately to strongly alkaline

The Cr horizon may consist of either weathered sandstone or shale.

Some pedons are very deep, and do not have a paralithic contact above 60 inches.

Berryhill Series

Taxonomic class: Fine, mixed, superactive, mesic Chromic Gypsitorrerts
Depth class: Very deep
Drainage class: Well drained
Permeability: Very slow
Geomorphic position: Valley sides, valley floors, and hills
Parent material: Slope alluvium derived from shale
Slope range: 2 to 8 percent
Elevation: 7,000 to 7,800 feet
Mean annual air temperature: 49 to 53 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 120 to 140 days

Typical Pedon

Berryhill clay, in an area of mapping unit 380, Berryhill-Casamero clays, 2 to 10 percent slopes; McKinley County, New Mexico; Goat Mountain Quadrangle; 1,000 feet west and 1,800 feet north of the southeast corner of sec. 3, T. 14 N., R. 11 W.; latitude 35 degrees, 28 minutes, 09 seconds and longitude 107 degrees, 59 minutes, 06 seconds (fig. 15).

A—0 to 2 inches; light olive brown (2.5Y 5/4) clay, olive brown (2.5Y 4/4) moist; moderate medium granular structure; soft, friable, very sticky and very plastic; common very fine and fine roots; common very fine vesicular and few fine irregular pores; few cracks 0.5 inch wide; 1 percent gypsum; strongly effervescent; slightly alkaline (pH 7.8); abrupt smooth boundary.

Bw—2 to 12 inches; yellowish brown (10YR 5/4) clay, dark yellowish brown (10YR 4/4) moist; moderate medium and coarse subangular blocky structure; very hard, very firm, very sticky and very plastic; many very fine and fine roots; common fine irregular and few fine vesicular pores; common pressure faces; few cracks 0.5 inch wide; 1 percent gypsum; strongly effervescent; slightly alkaline (pH 7.8); clear wavy boundary.

Bssyz1—12 to 26 inches; grayish brown (2.5Y 5/2) clay, dark grayish brown (2.5Y 4/2) moist; moderate medium and coarse subangular blocky structure; extremely hard, extremely firm, very sticky and very plastic; common very fine and few fine roots; few fine irregular pores; many pressure faces; common 0.5-inch diameter slickensides; few cracks 0.5 inch wide extending to 25 inches; common medium gypsum and sodium sulfate crystals; 33 percent gypsum; strongly effervescent; slightly alkaline (pH 7.8); clear wavy boundary.

Bssyz2—26 to 39 inches; grayish brown (2.5Y 5/2) clay, dark grayish brown (2.5Y 4/2) moist; massive; extremely hard, extremely firm, very sticky and very plastic; few fine roots; few fine irregular pores; common pressure faces; few 0.5-inch slickensides; few fine gypsum and sodium sulfate crystals; 2 percent gypsum; strongly effervescent; moderately alkaline (pH 8.0); gradual wavy boundary.

Bssyz3—39 to 70 inches; grayish brown (2.5Y 5/2) clay, dark grayish brown (2.5Y 4/2) moist; massive; extremely hard, extremely firm; very

sticky and very plastic; few very fine roots; few fine irregular pores; many pressure faces; common fine gypsum and sodium sulfate crystals; 7 percent gypsum; strongly effervescent; moderately alkaline (pH 8.0).

Range in Characteristics

Particle-size control section: 40 to 55 percent clay
Depth to gypsum and sodium sulfate accumulations: 3 to 32 inches
Depth to the gypsic horizon: 3 to 32 inches with 10 to 35 percent gypsum, gypsum content decreases in the underlying horizon
Reaction: slightly or moderately alkaline
Vertic properties: gilgai microrelief ranges up to 2 inches; cracks range from 0.5 to 2 inches in width and 2 to 30 inches vertically; few to many pressure faces and intersecting slickensides below 2 inches

A horizon:
Hue: 10YR or 2.5Y
Value: 5 or 6 dry
Chroma: 2 to 4 dry and moist
Rock fragments: 0 to 20 percent sandstone and shale gravel and channers
Salinity: EC of 0 to 2 mmhos/cm
Sodicity: SAR of 0 to 2

Bw horizon:
Hue: 10YR or 2.5Y
Value: 3 or 4 moist
Chroma: 3 or 4 moist
Salinity: EC of 2 to 4 mmhos/cm
Sodicity: SAR of 2 to 5

Bssyz1 horizon:
Hue: 10YR or 2.5Y
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 2 to 4 moist
Calcium carbonate equivalent: 1 to 10 percent
Gypsum and sodium sulfate: Few to common clusters of crystals
Percent gypsum: 10 to 35 percent
Salinity: EC of 2 to 4 mmhos/cm
Sodicity: SAR of 2 to 5

Bssyz2 and Bssyz3 horizons:
Hue: 10YR or 2.5Y
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 2 to 4 moist
Calcium carbonate equivalent: 1 to 10 percent
Gypsum and sodium sulfate: Few to common clusters of crystals
Percent gypsum: 2 to 8 percent
Salinity: EC of 2 to 8 mmhos/cm
Sodicity: SAR of 2 to 8

Betonnie Series

Taxonomic class: Coarse-loamy, mixed, superactive, mesic Ustic Haplargids
Depth class: Very deep
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Geomorphic position: Mesas, cuestas, valley sides, hills, and ridges
Parent material: Eolian material and fan and slope alluvium derived from sandstone
Slope range: 1 to 8 percent
Elevation: 6,400 to 6,900 feet
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 9 to 10 inches
Frost-free period: 100 to 135 days

Typical Pedon

Betonnie sandy loam, in an area of mapping unit 11, Doakum-Betonnie complex, 1 to 8 percent slopes; McKinley County, New Mexico; Ojo Encino Mesa Quadrangle; 1,600 feet east and 200 feet south of the northwest corner of sec. 22, T. 20 N., R. 5 W.; latitude 35 degrees, 57 minutes, 24 seconds and longitude 107 degrees, 21 minutes, 29 seconds.

A—0 to 3 inches; brown (10YR 5/3) sandy loam, dark brown (10YR 4/3) moist; weak thin platy structure parting to moderate fine and medium granular structure; soft, very friable, nonsticky and nonplastic; common fine and many very fine roots; common very fine and fine irregular pores; neutral (pH 7.2); abrupt smooth boundary.

Bt1—3 to 11 inches; brown (7.5YR 5/4) sandy loam, dark brown (7.5YR 4/4) moist; weak medium subangular blocky structure; hard, very friable, nonsticky and nonplastic; common very fine and fine and few medium roots; common very fine irregular pores; common distinct clay films bridging sand grains; slightly alkaline (pH 7.4); clear smooth boundary.

Bt2—11 to 21 inches; brown (7.5YR 5/4) sandy loam, dark brown (7.5YR 4/4) moist; weak medium subangular blocky structure; hard, very friable, nonsticky and nonplastic; hard, very friable, nonsticky and nonplastic; few very fine and fine roots; common very fine irregular pores; few distinct clay films bridging sand grains; slightly alkaline (pH 7.4); gradual irregular boundary.

Bk1—21 to 29 inches; yellowish brown (10YR 5/8) loamy sand, dark yellowish brown (10YR 4/6) moist; massive; very hard, very friable, nonsticky and nonplastic; few very fine and fine roots; common very fine irregular pores; slightly

effervescent; slightly alkaline (pH 7.4); gradual smooth boundary.
Bk2—29 to 45 inches; yellowish brown (10YR 5/8) loamy sand, dark yellowish brown (10YR 4/6) moist; massive; very hard, very friable, nonsticky and nonplastic; few very fine roots; common very fine irregular pores; strongly effervescent; few fine irregular filaments of calcium carbonate; slightly alkaline (pH 7.6); gradual smooth boundary.
Bk3—45 to 52 inches; yellowish brown (10YR 5/8) sandy loam, dark yellowish brown (10YR 4/6) moist; massive; very hard, very friable, nonsticky and nonplastic; few very fine roots; common very fine irregular pores; strongly effervescent; few fine irregular seams and filaments of calcium carbonate; slightly alkaline (pH 7.6); clear smooth boundary.
Btkb—52 to 57 inches; yellowish brown (10YR 5/4) sandy loam, yellowish brown (10YR 5/4) moist; weak medium subangular blocky structure; very hard, friable, slightly sticky and slightly plastic; few very fine roots; common very fine irregular pores; common prominent clay films on ped faces; violently effervescent; common medium seams and filaments of calcium carbonate; slightly alkaline (pH 7.6); clear smooth boundary.
C—57 to 70 inches; brownish yellow (10YR 6/8) loamy sand, yellowish brown (10YR 5/6) moist; massive; very hard, very friable, nonsticky and nonplastic; few very fine roots; few very fine irregular pores; moderately alkaline (pH 8.0).

Range in Characteristics

Particle-size control section: 10 to 18 percent clay
Krotovinas: Cicada casts arranged vertically; extending from the surface to 40 inches and concentrated from 11 to 30 inches
Reaction: neutral in the surface and slightly to moderately alkaline in the subsoil

A horizon:
Hue: 7.5YR or 10YR
Value: 3 to 5 dry and moist
Chroma: 3 or 4 dry and moist

Bt horizons:
Hue: 7.5YR or 10YR
Value: 4 or 5 dry
Chroma: 4 to 6 dry and moist
Texture: sandy loam or fine sandy loam

Bk horizons:
Hue: 7.5YR or 10YR
Value: 5 to 7 dry; 4 to 6 moist
Chroma: 6 to 8 dry; 4 to 6 moist
Texture: sandy loam, fine sandy loam, loamy sand, or loamy fine sand
Calcium carbonate equivalent: 1 to 5 percent

C horizon:
Hue: 10YR
Value: 6 dry, 4 or 5 moist
Chroma: 4 to 6
Texture: loamy sand or sandy loam
Calcium carbonate equivalent: 1 to 5 percent

Blancot Series

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ustic Haplargids
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Geomorphic position: Valley sides
Parent material: Fan alluvium derived from sandstone and shale
Slope range: 1 to 3 percent
Elevation: 6,400 to 6,800 feet
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 9 to 10 inches
Frost-free period: 100 to 135 days

Typical Pedon

Blancot fine sandy loam, in an area of mapping unit 10, Tsosie-Councelor-Blancot fine sandy loams, 1 to 3 percent slopes; McKinley County, New Mexico; Ojo Encino Mesa Quadrangle; 1,000 feet east and 1,000 feet south of the northwest corner of sec. 9, T. 20 N., R. 5 W.; latitude 35 degrees, 58 minutes, 57 seconds and longitude 107 degrees, 22 minutes, 35 seconds.

A—0 to 3 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 4/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; few fine and common very fine roots; few very fine irregular pores; neutral (pH 7.2); abrupt smooth boundary.
Bt1—3 to 11 inches; dark yellowish brown (10YR 4/4) clay loam, dark brown (10YR 4/3) moist; strong medium angular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few coarse and common fine and very fine roots; few fine tubular pores; many prominent clay films on faces of peds and lining pores; slightly alkaline (pH 7.4); abrupt smooth boundary.
Bt2—11 to 16 inches; yellowish brown (10YR 5/4) sandy clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and

nonplastic; few coarse and medium and common fine and very fine roots; few fine tubular pores; common faint clay films bridging sand grains; slightly alkaline (pH 7.6); clear smooth boundary.
C1—16 to 37 inches; brown (10YR 5/3) sandy loam, dark brown (10YR 4/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; few fine and common very fine roots; few very fine tubular pores; slightly alkaline (pH 7.6); clear smooth boundary.
C2—37 to 65 inches; brown (10YR 5/3) loamy sand, dark brown (10YR 3/3) moist; massive; soft, very friable, nonsticky and nonplastic; few fine and common very fine roots; few very fine irregular pores; very slightly effervescent; slightly alkaline (pH 7.6).

Range in Characteristics

Particle-size control section: 18 to 35 percent clay
Reaction: neutral in the surface and slightly to moderately alkaline in the subsoil

A horizon:
Hue: 2.5Y or 10YR
Value: 5 to 7 dry and moist
Chroma: 3 or 4 moist

Bt horizons:
Hue: 2.5Y or 10YR
Value: 4 or 5 dry and moist
Chroma: 3 to 6 moist
Texture: clay loam or sandy clay loam

C horizons:
Hue: 2.5Y or 10YR
Value: 3 to 5 moist
Chroma: 3 to 6 moist
Texture: sandy loam, loamy sand, or fine sandy loam
Calcium carbonate equivalent: 0 to 1 percent

Bluesky Series

Taxonomic class: Mixed, frigid Lithic Ustipsamments
Depth class: very shallow and shallow
Drainage class: Excessively drained
Permeability: Very rapid
Geomorphic position: Structural benches on escarpments of mesas and cuestas
Parent material: Eolian and slope alluvium derived from sandstone
Slope range: 5 to 20 percent
Elevation: 7,100 to 7,700 feet
Mean annual air temperature: 40 to 45 degrees F
Mean annual precipitation: 16 to 20 inches
Frost-free period: 90 to 110 days

Typical Pedon

Bluesky fine sand, in an area of mapping unit 416, Rock Outcrop-Bluesky complex, 5 to 80 percent slopes; McKinley County, New Mexico; Ramah Quadrangle; 800 feet east and 2,000 feet south of the northwest corner of sec. 14, T. 11 N., R. 16 W.; latitude 35 degrees, 11 minutes, 10 seconds and longitude 108 degrees, 29 minutes, 48 seconds.

A—0 to 5 inches; yellowish brown (10YR 5/4) fine sand, yellowish brown (10YR 5/4) moist; single grain; loose, loose, nonsticky and nonplastic; common very fine roots; neutral (pH 7.2); abrupt smooth boundary.
C—5 to 8 inches; gray (10YR 6/1) fine sand, gray (10YR 6/1) moist; single grain; loose, loose, nonsticky and nonplastic; common very fine and fine roots; neutral (pH 7.2); abrupt smooth boundary.
R—8 inches; Cowsprings and Entrada Sandstone.

Range in Characteristics

Particle-size control section: 1 to 5 percent clay
Depth to a lithic contact: 5 to 20 inches to sandstone
Reaction: Neutral to slightly alkaline

A horizon:
Hue: 5YR or 10YR
Value: 5 dry, 4 or 5 moist
Chroma: 3 or 4
Textures: fine sand or loamy fine sand
Rock fragments: 0 to 20 percent total; 0 to 10 percent gravel; 0 to 10 percent cobbles; 0 to 5 percent stones. All fragments are sandstone.

C horizon:
Hue: 2.5YR or 10YR
Value: 3, 4, or 6 moist, 5 or 6 dry
Chroma: 1, 4, or 6
Textures: fine sand or loamy fine sand
Rock fragments: 0 to 25 percent sandstone gravel.

Bluewater Series

Taxonomic class: Fine-loamy, mixed, superactive, mesic Pachic Argiustolls
Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Very slow
Geomorphic position: Valley floors
Parent material: Stream alluvium derived from sandstone and shale
Slope range: 0 to 1 percent
Elevation: 7,200 to 7,600 feet
Mean annual air temperature: 48 to 53 degrees F

Mean annual precipitation: 13 to 16 inches
Frost-free period: 100 to 135 days

Typical Pedon

Bluewater loam, in an area of mapping unit 312, Bluewater loam, 0 to 1 percent slopes; McKinley County, New Mexico; Pine Canyon Quadrangle; 600 feet east, 2,400 feet north of the southwest corner of sec. 26, T. 13 N., R. 13 W.; latitude 35 degrees, 19 minutes, 38 seconds and longitude 108 degrees, 11 minutes, 25 seconds.

A—0 to 2 inches; very dark grayish brown (10YR 3/2) loam, very dark brown (10YR 2/2) moist; moderate very fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine, fine, and few medium roots; few fine irregular pores; slightly effervescent; 11 percent calcium carbonate equivalent; slightly alkaline (pH 7.8); abrupt smooth boundary.

Btk1—2 to 11 inches; dark grayish brown (10YR 4/2) clay loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine, fine, and few medium roots; common very fine and fine tubular pores; many prominent clay films on faces of peds; slightly effervescent; many very fine calcite crystals; 13 percent calcium carbonate equivalent; moderately alkaline (pH 8.2); clear smooth boundary.

Btk2—11 to 28 inches; dark grayish brown (10YR 4/2) clay loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; very hard, very firm, sticky and plastic; common very fine, fine, and few medium roots; common very fine tubular pores; common distinct clay films on faces of peds; strongly effervescent; many very fine calcite crystals; 19 percent calcium carbonate equivalent; moderately alkaline (pH 8.2); gradual wavy boundary.

Btk3—28 to 50 inches; grayish brown (10YR 5/2) clay loam, very dark grayish brown (10YR 3/2) moist; few very fine distinct brown 7.5YR 4/4 redox concentrations; moderate fine and medium subangular blocky structure; very hard, very firm, sticky and plastic; common very fine and fine roots; few very fine tubular pores; common distinct clay films on faces of peds; violently effervescent; common very fine masses and gravel size concretions of calcium carbonate; many very fine translucent calcite crystals; 28 percent calcium carbonate equivalent; moderately alkaline (pH 8.0); clear smooth boundary.

Btk4—50 to 70 inches; grayish brown (10YR 5/2) clay, very dark grayish brown (10YR 3/2) moist; common fine distinct brown 7.5YR 4/4 redox concentrations; weak medium subangular blocky structure; extremely hard, extremely firm, very sticky and very plastic; few very fine and fine roots; few fine irregular pores; apparent water table at 50 inches; common faint clay films on faces of peds; violently effervescent; many very fine and fine concretions and filaments of calcium carbonate; many very fine translucent calcite crystals; 11 percent calcium carbonate equivalent; moderately alkaline (pH 8.0); gradual smooth boundary.

Bk—70 to 80 inches; light brownish gray (10YR 6/2) clay, dark grayish brown (10YR 4/2) moist; common fine distinct strong brown (7.5YR 4/6) and few fine faint light gray (10YR 7/1) redox concentrations and depletions; massive; extremely hard, extremely firm, very sticky and very plastic; few very fine roots; few fine irregular pores; horizon is saturated by water table; violently effervescent; many very fine and fine masses and gravel-sized concretions of calcium carbonate; many very fine translucent calcite crystals; 26 percent calcium carbonate equivalent; moderately alkaline (pH 8.0).

Range in Characteristics

Particle-size control section: 25 to 35 percent clay
Depth to calcic horizon: 10 to 35 inches and 15 to 30 percent calcium carbonate equivalent
Thickness of mollic epipedon: 20 to 40 inches
Depth to water table: 30 to 51 inches
Salinity: EC of 0 to 2 mmhos/cm
Redoximorphic features:

	Redox concentrations	Redox depletions
Depth:	23 to 45 inches	43 to 51 inches
Quantity:	few to many	few to common
Size:	very fine and fine	very fine and fine
Contrast:	distinct	faint or distinct
Hue:	5YR to 10YR	7.5YR or 10YR
Value:	4 or 5 moist	6 or 7 moist
Chroma:	4 or 6 moist	0 to 2 moist

A horizon:
Value: 3 or 4 dry, 2 or 3 moist
Chroma: 2 or 3 dry, 1 or 2 moist
Calcium carbonate equivalent: 5 to 15 percent
Reaction: neutral or slightly alkaline

Btk horizons:
Hue: 7.5YR or 10YR
Value: 3 to 5 dry, 2 or 3 moist
Chroma: 2 or 3
Texture: clay loam or clay

Rock fragments: 0 to 5 percent gravel-sized indurated calcium carbonate concretions
Calcium carbonate equivalent: 10 to 30 percent
Reaction: slightly or moderately alkaline

Bk horizon:
Hue: 5YR, 7.5YR, or 10YR
Value: 3 to 6 dry, 3 or 4 moist
Chroma: 2 or 3
Rock fragments: 0 to 5 percent gravel-sized indurated calcium carbonate concretions
Calcium carbonate equivalent: 5 to 30 percent
Reaction: slightly or moderately alkaline

Some pedons have a Bt horizon.

Bond Series

Taxonomic class: Loamy, mixed, superactive, mesic Lithic Ustic Haplargids
Depth class: Shallow
Drainage class: Well drained
Permeability: Moderate
Geomorphic position: Mesas, cuestas, hills, and ridges
Parent material: Eolian material and slope alluvium derived from sandstone
Slope range: 1 to 8 percent
Elevation: 6,500 to 7,200 feet
Mean annual air temperature: 49 to 54 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 120 to 140 days

Typical Pedon

Bond fine sandy loam, in an area of mapping unit 220, Hagerwest-Bond fine sandy loams, 1 to 8 percent slopes; McKinley County, New Mexico; Heart Rock Quadrangle; 1,000 feet east and 600 feet north of the southwest corner of sec. 2, T. 16 N., R. 12 W.; latitude 35 degrees, 38 minutes, 24 seconds and longitude 108 degrees, 05 minutes.

A—0 to 2 inches; light brown (7.5YR 6/4) fine sandy loam, brown (7.5YR 5/4) moist; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; common very fine irregular pores; 2 percent gravel; neutral; abrupt smooth boundary.
Bt1—2 to 5 inches; brown (7.5YR 5/4) fine sandy loam, dark brown (7.5YR 4/4) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine irregular pores; few faint clay films bridging sand grains; 2 percent gravel; neutral, abrupt smooth boundary.
Bt2—5 to 14 inches; strong brown (7.5YR 5/6) sandy clay loam, strong brown (7.5YR 4/6) moist; moderate medium subangular blocky structure; soft, friable, slightly sticky and nonplastic; common fine and many very fine roots; common very fine irregular pores; common distinct clay films on faces of peds, lining pores and bridging sand grains; 10 percent cobbles; neutral; abrupt smooth boundary.
2Cr—14 to 16 inches; weathered sandstone; abrupt smooth boundary.
2R—16 inches; sandstone.

Range in Characteristics

Particle-size control section: 18 to 35 percent clay
Depth to a lithic contact: 10 to 20 inches to sandstone

A horizon:
Hue: 7.5YR or 10YR
Value: 5 or 6 dry; 4 or 5 moist
Chroma: 4 dry and moist
Rock fragments: 0 to 5 percent gravel-sized sandstone fragments.
Reaction: neutral or slightly alkaline

Bt horizon:
Hue: 7.5YR
Value: 5 or 6 dry; 4 or 5 moist
Chroma: 4 to 6 dry and moist
Texture: fine sandy loam, sandy clay loam, or sandy loam
Rock fragments: 0 to 10 percent total; 0 to 10 percent gravel; 0 to 10 percent cobbles. All fragments are sandstone.
Reaction: neutral to moderately alkaline
Calcium carbonate equivalent: 0 to 5 percent

Some pedons have a Btk or Bk horizon.

Bosonoak Series

Taxonomic class: Fine-loamy, mixed, superactive, mesic Aridic Haplustalfs
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Geomorphic position: Valley sides and drainageways
Parent material: Fan alluvium derived from siltstone and shale
Slope range: 1 to 5 percent
Elevation: 6,500 to 7,000 feet
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 13 to 16 inches
Frost-free period: 100 to 135 days

Typical Pedon

Bosonoak loam, in an area of mapping unit 366, Bosonoak loam, 1 to 5 percent slopes; McKinley

County, New Mexico; Vanderwagon Draw Quadrangle: 1,600 feet south and 500 feet east of the northwest corner of sec. 27, T. 11 N., R. 19 W.; latitude 35 degrees, 09 minutes, 30 seconds and longitude 108 degrees, 50 minutes, 15 seconds.

A—0 to 2 inches; reddish brown (5YR 5/4) loam, reddish brown (5YR 4/4) moist; weak medium and thick platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; few fine irregular pores; slightly effervescent; slightly alkaline; abrupt smooth boundary.

Bt—2 to 5 inches; reddish brown (2.5YR 4/4) clay loam, dark reddish brown (2.5YR 3/4) moist; strong thick platy structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine, fine, and few medium roots; few fine irregular pores; many distinct clay films on faces of peds; slightly effervescent; moderately alkaline; clear smooth boundary.

Btk1—5 to 28 inches; reddish brown (2.5YR 4/4) clay loam, dark reddish brown (2.5YR 3/4) moist; strong medium prismatic structure; hard, firm, very sticky and very plastic; common very fine, fine, and few medium roots; common fine irregular pores; many prominent clay films on faces of peds; strongly effervescent; common fine and medium filaments and masses of calcium carbonate; moderately alkaline; clear wavy boundary.

Btk2—28 to 40 inches; reddish brown (2.5YR 4/4) loam, reddish brown (2.5YR 3/4) moist; moderate medium and coarse prismatic structure; hard, firm, slightly sticky and slightly plastic; common very fine and fine roots; common fine irregular pores; many distinct clay films on faces of peds and bridging sand grains; strongly effervescent; common fine and medium filaments and masses of calcium carbonate; moderately alkaline; clear wavy boundary.

Btk3—40 to 63 inches; weak red (10R 5/4) loam, weak red (10R 4/4) moist; moderate medium and coarse subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine and fine roots; common fine irregular pores; common distinct clay films on faces of peds and bridging sand grains; strongly effervescent; common fine and medium filaments and masses of calcium carbonate; moderately alkaline; clear wavy boundary.

Btk4—63 to 80 inches; weak red (10R 5/4) silt loam, weak red (10R 4/4) moist; moderate medium coarse subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine and fine roots; common fine irregular pores; common faint clay films on faces of peds and bridging sand grains; strongly effervescent; common fine and medium filaments and masses of calcium carbonate; moderately alkaline.

Range in Characteristics

Particle-size control section: 25 to 35 percent clay
Depth to secondary calcium carbonate: 5 to 20 inches. Most profiles are calcareous to the surface.
Calcium carbonate equivalent: 0 to 1 percent in the surface and 1 to 10 percent in the lower horizons
Rock fragments: 0 to 5 percent siliceous gravel
Reaction: slightly alkaline to moderately alkaline
Salinity: EC of 0.5 to 2.5

A horizon:
Hue: 2.5YR or 5YR
Value: 4 or 5 dry, 3 or 4 moist
Textures: silt loam or loam

Bt horizon:
Hue: 2.5YR or 5YR
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 4 or 6
Textures: silty clay loam or clay loam

Btk horizon:
Hue: 10R to 5YR
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 4 or 6
Textures: silty clay loam, clay loam, or silt loam
Salinity: EC of 0.4 to 2.5

Breadsprings Series

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ustifluventic Haplocambids
Depth class: Very Deep
Drainage class: Well drained
Permeability: Moderately slow
Geomorphic position: Valley floors
Parent material: Stream alluvium derived from sandstone and shale
Slope range: 0 to 2 percent
Elevation: 6,100 to 6,800 feet
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 100 to 135 days

Typical Pedon

Breadsprings loam, in an area of mapping unit 240, Breadsprings and Nahodish soils, 0 to 2 percent slopes; McKinley County, New Mexico; Manuelito Quadrangle; about 300 feet west and 500 feet south of the northeast corner of sec. 36, T. 15 N., R. 20 W. 35

degrees, 29 minutes, 35 seconds north latitude and 108 degrees, 53 minutes, 50 seconds west longitude.

A—0 to 3 inches; light olive brown (2.5Y 5/3) loam, olive brown (2.5Y 4/3) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and few medium roots; slightly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.

Bw1—3 to 7 inches; light olive brown (2.5Y 5/3) loam, olive brown (2.5Y4/3) moist; weak very fine and fine subangular blocky structure; slightly hard, very friable, sticky and plastic; many very fine and few medium roots; 1 percent gravel; slightly effervescent; slightly alkaline (pH 8.0); abrupt smooth boundary.

Bw2—7 to 14 inches; light olive brown (2.5Y 5/3) clay loam, olive brown (2.5Y 4/3) moist; weak very fine and fine subangular blocky structure; slightly hard, friable, sticky and plastic; many very fine roots; many very fine irregular pores; discontinuous thin stratification of very fine sand and silt loam; strongly effervescent; moderately alkaline (pH 8.0); abrupt wavy boundary.

Bk—14 to 22 inches; light olive brown (2.5Y 5/3) fine sandy loam, olive brown (2.5Y 4/3) moist; weak very fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine roots; few very fine irregular pores; slightly effervescent; few fine masses of calcium carbonate; moderately alkaline (pH 8.2); clear wavy boundary.

Ck1—22 to 29 inches; light olive brown (2.5Y 5/3) silt loam, olive brown (2.5Y 4/3) moist; massive with pockets of thin stratification of silt and very fine sand; soft, very friable, slightly sticky and nonplastic; common very fine roots; few very fine irregular pores; few distinct yellowish brown (10YR 5/6), redox concentrations; slightly effervescent; few very fine masses and filaments of calcium carbonate; moderately alkaline (pH 8.2); abrupt wavy boundary.

Ck2—29 to 36 inches; light olive brown (2.5Y 5/3) loam, olive brown (2.5Y 4/3) moist; weak platy structure; soft, very friable, slightly sticky and slightly plastic; few very fine roots; few very fine irregular pores; common very fine coal fragments; very slightly effervescent; few very fine masses of calcium carbonate; moderately alkaline (pH 8.2); abrupt wavy boundary

Ck3—36 to 70 inches; light olive brown (2.5Y 5/3) silt loam, olive brown (2.5Y 4/3) moist; weak platy structure; soft, very friable, slightly sticky and nonplastic; few very fine roots; common very fine irregular pores; discontinuous stratification of fine and medium sand; common distinct yellowish brown (10YR 5/6) redox concentrations; very slightly effervescent; few very fine masses and filaments of calcium carbonate; moderately alkaline (pH 8.2).

Range in Characteristics

Particle-size control section: 20 to 34 percent clay
Calcium carbonate equivalence: 0 to 15 percent.
Gypsum percent: 0 to 2 percent
Rock fragments: 0 to 5 percent gravel
Sodicity: SAR of 0 to 5
Salinity: EC of 0 to 3 mmhos/cm
Reaction: slightly alkaline in the surface to moderately alkaline in the subsoil

A horizon:
Hue: 2.5Y or 10YR
Value: 4 to 6 dry, 3 to 5 moist
Chroma: 2 to 4 dry or moist
Textures: loam, sandy clay loam, silt loam, and silty clay loam

Bw and Bk horizon:
Hue: 2.5Y or 10YR
Value: 4 to 6 dry, 2 to 6 moist
Chroma: 3 or 4 dry or moist
Texture: sandy clay loam, loam, or clay loam.

C, Ck, or Cky horizons:
Hue: 2.5Y or 10YR
Value: 5 or 6 dry, 2 to 6 moist
Chroma: 3 to 6 dry or moist
Redox features: If present, they range from few to common, faint to distinct, 10YR 5/6 or 6/6 redox concentrations and occur predominantly as relict features.
Texture: silt loam, fine sandy loam, sandy clay loam, clay loam, or loam

Bryway Series

Taxonomic class: Fine, mixed, superactive, mesic Aridic Paleustalfs
Depth class: Moderately deep
Drainage class: Well drained
Permeability: Slow
Geomorphic position: Mesas, cuestas, hills, and ridges
Parent material: Slope alluvium over residuum derived from shale and sandstone
Slope range: 2 to 8 percent
Elevation: 6,800 to 7,600 feet
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 13 to 16 inches
Frost-free period: 100 to 135 days

Typical Pedon

Bryway sandy loam, in an area of mapping unit 317, Highdye-Evpark-Bryway complex, 2 to 20 percent slopes; McKinley County, New Mexico; Pescado Quadrangle; 2,200 feet west and 1,900 feet north of the southeast corner of sec. 22, T. 10 N., R. 17 W.; latitude 35 degrees, 04 minutes, 50 seconds and longitude 108 degrees, 37 minutes, 01 seconds.

A—0 to 4 inches; yellowish brown (10YR 5/4) sandy loam, dark brown (7.5YR 3/4) moist; weak medium subangular blocky structure; soft, friable, nonsticky and nonplastic; common very fine and fine roots; common fine irregular pores; 2 percent sandstone gravel; neutral (pH 6.8); abrupt smooth boundary.

Bt1—4 to 10 inches; reddish brown (5YR 4/4) clay, dark reddish brown (5YR 3/4) moist; strong fine and medium subangular blocky structure; hard, firm, very sticky and very plastic; many very fine and fine and common medium roots; common fine irregular pores; many prominent clay films on faces of peds; neutral (pH 6.8); clear smooth boundary.

Bt2—10 to 23 inches; brown (7.5YR 4/4) clay, dark brown (7.5YR 3/4) moist; strong fine and medium subangular blocky structure; hard, firm, very sticky and very plastic; few very fine and fine roots; few very fine irregular pores; many prominent clay films on faces of peds; few soft shale fragments; slightly alkaline (pH 7.4); clear smooth boundary.

2Cr—23 inches; shale.

Range in Characteristics

Particle-size control section: 35 to 55 percent clay
Depth to paralithic contact: 20 to 40 inches to shale or shale interbedded with soft sandstone
Reaction: neutral in the surface and slightly to moderately alkaline in the subsoil

A horizon:
Hue: 7.5YR or 10YR
Value: 5 or 6 dry, 3 or 4 moist
Chroma: 3 or 4
Texture: sandy loam or loam
Rock fragments: 0 to 10 percent sandstone gravel

Bt horizons:
Hue: 5YR, 7.5YR, or 10YR
Value: 4 to 6 dry, 3 to 5 moist
Chroma: 3, 4, or 6 moist
Texture: dominantly clay and clay loam, but some sandy clay textures do occur

Btk or Bk horizons (when present):
Hue: 7.5YR, 10YR, or 2.5Y
Value: 3 to 5 moist
Chroma: 3 or 4 moist
Textures: dominantly clay and clay loam, but some sandy clay textures do occur
Calcium carbonate equivalent: 0 to 5 percent

Buckle Series

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ustic Haplargids
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Geomorphic position: Cuestas, valley sides, drainageways, hills, and ridges
Parent material: Eolian material and fan and slope alluvium derived from sandstone and shale
Slope range: 1 to 8 percent
Elevation: 6,400 to 6,800 feet
Mean annual air temperature: 45 to 49 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 100 to 135 days

Typical Pedon

Buckle fine sandy loam, in an area of mapping unit 244, Buckle fine sandy loam, 1 to 8 percent slopes; McKinley County, New Mexico; Twin Lake Quadrangle; 2,600 feet west and 1,600 feet south of the northeast corner of sec. 1, T. 16 N., R. 19 W.; latitude 35 degrees, 38 minutes, 54 seconds and longitude 108 degrees, 48 minutes, 05 seconds.

A—0 to 4 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 4/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine roots; slightly alkaline (pH 7.6); clear smooth boundary.

Bt1—4 to 14 inches; brown (7.5YR 5/3) sandy clay loam, dark brown (7.5YR 4/3) moist; weak very fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine roots; few distinct clay films on faces of peds; slightly alkaline (pH 7.6); abrupt smooth boundary.

Bt2— 14 to 22 inches; brown (10YR 5/3) sandy clay loam, dark brown (10YR 4/3) moist; moderate medium prismatic parting to moderate very fine and fine subangular blocky structure; hard, firm, slightly sticky and slightly plastic; many very fine, fine and few medium roots; few very fine irregular pores; many distinct clay films on faces of peds; slightly alkaline (pH 7.6); abrupt wavy boundary.

Btk1—22 to 34 inches; brown (10YR 5/3) loam, dark yellowish brown (10YR 4/4) moist; weak very fine and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; few very fine irregular pores; common distinct clay films on faces of peds; strongly effervescent; many very fine masses of calcium carbonate; moderately alkaline (pH 8.0); abrupt smooth boundary.

Btk2—34 to 48 inches; yellowish brown (10YR 5/4) clay loam; dark yellowish brown (10YR 4/4) moist; weak very fine and fine subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; few very fine roots; few very fine irregular pores; few distinct clay films on faces of peds; strongly effervescent; common very fine masses of calcium carbonate; moderately alkaline (pH 8.0); clear smooth boundary.

Bk1—48 to 62 inches; yellowish brown (10YR 5/4) clay loam, dark yellowish brown (10YR 5/4) moist; weak very fine and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; few very fine irregular pores; very slightly effervescent; few very fine masses of calcium carbonate; moderately alkaline (pH 8.0); abrupt smooth boundary.

Bk2—62 to 75 inches; yellowish brown (10YR 5/4) clay loam, dark yellowish brown (10YR 4/4) moist; weak very fine and fine subangular blocky structure; hard, friable, sticky and plastic; few very fine roots; common very fine irregular pores; slightly effervescent; many very fine masses of calcium carbonate; moderately alkaline (pH 8.0).

Range in Characteristics

Particle-size control section: 18 to 35 percent clay and greater than 40 percent sand
Calcium carbonate equivalent: 0 to 1 percent in the surface and 1 to 10 percent in the lower subsoil
Reaction: slightly alkaline in the surface and slightly to moderately alkaline in the subsoil

A horizon:
Hue: 10YR
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 3 or 4 dry and moist

Bt horizon:
Hue: 10YR
Value: 4 or 5 dry and moist
Chroma: 4 dry and moist
Texture: sandy clay loam or clay loam

Bk horizon:
Hue: 10YR
Value: 4 or 5 dry and moist
Chroma: 4 dry and moist
Texture: sandy clay loam, clay loam, or fine sandy loam

Cabezon Series

Taxonomic class: Clayey, smectitic, mesic Lithic Argiustolls
Depth class: Shallow
Drainage class: Well drained
Permeability: Slow
Geomorphic position: Lava plateau
Parent material: Eolian material over residuum derived from basalt
Slope range: 2 to 8 percent
Elevation: 6,800 to 8,000 feet
Mean annual air temperature: 47 to 53 degrees F
Mean annual precipitation: 14 to 16 inches
Frost-free period: 100 to 135 days

Typical Pedon

Cabezon very cobbly loam, in an area of mapping unit 395, Cabezon-Mcorreon complex, 2 to 8 percent slopes; McKinley County, New Mexico; Cerro Parido Quadrangle; latitude 35 degrees, 33 minutes, 08 seconds and longitude 107 degrees, 19 minutes, 59 seconds.

The surface is covered by about 30 percent gravel and 20 percent cobbles.

A—0 to 2 inches; brown (7.5YR 5/2) very cobbly loam, dark brown (7.5YR 3/2) moist; moderate thin and medium platy; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common fine vesicular pores; 30 percent gravel and 20 percent cobbles; slightly acid (pH 6.2); clear smooth boundary.

Bt1—2 to 6 inches; brown (7.5YR 4/2) clay loam, dark brown (7.5YR 3/2) moist; moderate fine and medium subangular blocky structure, hard, firm, sticky and plastic; common very fine, fine, and few medium roots; common fine tubular pores; many prominent clay films on faces of peds; slightly acid (pH 6.4); clear smooth boundary.

Bt2—6 to 14 inches; reddish brown (5YR 4/3) clay, dark reddish brown (5YR 3/3) moist; moderate fine and medium angular blocky structure; very hard, very firm, sticky and very plastic; common very fine, fine, and few medium roots; common fine tubular pores; many prominent clay films on ped faces; 10 percent gravel; neutral (pH 6.6); abrupt boundary.

Crk—14 to 17 inches; Weathered basalt with continuous calcium carbonate coating rock fragments.
R—17 inches; basalt bedrock.

Range in Characteristics

Particle-size control section: 35 to 50 percent clay
Depth to bedrock: 10 to 20 inches to basalt
Reaction: slightly acid to neutral

A horizon:
Hue: 7.5YR or 10YR
Value: 4 or 5 dry, 2 or 3 moist
Chroma: 2 or 3
Rock fragments: 5 to 50 percent gravel; 0 to 30 percent cobbles; 0 to 15 percent stones. All fragments are basalt.

Bt horizon:
Hue: 2.5YR to 7.5YR
Value: 4 or 5 dry, 2 to 4 moist
Chroma: 2 to 4 dry or moist
Texture: clay or clay loam
Rock fragments: 5 to 10 percent basalt gravel

Calladito Series

Taxonomic class: Mixed, mesic Ustic Torripsamments
Depth class: Very deep
Drainage class: Excessively drained
Permeability: Rapid
Geomorphic position: Dunes on valley sides, valley floors, hills, and ridges
Parent material: Eolian material derived from sandstone
Slope range: 1 to 8 percent
Elevation: 6,300 to 6,800 feet
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 9 to 10 inches
Frost-free period: 100 to 135 days

Typical Pedon

Calladito loamy fine sand, in an area of mapping unit 12, Calladito-Elias association, 1 to 6 percent slopes; McKinley County, New Mexico; Star Lake Quadrangle; 1,100 feet east and 650 feet south of the northwest corner of sec. 29, T. 20 N., R. 6 W.; latitude 35 degrees, 56 minutes, 28 seconds and longitude 107 degrees, 29 minutes, 45 seconds.

A—0 to 2 inches; dark yellowish brown (10YR 4/4) loamy fine sand, dark brown (10YR 3/3) moist; weak very fine granular structure; loose, very friable, nonsticky and nonplastic; few medium and common fine and very fine roots; many very fine irregular pores; slightly alkaline (pH 7.6); abrupt smooth boundary.
C1—2 to 26 inches; dark yellowish brown (10YR 4/4) loamy fine sand, dark brown (10YR 3/3) moist; single grain; loose, very friable, nonplastic and nonplastic; few medium and common fine and very fine roots; many very fine irregular pores; moderately alkaline (pH 8.0); clear smooth boundary.
C2—26 to 65 inches; yellowish brown (10YR 5/4) loamy fine sand, brown (10YR 4/3) moist; single grain; loose, very friable, nonsticky and nonplastic; few medium, fine and very fine roots; many very fine irregular pores; moderately alkaline (pH 7.8).

Range in Characteristics

Particle-size control section: 2 to 10 percent clay
Some pedons are calcareous within 3 inches of the surface.

A horizon:
Hue: 7.5YR or 10YR
Value: 4 or 5 dry; 3 to 5 moist
Chroma: 4 to 6 dry; 3 to 6 moist
Reaction: neutral or slightly alkaline

C horizon:
Hue: 7.5YR or 10YR
Value: 4 to 6 dry; 3 to 6 moist
Chroma: 4 to 6 dry; 3 to 6 moist
Texture: loamy fine sand or loamy sand
Reaction: slightly to moderately alkaline
Calcium carbonate equivalent: 0 to 1 percent

Canoneros Series

Taxonomic class: Clayey, mixed, superactive, frigid Lithic Argiustolls
Depth class: Shallow
Drainage class: Well drained
Permeability: Slow
Geomorphic position: Lava plateaus and cinder cones
Parent material: Slope alluvium over residuum derived from basalt
Slope range: 2 to 6 percent
Elevation: 7,800 to 9,000 feet
Mean annual air temperature: 40 to 45 degrees F
Mean annual precipitation: 16 to 20 inches
Frost-free period: 90 to 110 days

Typical Pedon

Canoneros very cobbly loam, in an area of mapping unit 425, Montillo-Canoneros complex, 2 to 6 percent slopes; McKinley County, New Mexico; Marquez Quadrangle; latitude 35 degrees, 21 minutes, 38

seconds and longitude 107 degrees, 20 minutes, 46 seconds.

The surface is covered by 10 percent gravel, 25 percent cobbles, and 5 percent stones.

A—0 to 2 inches; reddish brown (5YR 4/3) very cobbly loam, dark reddish brown (5YR 3/3) moist; moderate medium platy structure; soft, friable, slightly sticky and slightly plastic; common very fine and fine roots, few fine irregular pores; 10 percent gravel, 25 percent cobbles, 5 percent stones; slightly acid (pH 6.4); abrupt smooth boundary.

Bt1—2 to 8 inches; dark reddish brown (5YR 3/3) clay loam, dark reddish brown (5YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, firm, sticky and plastic; many very fine and fine roots; common fine irregular pores; common prominent clay films on faces of peds; 8 percent gravel and 2 percent cobbles; neutral (pH 6.8); clear smooth boundary.

Bt2—8 to 13 inches; dark reddish brown (5YR 3/2) clay, very dusky red (2.5YR 2.5/2) moist; strong very fine and fine angular blocky structure; hard, firm, very sticky and very plastic; common very fine and fine roots; common fine irregular pores; many prominent clay films on faces of peds; 10 percent gravel and 2 percent cobbles with many soft weathered basalt fragments; neutral (pH 6.8); abrupt irregular boundary.

2R—13 inches; basalt bedrock.

Range in Characteristics

Particle-size control section: 35 to 50 percent clay with less than 35 percent rock fragments.
Depth to lithic contact: 10 to 20 inches to basalt
Mollic epipedon thickness: 10 to 20 inches
Reaction: slightly acid in the surface and neutral in the subsoil

A horizon:
Hue: 5YR or 7.5YR
Value: 4 or 5 dry
Chroma: 3 or 4 dry, 2 or 3 moist
Rock fragments: 15 to 50 percent total range; 5 to 15 percent gravel; 0 to 25 percent cobbles; 0 to 5 percent stones. Mostly basalt with some cinders.

Bt horizon:
Hue: 2.5YR, 5YR, or 7.5YR
Value: 3 or 4 dry, 2.5 or 3 moist
Chroma: 2 or 3
Texture: clay loam or clay
Rock fragments: 0 to 10 percent total range; 0 to 10 percent gravel; 0 to 5 percent cobbles. Mostly basalt with some cinders.

Casamero Series

Taxonomic class: Clayey, smectitic, mesic, shallow Leptic Haplotorrerts
Depth class: Shallow
Drainage class: Well drained
Permeability: Very slow
Geomorphic position: Valley sides and hills
Parent material: Slope alluvium over residuum derived from shale
Slope range: 2 to 10 percent
Elevation: 7,000 to 7,800 feet
Mean annual air temperature: 49 to 53 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 120 to 140 days

Typical Pedon

Casamero clay, in an area of mapping unit 380, Berryhill-Casamero clays, 2 to 10 percent slopes; McKinley County, New Mexico; Goat Mountain Quadrangle; 2,100 feet north and 1,600 feet west of the southeast corner of sec. 3, T. 14 N., R. 11 W.; latitude 35 degrees, 28 minutes, 11 seconds and longitude 107 degrees, 59 minutes, 12 seconds (fig. 16).

A—0 to 3 inches; light olive brown (2.5Y 5/4) clay, olive brown (2.5Y 4/4) moist; moderate medium granular structure; soft, friable, very sticky and plastic; many very fine and fine and few medium roots; few fine vesicular and common very fine irregular pores; few cracks 0.5 inch wide; 10 percent sandstone and shale gravel and channers less than 3 inches in diameter; violently effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.

Bss—3 to 11 inches; light olive brown (2.5Y 5/4) clay, olive brown (2.5Y 4/4) moist; moderate coarse subangular blocky structure; very hard, very firm, sticky and very plastic; common very fine and few medium roots; few very fine irregular pores; many pressure faces and slickensides; few cracks 0.5 inch wide extending to 14 inches; few soft shale fragments 1 millimeter in diameter; violently effervescent; moderately alkaline (pH 8.2); clear irregular boundary.

Bssyz—11 to 18 inches; olive brown (2.5Y 4/4) clay, olive brown (2.5Y 4/4) moist; weak coarse subangular blocky structure; very hard, very firm, sticky and very plastic; few very fine roots; few very fine irregular pores; few pressure faces and

slickensides; many fine, soft shale fragments; 30 percent by volume clusters of gypsum and sodium sulfate crystals; 4 percent gypsum; EC of 4 mmhos/cm; strongly effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.
Cr—18 inches; weathered gypsiferous shale.

Range in Characteristics

Particle-size control section: 50 to 70 percent clay
Depth to paralithic contact: 10 to 20 inches to shale
Depth to gypsum and sodium sulfate accumulations: 6 to 14 inches
Calcium carbonate equivalent: 1 to 10 percent
Vertic properties: gilgai microrelief ranges up to 2 inches; vertical cracks 0.5 inches wide extend from surface to the paralithic contact; few to many pressure faces and intersecting slickensides occur from just below surface to the paralithic contact.
Reaction: slightly through strongly alkaline

A horizon:
Hue: 10YR or 2.5Y
Value: 5 or 6 dry, 4 or 5 moist
Rock fragments: 0 to 25 percent sandstone and shale gravel and gravel-sized channers
Salinity: EC of 0 to 4 mmhos/cm
Sodicity: SAR of 0 to 2

Bss and Bssyz horizons:
Hue: 10YR or 2.5Y
Value: 3 or 4 moist
Chroma: 2 to 4 moist
Percent clay: 50 to 70 percent
*Percent gypsum:*1 to 5 percent
Salinity: EC of 2 to 8 mmhos/cm
Sodicity: SAR of 2 to 5

Celavar Series

Taxonomic class: Fine-loamy, mixed, superactive, mesic Aridic Haplustalfs
Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderate
Geomorphic position: Mesas and Cuestas
Parent material: Eolian material and slope alluvium over residuum derived from sandstone and shale
Slope range: 1 to 8 percent
Elevation: 6,500 to 8,100 feet
Mean annual air temperature: 49 to 53 degrees F
Mean annual precipitation: 13 to 16 inches
Frost-free period: 115 to 135 days

Typical Pedon

Celavar sandy loam, in an area of mapping unit 368, Simitarq-Celavar sandy loams, 2 to 8 percent slopes; McKinley County, New Mexico; Continental Divide Quadrangle; 200 feet south and 200 feet east of the northwest corner of sec. 28, T. 14 N., R. 14 W.; latitude 35 degrees, 25 minutes, 21 seconds and longitude 108 degrees, 19 minutes, 58 seconds.

Oi—0 to 1 inches; pinyon and oneseed juniper leaves, needles, twigs, and cones.
A—1 to 2 inches; brown (10YR 4/3) sandy loam, dark brown (10YR 3/3) moist; weak very fine granular structure; soft, very friable, slightly sticky and nonplastic; many very fine, fine, and few medium roots; common fine vesicular pores; 1 percent gravel; slightly alkaline (pH 7.6); abrupt smooth boundary.
Bt—2 to 11 inches; reddish brown (5YR 4/4) sandy clay loam, dark reddish brown (5YR 3/4) moist; moderate fine and medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; many very fine, fine, and few medium and coarse roots; few fine irregular pores; many distinct clay films bridging sand grains; slightly alkaline (pH 7.6); clear smooth boundary.
Btk1—11 to 27 inches; reddish brown (5YR 5/4) sandy clay loam, reddish brown (5YR 4/4) moist; strong fine and medium subangular blocky structure; hard, firm, sticky and plastic; common fine and few medium roots; common fine tubular pores; many prominent clay films on faces of peds and bridging sand grains; slightly effervescent; few fine and medium filaments of calcium carbonate; slightly alkaline (pH 7.8); clear smooth boundary.
Btk2—27 to 31 inches; reddish brown (5YR 5/4) sandy clay loam, reddish brown (5YR 4/4) moist; moderate fine and medium subangular blocky structure; hard, firm, sticky and plastic; common very fine and fine roots; common fine tubular pores; many prominent clay films on faces of peds and bridging sand grains; 1 percent gravel; slightly effervescent; common fine and medium masses and common fine filaments of calcium carbonate; slightly alkaline (pH 7.8); abrupt smooth boundary.
R—31 inches; sandstone.

Range in Characteristics

Particle-size control section: 20 to 35 percent clay
Depth to lithic contact: 20 to 40 inches to hard sandstone

Reaction: slightly alkaline throughout

A horizon:
Hue: 7.5YR or 10YR
Value: 5 or 6 dry; 3 or 4 moist
Chroma: 3 or 4 dry; 3 to 6 moist
Rock fragments: 0 to 2 percent sandstone gravel

Bt horizon:
Hue: 5YR or 7.5YR
Value: 4 or 5 dry; 3 or 4 moist
Chroma: 4 to 6
Texture: sandy clay loam or clay loam
Rock fragments: 0 to 1 percent sandstone gravel

Btk horizon:
Hue: 5YR or 7.5YR
Value: 4 or 5 dry; 3 or 4 moist
Chroma: 4 to 6
Texture: sandy clay loam or clay loam
Rock fragments: 0 to 1 percent sandstone gravel
Calcium carbonate equivalent: 1 to 5 percent

Chipeta Series

Taxonomic class: Clayey, mixed, active, calcareous, mesic, shallow Typic Torriorthents
Depth class: Very shallow and shallow
Drainage class: Well drained
Permeability: Slow
Geomorphic position: Mesas, cuestas, hills, and ridges
Parent material: Slope alluvium and colluvium over residuum derived from shale
Slope range: 5 to 30 percent
Elevation: 5,800 to 6,800 feet
Mean annual air temperature: 50 to 55 degrees F
Mean annual precipitation: 7 to 9 inches
Frost-free period: 130 to 150 days

Typical Pedon

Chipeta silty clay, in an area of mapping unit 118, Farb-Chipeta-Rock outcrop complex, 2 to 30 percent slopes; McKinley County, New Mexico; Seven Lakes NW Quadrangle; 800 feet west and 400 feet north of the southeast corner of sec. 7, T. 19 N., R. 10 W.; latitude 35 degrees, 53 minutes, 06 seconds and longitude 107 degrees, 56 minutes, 02 seconds.

A—0 to 2 inches; light olive brown (2.5Y 5/4) silty clay, olive brown (2.5Y 4/4) moist; moderate fine granular structure; slightly hard, friable, sticky and plastic; few very fine roots; many very fine irregular pores; 5 percent gravel and 5 percent cobbles; strongly effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.
Cyz—2 to 12 inches; light olive brown (2.5Y 5/4) silty clay, olive brown (2.5Y 4/4) moist; massive; hard, firm, sticky and plastic; few fine and common very fine roots; many very fine irregular pores; 5 percent gravel; common soft shale fragments; few very fine gypsum and sodium sulfate crystals; strongly effervescent; strongly alkaline (pH 8.8); clear smooth boundary.
Cr—12 inches; variegated gypsiferous shale.

Range in Characteristics

Particle-size control section: 35 to 50 percent clay
Depth to paralithic contact: 5 to 20 inches to shale
Calcium carbonate equivalent: 0 than 10 percent
Percent gypsum: 1 to 5 percent

A horizon:
Hue: 10YR or 2.5Y
Value: 4 or 5 moist
Chroma: 3 or 4 moist
Rock fragments: 0 to 30 percent gravel; 0 to 5 percent cobbles; 0 to 5 percent stones. All fragments are siderite and sandstone.
Salinity: EC of 8 to 16 mmhos/cm
Sodicity: SAR 5 to 10
Reaction: slightly or moderately alkaline

Byz horizon:
Hue: 10YR or 2.5Y
Value: 3 or 4 moist
Chroma: 3 or 4 moist
Texture: silty clay, clay or clay loam
Rock fragments: 0 to 10 percent sandstone and siderite gravel
Salinity: EC of 8 to 16 mmhos/cm
Sodicity: SAR 5 to 15
Reaction: moderately or strongly alkaline

Chivato Series

Taxonomic class: Fine, mixed, active, frigid Typic Haplusterts
Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Very slow
Geomorphic position: Playas on lava plateaus
Parent material: Lacustrine material derived from basalt
Slope range: 0 to 1 percent
Elevation: 8,100 to 8,600 feet
Mean annual air temperature: 40 to 45 degrees F
Mean annual precipitation: 16 to 20 inches
Frost-free period: 90 to 110 days

Typical Pedon

Chivato clay, in an area of mapping unit 440, Chivato

clay, 0 to 1 percent slopes; McKinley County, New Mexico; Marquez Quadrangle; latitude 35 degrees, 22 minutes, 09 seconds and longitude 107 degrees, 19 minutes, 59 seconds.

A—0 to 2 inches; gray (5Y 5/1) clay, very dark gray (5Y 3/1) moist; moderate medium platy structure parting to moderate very fine and fine granular; slightly hard, friable, very sticky and very plastic; common very fine and fine roots; common very fine irregular pores; few (<1 percent) cobble- and stone-sized volcanic bombs occur on the surface; slightly acid (pH 6.4); abrupt smooth boundary.

Bss1—2 to 13 inches; dark gray (5Y 5/1) clay, very dark gray (5Y 3/1) moist; weak medium and coarse angular blocky structure; extremely hard, extremely firm, very sticky and very plastic; common very fine and fine roots; few very fine irregular pores; many pressure faces; few slickensides; neutral (pH 6.6); clear smooth boundary.

Bss2—13 to 40 inches; dark gray (5Y 5/1) clay, very dark gray (5Y 3/1) moist; massive; extremely hard, extremely firm, very sticky and very plastic; common very fine and fine roots; few very fine irregular pores; many pressure faces; many slickensides; neutral (pH 7.2); clear smooth boundary.

Bss3—40 to 52 inches; gray (5Y 5/1) clay, very dark gray (5Y 3/1) moist; few fine distinct reddish yellow (7.5YR 6/8) moist redox concentrations; massive; extremely hard, extremely firm, very sticky and very plastic; few very fine and fine roots; few very fine irregular pores; many pressure faces; few slickensides; slightly alkaline (pH 7.4); gradual wavy boundary.

Bssg—52 to 65 inches; dark grayish brown (10YR 4/2) clay, very dark grayish brown (10YR 3/2) moist; common fine distinct reddish yellow (7.5YR 6/8) moist redox concentrations and dark gray (10YR 4/1) moist redox depletions; massive; extremely hard, extremely firm, very sticky and very plastic; few very fine and fine roots; few very fine irregular pores; many pressure faces; few slickensides; slightly alkaline (pH 7.4).

Range in Characteristics

Particle-size control section: 60 to 80 percent clay
Vertic Properties: gilgai microrelief ranges up to 6 inches; vertical cracks 0.5 inch in width range from the surface to 30 inches or more in depth; many pressure faces and few to common slickensides from 2 to 30 inches in depth.

A horizon:
Hue: 10YR, 2.5Y, or 5Y
Value: 4 or 5 dry
Reaction: slightly acid or neutral

B horizons:
Hue: 10YR, 2.5Y, or 5Y
Value: 4 to 6 dry; 3 to 5 moist
Chroma: 1 or 2
Redoximorphic features:

	Redox concentrations	Redox depletions
Depth:	3 to 40 inches	20 to 50 inches
Quantity:	few to many	few to many
Size:	fine and medium	fine and medium
Contrast:	distinct or prominent	distinct
Hue:	2.5YR to 10YR	7.5YR, 10YR, 2.5Y
Value:	3 to 6 moist	3 or 4 moist
Chroma:	3 to 8 moist	0 to 2 moist

Reaction: neutral or slightly alkaline

Chunkmonk Series

Taxonomic class: Loamy-skeletal, mixed, superactive, mesic Lithic Haplustalfs
Depth class: Very shallow and shallow
Drainage class: Well drained
Permeability: Moderate
Geomorphic position: Cuestas
Parent material: Eolian material and slope alluvium over residuum derived from sandstone and limestone
Slope range: 2 to 10 percent
Elevation: 7,000 to 7,700 feet
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 13 to 16 inches
Frost-free period: 100 to 135 days

Typical Pedon

Chunkmonk very gravelly fine sandy loam, in an area of mapping unit 367, Chunkmonk very gravelly fine sandy loam, 2 to 10 percent slopes; McKinley County, New Mexico; about 2 miles northeast of the village of Upper Nutria; Upper Nutria Quadrangle; 700 feet north and 2,300 feet east of the southwest corner of sec. 5, T. 12 N., R. 16 W.; latitude 35 degrees, 17 minutes, 32 seconds and longitude 108 degrees, 32 minutes, 52 seconds.

The surface is covered by 45 percent gravel and 5 percent cobbles. Fragments are dolomitic limestone and calcareous sandstone.

A—0 to 1 inches; brown (7.5YR 4/3) very gravelly fine sandy loam, dark brown (7.5YR 3/3) moist; moderate thin platy structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; 45 percent gravel, 5 percent cobbles; slightly effervescent; few very fine and fine masses of calcium carbonate; slightly alkaline (pH 7.8); clear smooth boundary.

Btk1—1 to 4 inches; brown (5YR 4/3) very cobbly loam, dark reddish brown (5YR 3/3) moist; weak fine and medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine roots; few faint clay films bridging sand grains; 15 percent gravel, 45 percent cobbles; strongly effervescent; common fine and medium masses of calcium carbonate; 5 percent calcium carbonate equivalent; moderately alkaline (pH 8.2); clear wavy boundary.

Btk2—4 to 8 inches; reddish brown (5YR 4/3) gravelly loam, dark reddish brown (5YR 3/4) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; few faint clay films bridging sand grains; 20 percent gravel, 5 percent cobbles; violently effervescent; common fine and medium masses and few fine concretions of calcium carbonate; 28 percent calcium carbonate equivalent; moderately alkaline (8.2); abrupt wavy boundary.

Btk3—8 to 10 inches; reddish brown (5YR 5/4) gravelly loam, reddish brown (5YR 4/4) moist; moderate fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; few very fine, fine, and coarse roots; few distinct clay films bridging sand grains; 20 percent gravel, 5 percent cobbles; violently effervescent; many fine and medium masses and few fine and medium concretions of calcium carbonate; 38 percent calcium carbonate equivalent; moderately alkaline (pH 8.2); abrupt wavy boundary.

R—10 inches; San Andreas limestone.

Range in Characteristics

Particle-size control section: 10 to 25 percent clay
Depth to lithic contact: 8 to 20 inches to dolomitic limestone
Depth to calcic: 2 to 14 inches
Reaction: slightly to moderately alkaline throughout

A horizon:
Hue: 5YR or 7.5YR
Value: 3 dry, or 4 moist
Chroma: 3 or 4
Rock fragments: 25 to 60 percent total; 15 to 50 percent gravel, 0 to 20 percent cobbles, 0 to 1 percent stones. All fragments are limestone and sandstone.
Calcium carbonate equivalent: 0 to 5 percent

Btk horizon:
Hue: 5YR or 7.5YR
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 3 or 4
Textures: loam or clay loam.
Rock fragments: 35 to 60 percent total; 15 to 25 percent gravel, 20 to 50 percent cobbles. All fragments are limestone and sandstone.
Calcium carbonate equivalent: 5 to 15 in the upper part and 15 to 40 percent in the lower part

Cinnadale Series

Taxonomic class: Loamy-skeletal, mixed, superactive, frigid Lithic Haplustepts
Depth class: Shallow
Drainage class: Well drained
Permeability: Moderately rapid
Geomorphic position: Cuestas, hogbacks, hills, and ridges
Parent material: Slope alluvium over residuum derived from sandstone
Slope range: 5 to 15 percent
Elevation: 7,200 to 8,200 feet
Mean annual air temperature: 40 to 45 degrees F
Mean annual precipitation: 16 to 20 inches
Frost-free period: 90 to 110 days

Typical Pedon

Cinnadale very channery fine sandy loam, in an area of mapping unit 407, Cinnadale-Heckly association, 5 to 40 percent slopes; McKinley County, New Mexico; Page Quadrangle; 1,500 feet west and 350 feet south of the northeast corner of sec. 13, T. 13 N., R. 16 W.; latitude 35 degrees, 21 minutes, 45 seconds and longitude 108 degrees, 28 minutes, 49 seconds.

The surface is covered by 40 percent channers, 5 percent flagstones.

A—0 to 2 inches; brown (7.5YR 5/3) very channery fine sandy loam, dark brown (7.5YR 3/3) moist; weak very fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine, fine, and few medium roots; 40 percent channers, 5 percent flagstones; neutral (pH 7.0); abrupt smooth boundary.

Bw1—2 to 9 inches; light reddish brown (5YR 6/4) very channery fine sandy loam, reddish brown (5YR 5/4) moist; weak very fine granular structure; soft, very friable, nonsticky and nonplastic; common fine and few medium roots; 40 percent channers, 15 percent flagstones; neutral (pH 7.0); clear wavy boundary.
Bw2—9 to 15 inches; light reddish brown (5YR 6/4) very channery fine sandy loam, reddish brown (5YR 5/4) moist; weak very fine granular structure; soft, very friable, nonsticky and nonplastic; few fine and medium roots; 40 percent channers, 15 percent flagstones; neutral (pH 7.0); abrupt wavy boundary.
R—15 inches; Abo sandstone.

Range in Characteristics

Particle-size control section: 10 to 15 percent clay
Depth to lithic contact: 10 to 20 inches
Reaction: neutral to slightly alkaline

A horizon:
Hue: 5YR and 7.5YR
Value: 5 or 6 dry, 3 moist
Chroma: 2 or 3 dry and moist
Textures: fine sandy loam or loam
Rock fragments: 15 to 55 percent total; 15 to 45 percent channers and 5 to 10 percent flagstones. All rock fragments are sandstone.

Bw horizon:
Hue: 5YR or 7.5YR
Value: 4 or 5 moist
Chroma: 2 to 4 dry and moist
Textures: fine sandy loam or loam
Rock fragments: 35 to 60 percent total; 30 to 50 percent channers and 5 to 15 percent flagstones. All rock fragments are sandstone.

Concho Series

Taxonomic class: Fine, mixed, superactive, mesic Aridic Argiustolls
Depth class: Very Deep
Drainage class: Well drained
Permeability: Slow
Geomorphic position: Valley floors and drainageways
Parent material: Fan and stream alluvium derived from sandstone and shale
Slope range: 0 to 3 percent
Elevation: 6,600 to 7,000 feet
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 13 to 16 inches
Frost-free period: 100 to 135 days

Typical Pedon

Concho clay loam, in an area of mapping unit 360, Hosta-Concho association, 0 to 5 percent slopes; McKinley County, New Mexico; Burned Timber Canyon Quadrangle; 200 feet north and 1,200 feet east of the southwest corner of sec. 29, T. 11 N., R. 16 W.; latitude 35 degrees, 08 minutes, 54 seconds and longitude 108 degrees, 33 minutes, 09 seconds.

Ap1—0 to 1 inches; brown (10YR 5/3), clay loam, very dark grayish brown (10YR 3/2) moist; strong thin platy structure parting to moderate fine granular; soft, very friable, sticky and plastic; many very fine and fine roots; many fine irregular and few fine vesicular pores; neutral; clear smooth boundary.
Ap2—1 to 5 inches; brown (10YR 5/3) clay, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; hard, firm, sticky and very plastic; many very fine and fine roots; many fine irregular pores; many prominent clay films coating faces of peds; neutral; clear smooth boundary.
Btss1—5 to 18 inches; yellowish brown (10YR 5/4) clay, dark brown (10YR 3/3) moist; moderate coarse prismatic structure parting to strong medium subangular blocky; very hard, very firm, sticky and very plastic; common very fine and fine roots; common fine irregular pores; many prominent clay films coating faces of peds; few slickensides; slightly effervescent; slightly alkaline; gradual wavy boundary.
Btss2—18 to 32 inches; brown (10YR 5/3) clay, dark brown (10YR 4/3) moist; weak very coarse subangular blocky structure; extremely hard, extremely firm; sticky and very plastic; few very fine and fine roots; common fine irregular pores; many prominent clay films coating faces of peds; many slickensides; very slightly effervescent; moderately alkaline; gradual irregular boundary.
Btkss—32 to 51 inches; brown (10YR 5/3) clay, dark brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; extremely hard, extremely firm; sticky and very plastic; few very fine and fine roots; common fine irregular pores; many prominent clay films coating faces of peds; many slickensides; common fine irregular masses of calcium carbonate; slightly effervescent; slightly alkaline; clear irregular boundary.
Btkz—51 to 65 inches; dark brown (10YR 4/3) clay; dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; extremely hard, extremely firm; sticky and very plastic; few very fine and fine roots; common fine irregular pores; common prominent clay films coating faces of peds; common fine clusters of salt crystals; few

fine irregular masses of calcium carbonate; slightly effervescent; slightly alkaline.

Range in Characteristics

Particle-size control section: 35 to 55 percent clay
Slickensides: (when present) occur from 5 to 50 inches
Cracks: 3 to 7 mm wide at 20 inches below the surface.
Salt accumulations: (when present) occur below 45 inches. Electrical conductivity ranges from 0 to 4 mmhos/cm.
Depth to calcium carbonate: 10 to 30 inches

A horizon:
Hue: 10YR or 2.5Y
Chroma: 2 or 3 moist
Rock fragments: 0 to 5 percent sandstone gravel
Reaction: neutral or slightly alkaline

Bt horizons:
Hue: 7.5YR, 10YR or 2.5Y
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 3 or 4 dry, 2 to 4 moist
Texture: clay or clay loam
Reaction: neutral or slightly alkaline

Btk or Bk horizons:
Hue: 10YR or 2.5Y
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 3 or 4 dry, 2 or 3 moist
Texture: clay loam or clay
Reaction: slightly or moderately alkaline
Calcium carbonate equivalent: 1 to 5 percent

Conchovar Series

Taxonomic class: Fine, mixed, superactive, mesic Pachic Argiustolls
Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Very slow
Geomorphic position: Valley floors and drainageways
Parent material: Fan and stream alluvium derived from sandstone and shale
Slope range: 0 to 1 percent
Elevation: 6,600 to 6,800 feet
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 13 to 16 inches
Frost-free period: 100 to 135 days

Typical Pedon

Conchovar clay loam, in an area of mapping unit 47, Conchovar clay loam, 0 to 1 percent slopes; McKinley County, New Mexico; Pescado Quadrangle; 2,300 feet east and 100 feet north of the south west corner of sec. 12, T. 10 N., R. 17 W.; latitude 35 degrees, 6 minutes, 26 seconds and longitude 108 degrees, 35 minutes, 3 seconds.

Ap1—0 to 3 inches; grayish brown (2.5Y 5/2) clay loam, very dark grayish brown (10YR 3/2) moist; strong very fine and fine subangular blocky structure; hard, firm, very sticky and very plastic; many very fine and fine roots; many fine irregular pores; strongly effervescent; slightly alkaline (pH 7.8); abrupt smooth boundary.
Ap2—3 to 9 inches; grayish brown (10YR 5/2) clay, dark brown (10YR 3/3) moist; strong fine and medium subangular blocky structure; very hard, very firm, very sticky and very plastic; many very fine and fine roots; common fine irregular pores; many prominent clay films on faces of peds; strongly effervescent; slightly alkaline (pH 7.6); clear smooth boundary.
Btz—9 to 26 inches; gray (10YR 5/1) clay, dark brown (10YR 3/2) moist; many fine and medium subangular blocky structure; very hard, very firm, very sticky and very plastic; common very fine and fine roots; few fine irregular pores; many prominent clay films on faces of peds; few vertical cracks 5 mm wide extend from 8 to 18 inches; common fine clusters of salt crystals; strongly effervescent; moderate alkaline (pH 8.2); gradual irregular boundary.
BCz—26 to 36 inches; gray (10YR 5/1) clay, dark gray (10YR 4/1) moist; massive; very hard, very firm, very sticky and very plastic; few very fine roots; few very fine irregular pores; common fine clusters of salt crystals; common pressure faces; slightly effervescent; many medium prominent (5YR 4/6) redox concentrations; moderately alkaline (pH 8.4); clear smooth boundary.
Cg—36 to 54 inches; gray (10YR 5/1) clay, dark gray (10YR 4/0) moist; massive; extremely hard, extremely firm, very sticky and very plastic; slightly effervescent; common medium and coarse prominent yellowish brown (10YR 5/6) redox concentrations; moderately alkaline (pH 8.4); abrupt smooth boundary.
2C—54 to 65 inches; mixed reddish brown (5YR 4/4), dark gray (10YR 4/1), and red (2.5YR 4/8) sandy clay; massive; very hard, very firm, very sticky and very plastic; water table occurs at 54 inches; non-effervescent; gray colors are redox depletions and reddish brown and red colors are redox concentrations; slightly alkaline (pH 7.8).

Range in Characteristics

Particle-size control section: 35 to 55 percent clay
Depth to water table: 30 to 60 inches.

Depth to redoximorphic features: 20 to 40 inches
Depth to salt accumulations: 10 to 40 inches
Reaction: slightly to moderately alkaline throughout
Calcium carbonate equivalent: 0 to 1 percent

A horizon:
Hue: 10YR or 2.5Y
Value: 3 to 5 dry, 3 or 4 moist
Chroma: 2 or 3
Salinity: EC of 1 to 4 mmhos/cm
Sodicity: SAR of 0 to 5

Bt horizon:
Value: 3 to 5 dry, 3 or 4 moist
Chroma: 2 or 3
Texture: clay or clay loam
Salinity: EC of 4 to 8 mmhos/cm
Sodicity: SAR of 0 to 5

BCz horizon:
Hue: 10YR
Value: 3 to 6 dry, 3 to 5 moist
Chroma: 2 to 6
Salinity: EC of 4 to 8 mmhos/cm
Sodicity: SAR of 0 to 5
Redoximorphic features: few to common, medium to coarse, distinct to prominent, 5YR redox concentrations

C horizon:
Hue: 10YR or 2.5Y
Value: 3 to 6 dry, 2 to 5 moist
Chroma: 2 to 8
Texture: sandy clay loam, clay loam, sandy clay, or clay
Salinity: EC of 0 to 4 mmhos/cm
Sodicity: SAR of 0 to 5
Redoximorphic features: few, medium to coarse, distinct to prominent, 2.5YR redox concentrations and redox depletions

Corzuni Series

Taxonomic class: Coarse-loamy, mixed, superactive, mesic Typic Haplustalfs
Depth class: Very Deep
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Geomorphic position: Cuestas and valley sides
Parent material: Eolian material and fan alluvium derived from sandstone
Slope range: 2 to 10 percent
Elevation: 7,000 to 7,500 feet
Mean annual air temperature: 45 to 48 degrees F
Mean annual precipitation: 16 to 20 inches
Frost-free period: 90 to 110 days

Typical Pedon

Corzuni loamy fine sand, in an area of mapping unit 414, Zunalei-Corzuni loamy fine sands, 2 to 10 percent slopes; McKinley County, New Mexico; Ramah Quadrangle; about 2,050 feet north and 2,500 feet west of the southeast corner of sec. 11, T. 11 N., R. 16 W.; latitude 35 degrees, 11 minutes, 50 seconds and longitude 108 degrees, 29 minutes, 40 seconds.

Oi—0 to 1 inches; slightly decomposed pine needles and grasses.
A—1 to 8 inches; brown (7.5YR 5/2) loamy fine sand, dark brown (7.5YR 3/2) moist; single grain structure; loose, loose, nonsticky and nonplastic; many very fine and fine roots; neutral (pH 7.0); abrupt smooth boundary.
Bt1—8 to 29 inches; brown (7.5YR 5/4) fine sandy loam, brown (7.5YR 4/4) moist; moderate fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; few very fine irregular pores; few distinct clay films on faces of peds and bridging sand grains; neutral (pH 7.2); clear smooth boundary.
Bt2—29 to 45 inches; strong brown (7.5YR 5/6) fine sandy loam, strong brown (7.5YR 4/6) moist; weak very fine and fine subangular block structure; soft, very friable, nonsticky and nonplastic; few very fine roots; few distinct clay films on faces of peds and bridging sand grains; neutral (pH 7.2); abrupt smooth boundary.
Bk—45 to 70 inches; strong brown (7.5YR 5/6) fine sandy loam, strong brown (7.5YR 4/6) moist; weak very fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine roots; very slightly effervescent; few very fine calcium carbonate masses; slightly alkaline (pH 7.8).

Range in Characteristics

Particle-size control section: 8 to 18 percent clay

A horizon:
Hue: 7.5YR
Value: 5 dry, 3 moist
Chroma: 2
Texture: loamy fine sand or loamy sand
Reaction: Neutral to slightly alkaline

Bt horizon:
Hue: 7.5YR
Value: 5 dry, 3 or 4 moist
Chroma: 4 or 6 dry, 3 to 6 moist
Texture: fine sandy loam

Reaction: Neutral to slightly alkaline

Bk horizon:
Hue: 5YR or 7.5YR
Value: 5 dry, 4 moist
Chroma: 6
Textures: fine sandy loam, sandy clay loam, silty clay loam, or silty clay
Reaction: slightly to moderately alkaline
Calcium carbonate equivalent: 1 to 5 percent

Councelor Series

Taxonomic class: Coarse-loamy, mixed, superactive, calcareous, mesic Ustic Torriorthents
Depth class: Very deep
Drainage class: Somewhat excessive and well drained
Permeability: Moderately rapid to moderately slow
Geomorphic position: Valley sides and valley floors
Parent material: Eolian material and fan and stream alluvium derived from sandstone and shale
Slope range: 1 to 10 percent
Elevation: 6,300 to 6,800 feet
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 9 to 10 inches
Frost-free period: 100 to 135 days

Typical Pedon

Councelor fine sandy loam, in an area of mapping unit 10, Tsosie-Councelor-Blancot fine sandy loams, 1 to 3 percent slopes; McKinley County, New Mexico; Ojo Encino Mesa Quadrangle; 1,400 feet west and 400 feet south of the northeast corner of sec. 23, T. 20 N., R. 5 W.; latitude 35 degrees, 57 minutes, 19 seconds and longitude 107 degrees, 19 minutes, 49 seconds.

A—0 to 2 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 4/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; common fine and very fine roots; few very fine irregular pores; slightly alkaline (pH 7.4); abrupt smooth boundary.
C1—2 to 8 inches; yellowish brown (10YR 5/4) fine sandy loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common fine and very fine roots; few fine and very fine irregular pores; slightly alkaline (pH 7.6); clear smooth boundary.
C2—8 to 20 inches; yellowish brown (10YR 5/4) fine sandy loam, dark brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few fine and very fine roots; few very fine irregular pores; slightly alkaline (pH 7.6); clear smooth boundary.
C3—20 to 35 inches; brown (10YR 5/3) sandy loam, dark brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; few very fine irregular pores; slightly alkaline (pH 7.8); abrupt smooth boundary.
C4—35 to 47 inches; brown (10YR 5/3) sandy loam, grayish brown (10YR 5/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; few very fine irregular pores; slightly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.
C5—47 to 65 inches; pale brown (10YR 6/3) silt loam, grayish brown (10YR 5/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; few very fine irregular pores; slightly effervescent; moderately alkaline (pH 8.2).

Range in Characteristics

Particle-size control section: 8 to 18 percent clay
Reaction: Slightly alkaline or moderately alkaline
Calcium carbonate equivalent: 1 to 10 percent

A horizon:
Hue: 10YR
Value: 3 or 4 moist
Chroma: 3 or 4 dry and moist

C horizon:
Hue: 10YR or 2.5Y
Value: 4 to 6 dry; 3 to 5 moist
Chroma: 3 or 4 dry; 2 to 6 moist
Texture: fine sandy loam, sandy loam, loamy fine sand, loamy sand, silty clay loam, or silt loam

Doak Series

Taxonomic class: Fine-loamy, mixed, active, mesic Typic Haplargids
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Geomorphic position: Mesas, cuestas, and valley sides
Parent material: Eolian material and fan and slope alluvium derived from sandstone and shale
Slope range: 1 to 5 percent
Elevation: 5,800 to 6,800 feet
Mean annual air temperature: 50 to 55 degrees F
Mean annual precipitation: 7 to 9 inches
Frost-free period: 130 to 150 days

Typical Pedon

Doak fine sandy loam, in an area of mapping unit 120, Doak-Shiprock complex, 1 to 8 percent slopes; McKinley County, New Mexico; Seven Lakes NW

Quadrangle; 800 feet north and 400 feet west of the southeast corner sec. 24, T. 20 N., R. 11W; latitude 35 degrees, 56 minutes, 40 seconds and longitude 107 degrees, 56 minutes, 56 seconds.

A—0 to 2 inches; yellowish brown (10YR 5/4) fine sandy loam, dark yellowish brown (10YR 4/4) moist; moderate fine granular structure; soft, friable, nonsticky and nonplastic; common very fine and fine roots; common fine irregular pores; slightly effervescent; slightly alkaline; (pH 7.6); abrupt smooth boundary.

Bt—2 to 8 inches; brown (7.5YR 5/4) sandy clay loam, dark brown (7.5YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine tubular pores; common distinct clay films on faces of peds and lining pores; slightly alkaline (pH 7.6); abrupt smooth boundary.

Btk—8 to 12 inches; brown (7.5YR 5/4) sandy clay loam, brown (7.5YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine tubular pores; common distinct clay films on faces of peds and lining pores; slightly effervescent; few fine irregular seams and filaments of calcium carbonate; slightly alkaline (pH 7.6); clear smooth boundary.

Bk1—12 to 40 inches; brownish yellow (10YR 6/6) sandy clay loam, yellowish brown (10YR 5/6) moist; massive; slightly hard, friable, slightly sticky and nonplastic; common very fine roots; few very fine and fine irregular pores; violently effervescent; few fine irregular seams and filaments of calcium carbonate; moderately alkaline (pH 8.2); gradual smooth boundary.

Bk2—40 to 65 inches; brownish yellow (10YR 6/6) sandy clay loam, yellowish brown (10YR 5/6) moist; massive; slightly hard, friable, slightly sticky and nonplastic; few very fine roots; few very fine and fine irregular pores; violently effervescent; few fine irregular seams and filaments of calcium carbonate; moderately alkaline (pH 8.4).

Range in Characteristics

Particle-size control section: 18 to 35 percent clay
Reaction: neutral to slightly alkaline in the surface and slightly to moderately alkaline in the subsoil

A horizon:
Hue: 10YR or 7.5YR
Value: 4 to 6 dry and 3 to 5 moist
Chroma: 2 to 4 dry and moist
Textures: fine sandy loam, loam, or clay loam

Bt horizon:
Hue: 10YR to 5YR
Value: 5 to 6 dry and 4 to 6 moist
Chroma: 3 to 6 dry and moist
Textures: loam, sandy loam, clay loam, or silty clay loam

Btk or Bk horizons:
Hue: 10YR to 5YR
Value: 5 to 8 dry and 4 to 6 moist
Chroma: 3 to 6 dry and moist
Textures: loam, sandy loam, clay loam, or silty clay loam
Calcium carbonate equivalent: 1 to 10 percent

Some pedons have C horizons that are stratified below 40 inches.

Doakum Series

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ustic Haplargids
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Geomorphic position: Mesas, cuestas, valley sides, hills, and ridges
Parent material: Eolian material and fan and slope alluvium derived from sandstone and shale
Slope range: 1 to 5 percent
Elevation: 6,400 to 6,900 feet
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 9 to 10 inches
Frost-free period: 100 to 135 days

Typical Pedon

Doakum fine sandy loam, in an area of mapping unit 11, Doakum-Betonnie complex, 1 to 8 percent slopes; McKinley County, New Mexico; Ojo Encino Mesa Quadrangle; 1,200 feet south and 1,400 feet east of the northeast corner of sec. 22, T. 20 N., R. 5 W.; latitude 35 degrees, 57 minutes, 10 seconds and longitude 107 degrees, 21 minutes, 24 seconds (fig. 17).

A—0 to 2 inches; light brown (7.5YR 6/4) fine sandy loam, brown (7.5YR 4/4) moist; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; many fine and very fine roots; many very fine irregular pores; neutral (pH 7.2); abrupt smooth boundary.

Bt1—2 to 8 inches; brown (7.5YR 5/4) sandy clay loam, strong brown (7.5YR 4/6) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; few medium

and many fine and very fine roots; common fine tubular pores; common faint clay films bridging sand grains; neutral (pH 7.2); clear smooth boundary.

Bt2—8 to 13 inches; brown (7.5YR 5/4) sandy clay loam, dark brown (7.5YR 4/4) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; slightly hard, friable, slightly sticky and nonplastic; few medium and common fine and very fine roots; common fine tubular pores; common distinct clay films on faces of peds and lining pores; slightly alkaline (pH 7.4); clear smooth boundary.

Bt3—13 to 21 inches; strong brown (7.5YR 5/6) sandy clay loam, brown (7.5YR 4/4) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; slightly hard, friable, slightly sticky and nonplastic; few coarse and medium and common fine and very fine roots; common fine tubular pores; few distinct clay films on faces of peds and lining pores; slightly alkaline (pH 7.4); abrupt smooth boundary.

Bk1—21 to 42 inches; light yellowish brown (10YR 6/4) sandy clay loam, dark yellowish brown (10YR 4/6) moist; massive; slightly hard, friable, slightly sticky and nonplastic; few fine and very fine roots; common fine tubular pores; strongly effervescent; few fine irregular filaments of calcium carbonate; slightly alkaline (pH 7.6); clear smooth boundary.

Bk2—42 to 65 inches; light yellowish brown (10YR 6/4) sandy loam, dark yellowish brown (10YR 4/6) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; common very fine irregular pores; strongly effervescent; few fine irregular filaments of calcium carbonate; slightly alkaline (pH 7.6).

Range in Characteristics

Particle-size control section: 18 to 35 percent clay

A horizon:
Hue: 7.5YR or 10YR
Value: 4 or 5 moist
Chroma: 3 or 4 moist
Reaction: neutral or slightly alkaline

Bt horizon:
Hue: 7.5YR or 10YR
Value: 3 to 5 moist
Chroma: 4 to 6 dry; 3 to 6 moist
Texture: sandy clay loam or clay loam
Reaction: neutral to moderately alkaline

Bk horizon:
Hue: 7.5YR or 10YR
Value: 4 to 7 dry; 4 to 6 moist
Chroma: 4 to 6 dry and moist
Texture: sandy clay loam or sandy loam
Reaction: slightly to moderately alkaline
Calcium carbonate equivalent: 1 to 5 percent

Eagleye Series

Taxonomic class: Clayey, mixed, active, nonacid, mesic, shallow Ustic Torriorthents
Depth class: Very shallow and shallow
Drainage class: Well drained
Permeability: Slow
Geomorphic position: Mesas, cuestas, hills, and ridges
Parent material: Slope alluvium over residuum derived from shale
Slope range: 5 to 60 percent
Elevation: 6,500 to 7,000 feet
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 100 to 135 days

Typical Pedon

Eagleye gravelly clay loam, in an area of mapping unit 258, Eagleye-Atchee-Rock outcrop complex, 2 to 35 percent slopes; McKinley County, New Mexico; Hunter's Point Quadrangle; about 1,600 feet west and 800 feet south of the northeast corner of sec. 23, T. 16 N., R. 21 W.; latitude 35 degrees, 36 minutes, 49 seconds and longitude 109 degrees, 02 minutes, 46 seconds.

A—0 to 2 inches; light olive brown (2.5Y 5/3) gravelly clay loam, olive brown (2.5Y 4/3) moist; strong very fine granular structure; slightly hard, firm, sticky and plastic; common very fine roots; 16 percent gravel; slightly alkaline (pH 7.8); abrupt smooth boundary.

Cy—2 to 10 inches; light olive brown (2.5Y 5/3) clay, olive brown (2.5Y 4/3) moist; massive; very hard, very firm, moderately sticky and moderately plastic; few very fine roots; few very fine irregular pores; 5 percent gravel and 10 to 20 percent soft shale fragments; few very fine masses gypsum; slightly alkaline (pH 7.8); clear smooth boundary.

Cr—10 inches; gray fractured shale.

Range in Characteristics

Particle-size control section: 35 to 50 percent clay
Depth to paralithic contact: 6 to 20 inches to shale
Percent gypsum: 0 to 2 percent in the surface and 1 to 5 percent in the lower horizons
Reaction: Slightly alkaline

A horizon:
Hue: 2.5Y
Value: 4 or 5 dry and moist
Chroma: 3 to 6 dry and moist
Rock fragments: 0 to 30 percent channers. All fragments are sandstone.
Salinity: EC of 0 to 4 mmhos/cm
Sodicity: SAR 0 to 2

By horizon:
Hue: 2.5Y
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 3 or 4 dry and moist
Texture: silty clay, clay, or clay loam
Rock fragments: 0 to 10 percent sandstone gravel
Salinity: EC of 0 to 4 mmhos/cm
Sodicity: SAR 0 to 4
Other features: 10 to 20 percent soft shale fragments. Fragments increase with depth.

Eldado Series

Taxonomic class: Fine-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Ustic Calciargids
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Geomorphic position: Valley floors
Parent material: Eolian material and stream alluvium derived from basalt and sandstone
Slope range: 1 to 5 percent
Elevation: 6,300 to 7,300 feet
Mean annual air temperature: 49 to 54 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 120 to 140 days

Typical Pedon

Eldado gravelly fine sandy loam, in an area of mapping unit 275, Eldado gravelly fine sandy loam, 1 to 5 percent slopes; McKinley County, New Mexico; Mesa Cortada Quadrangle; 4,200 feet north and 1,800 feet east of the southwest corner of sec. 14, T. 15 N., R. 6 W.; latitude 35 degrees, 32 minutes, 00 seconds and longitude 107 degrees, 26 minutes, 38 seconds (fig. 18).

A—0 to 2 inches; brown (10YR 5/3) gravelly fine sandy loam, brown (10YR 4/3) moist; moderate thin platy structure parting to weak fine granular structure: soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common fine irregular pores; 13 percent gravel, 1 percent cobbles, and 1 percent stones; slightly effervescent; neutral (pH 7.2); clear smooth boundary.

Btk1—2 to 9 inches; brown (7.5YR 5/4) sandy clay loam, brown (7.5YR 4/3) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; common fine irregular pores; many distinct clay films bridging sand grains and on ped faces; 5 percent gravel, 1 percent cobbles, and 1 percent stones; slightly effervescent; common very fine and fine masses of calcium carbonate and coating rock fragments; 6 percent calcium carbonate equivalent; slightly alkaline (pH 7.8); clear wavy boundary.

Btk2—9 to 13 inches; pale brown (10YR 6/3) sandy clay loam, brown (10YR 5/3) moist; moderate fine and medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common very fine and fine roots; common fine irregular pores; common distinct clay films bridging sand grains; 10 percent gravel and 2 percent cobbles; violently effervescent; 35 percent calcium carbonate equivalent; moderately alkaline (pH 8.0); clear wavy boundary.

Bk1—13 to 25 inches; light gray (10YR 7.2) sandy clay loam, pale brown (10YR 6/3) moist; weak medium and coarse subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common very fine and fine roots; common fine irregular pores; 10 percent gravel and 1 percent cobbles; violently effervescent; 45 percent calcium carbonate equivalent; strongly alkaline (pH 8.6); gradual wavy boundary.

2Bk2—25 to 43 inches; light brown (7.5YR 6/3) extremely gravelly loamy coarse sand, brown (7.5YR 5/3) moist; single grained; loose, loose, nonsticky and nonplastic; common very fine and fine roots; 55 percent gravel, 15 percent cobbles, and 5 percent stones; strongly effervescent; many very fine and fine masses of calcium carbonate and coating rock fragments; 5 percent calcium carbonate equivalent; strongly alkaline (pH 8.8); gradual wavy boundary.

2C—43 to 72 inches; light brown (7.5YR 6/3) extremely gravelly coarse sand, brown (7.5YR 5/3) moist; single grained; loose, loose, nonsticky and nonplastic; few very fine and fine roots; 60 percent gravel, 5 percent cobbles, and 1 percent stones; slightly alkaline (pH 7.6).

Range in Characteristics

Particle-size control section: 20 to 35 percent clay and less than 35 percent rock fragments in the upper

part; and less than 10 percent clay and greater than 35 percent rock fragments in the lower part.
Depth to calcic horizon: 5 to 15 inches with 15 to 55 percent calcium carbonate equivalent
Depth to horizons with greater than 35 percent rock fragments: 10 to 30 inches
Reaction: neutral to slightly alkaline in the surface and slightly to strongly alkaline

A horizon:
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 3 or 4 dry
Texture: fine sandy loam or loam
Rock fragments: 10 to 40 percent total; 10 to 40 percent gravel; 0 to 1 percent cobbles; 0 to 1 percent stones. All fragments are basalt and sandstone.
Calcium carbonate equivalent: 1 to 5 percent

Bt or Btk horizons:
Hue: 7.5YR or 10YR
Value: 5 or 6 dry, 3 to 5 moist
Chroma: 3 or 4 dry or moist
Texture: sandy clay loam, loam, or clay loam
Rock fragments: 2 to 25 percent total; 2 to 20 percent gravel; 0 to 5 percent cobbles; 0 to 1 percent stones. All fragments are basalt and sandstone.
Calcium carbonate equivalent: 5 to 35 percent

Bk horizon (when present):
Hue: 7.5YR or 10YR
Chroma: 2 to 4 dry or moist
Rock fragments: 5 to 20 percent total range; 5 to 20 percent gravel; 0 to 1 percent cobbles. All fragments are basalt and sandstone.
Calcium carbonate equivalent: 15 to 50 percent

2Bk horizons:
Hue: 7.5YR or 10YR
Value: 5 to 8 dry, 3 through 8 moist
Chroma: 1 to 4 dry, 3 or 4 moist
Texture: sandy clay loam, coarse sandy loam, or loamy coarse sand
Rock fragments: 35 to 90 percent total range; 35 to 70 percent gravel; 10 to 30 percent cobbles; 0 to 5 percent stones. All fragments are basalt and sandstone.
Calcium carbonate equivalent: 5 to 55 percent

C horizon (when present):
Hue: 7.5YR, 10YR, or 2.5YR
Chroma: 2 or 3 dry or moist
Texture: sand or coarse sand
Rock fragments: 5 to 70 percent total range; 5 to 60 percent gravel; 0 to 5 percent cobbles; 0 to 1 percent stones. All fragments are basalt and sandstone.
Calcium carbonate equivalent: 0 to 5 percent

Elias Series

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ustic Natrargids
Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
Geomorphic position: Valley sides
Parent material: Fan alluvium derived from sandstone and shale
Slope range: 1 to 6 percent
Elevation: 6,300 to 6,800
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 9 to 10 inches
Frost-free period: 100 to 135 days

Typical Pedon

Elias fine sandy loam, in an area of mapping unit 12, Calladito-Elias association, 1 to 6 percent slopes; McKinley County, New Mexico; Pueblo Alto Trading Post Quadrangle; 1,300 feet west and 300 feet south of the northeast corner of sec. 19, T. 19 N., R. 6 W.; latitude 35 degrees, 57 minutes, 24 seconds and longitude 107 degrees, 30 minutes, 43 seconds.

E—0 to 1 inches; light yellowish brown (10YR 6/4) fine sandy loam, yellowish brown (10YR 5/4) moist; weak fine granular structure; soft, very friable, non-sticky and nonplastic; few very fine and fine roots; common very fine pores; 5 percent siderite gravel; strongly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.
Btn1—1 to 3 inches; pale brown (10YR 6/3) sandy clay loam, brown (10YR 5/3) moist; moderate fine prismatic; hard, friable, slightly sticky and nonplastic; few very fine and fine roots; common fine pores; common distinct clay films on faces of peds and lining pores; strongly effervescent; strongly alkaline (pH 9.0); abrupt smooth boundary.
Btn2—3 to 10 inches; yellowish brown (10YR 5/4) sandy clay loam, dark yellowish brown (10YR 4/4) moist; weak fine prismatic structure parting moderate medium subangular blocky; hard, friable, slightly sticky and nonplastic; few very fine and fine roots; common fine pores; common distinct clay films on faces of peds and lining pores; 5 percent siderite gravel; strongly effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

Bkn1—10 to 18 inches; light yellowish brown (10YR 6/4) loamy fine sand, light yellowish brown (10YR 6/4) moist; massive; hard, very friable, non-sticky and nonplastic; few very fine and fine roots; few very fine pores; slightly effervescent; few fine irregular masses of calcium carbonate; strongly alkaline (pH 8.6); clear smooth boundary.
Bkn2—18 to 33 inches; light olive gray (5Y 6/2) sandy clay loam, olive gray (5Y 5/2) moist; massive; hard, firm, slightly sticky and slightly plastic; few very fine and fine roots; common fine pores; slightly effervescent; few fine irregular masses of calcium carbonate; moderately alkaline (pH 8.0); clear smooth boundary.
Bkn3—33 to 65 inches; pale olive (5Y 6/4) clay loam, olive (5Y 5/4) moist; massive; hard, firm, sticky and plastic; few fine pores; slightly effervescent; strongly alkaline (pH 8.8).

Range in Characeristics

Particle-size control section: 18 to 35 percent clay
Depth to secondary calcium carbonate: 5 to 15 inches.
Calcium carbonate equivalent: 5 to 15 percent

E horizon:
Value: 6 dry; 4 or 5 moist
Chroma: 2 to 4 dry; 3 or 4 moist
Texture: sandy clay loam or loam
Rock fragments: 0 to 10 percent siderite gravel
Reaction: moderately to strongly alkaline
Salinity: EC of 0 to 2 mmhos/cm
Sodicity: SAR of 5 to 10

Btn horizon:
Hue: 10YR to 5Y
Value: 4 to 6 dry; 3 to 5 moist
Chroma: 2 to 4
Texture: sandy clay loam, loam, or clay loam
Rock fragments: 0 to 10 percent siderite gravel
Reaction: strongly to very strongly alkaline
Salinity: EC of 0 to 4 mmhos
Sodicity: SAR of 13 to 30

Bkn horizon:
Hue: 10YR to 5Y
Value: 4 to 6;
Chroma: 2 to 4
Texture: loamy sand, very fine sandy loam, loam, loamy fine sand, sandy clay loam, or clay loam
Rock fragments: 0 to 10 percent siderite gravel
Reaction: moderately to very strongly alkaline
Salinity: EC of 0 to 4 mmhos
Sodicity: SAR of 13 to 30

Some pedons have a C horizon below the Bkn horizon.

Escawetter Series

Taxonomic class: Sandy, mixed, mesic Oxyaquic Torrifluvents
Depth class: Very Deep
Drainage class: Moderately well drained
Permeability: Rapid to moderate
Geomorphic position: Flood plains on valley floors
Parent material: Stream alluvium derived from sandstone and shale
Slope range: 0 to 1 percent
Elevation: 5,500 to 6,900 feet
Mean annual air temperature: 46 to 55 degrees F
Mean annual precipitation: 7 to 13 inches
Frost-free period: 100 to 150 days

Typical Pedon

Escawetter fine sand in an area of mapping unit 160, Escawetter-Riverwash-Razito, 0 to 5 percent slopes; Navajo Reservation; San Juan County, New Mexico; The Pillar 3 NE Quadrangle; Flood plains along the Chaco River; latitude 36 degrees, 10 minutes, 01 seconds and longitude 108 degrees, 16 minutes, 45 seconds.

C1—0 to 1 inches; pale brown (10YR 6/3) fine sand, brown (10YR 5/3) moist; weak thin platy structure and single grain; loose, nonsticky and nonplastic; moderately alkaline (pH 8.0); abrupt smooth boundary.
C2—1 to 7 inches; pale brown (10YR 6/3) fine sand, brown (10YR 5/3) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; moderately alkaline (pH 8.0); abrupt wavy boundary.
C3—7 to 16 inches; pale brown and light yellowish brown (10YR 6/3) and 2.5Y 6/3) laminated very fine sand and silt, brown and light olive brown (10YR 5/3) and (2.5Y 5/3) moist; massive; loose and soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; few very fine irregular pores; slightly effervescent; moderately alkaline (pH 8.0); clear wavy boundary.
C4—16 to 22 inches; light yellowish brown (2.5Y 6/3) laminated very fine sands and silt, light olive brown (2.5Y 5/3) moist; massive; soft, very friable, slightly sticky and nonplastic; few very fine and fine roots; few very fine irregular pores; moderately alkaline (pH 8.0); abrupt wavy boundary.
C5—22 to 52 inches; light yellowish brown (2.5Y 6/3) fine sand, light olive brown (2.5Y 5/3) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; moderately alkaline (pH 8.0); abrupt wavy boundary.

C6—52 to 70 inches; light yellowish brown (2.5Y 6/3) coarse sand, light olive brown (2.5Y 5/3) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; water saturated conditions at 52 inches; moderately alkaline (pH 8.0).

Range in Characteristics

Particle-size control section: 2 to 10 percent clay
Rock fragment content: 0 to 5 percent sandstone gravel
Depth to seasonal water table: 40 to 60 inches
Calcium carbonate equivalent: 0 to 5 percent; some pedons are calcareous to the surface.
Redoximorphic features: none to many, fine to medium, and faint to distinct, dark yellowish brown, redox concentrations. Redox depletions are present below 40 inches and generally in finer textured horizons or strata.
Salinity: EC of 0 to 4 mmhos/cm
Sodicity: SAR of 0 to 5
Reaction: slightly to moderately alkaline

C horizons:
Hue: 10YR or 2.5Y.
Value: 5 to 7 dry, 4 to 6 moist.
Chroma: 2 to 4.
Texture: stratified coarse sand to silty clay; most horizons are dominantly fine sand, loamy fine sand, and sand, with laminations and thin strata of very fine sand, loamy very fine sand, silt loam and silty clay; individual horizons are laterally discontinuous and cross laminated.

Eslendo Series

Taxonomic class: Loamy, mixed, superactive, calcareous, mesic, shallow Ustic Torriorthents
Depth class: Very shallow and shallow
Drainage class: Well drained
Permeability: Moderately slow
Geomorphic position: Hills and ridges
Parent material: Slope alluvium over residuum derived from sandstone and shale
Slope range: 2 to 25 percent
Elevation: 6,300 to 6,800 feet
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 9 to 10 inches
Frost-free period: 100 to 135 days

Typical Pedon

Eslendo loam, in an area of mapping unit 14, Councelor-Eslendo-Calladito complex, 2 to 25 percent slopes; McKinley County, New Mexico; Ojo Encino Mesa Quadrangle; 500 feet west and 200 feet north of the southeast corner of sec. 2, T. 20 N., R. 5 W.; latitude 35 degrees, 59 minutes, 09 seconds and longitude 107 degrees, 19 minutes, 40 seconds.

A—0 to 2 inches; light olive brown (2.5Y 5/4) loam, dark yellowish brown (10YR 3/4) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; few fine and very fine roots; common very fine irregular pores; slightly effervescent; neutral (pH 7.2); abrupt smooth boundary.
C1—2 to 6 inches; light olive brown (2.5Y 5/6) silty clay loam, light olive brown (2.5Y 5/4) moist; massive; slightly hard, friable, slightly sticky and nonplastic; few medium, fine and very fine roots; few very fine irregular pores; 2 percent gravel-sized angular shale fragments; strongly effervescent; slightly alkaline (pH 7.6); clear smooth boundary.
C2—6 to 11 inches; light brownish gray (2.5Y 6/2) silty clay loam, olive brown (2.5Y 4/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few medium, fine and very fine roots; few very fine irregular pores; 10 percent gravel-sized angular shale fragments; strongly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.
2Cr—11 inches; weathered shale.

Range in Characteristics

Particle-size control section: 18 to 35 percent clay
Depth to a paralithic contact: 4 to 20 inches to shale
Rock fragments: 0 to 15 percent gravel. All fragments are sandstone.
Calcium carbonate equivalent: 1 to 5 percent in the surface and 5 to 10 in the subsoil
Reaction: neutral in the surface and slightly to moderately alkaline in the substratum

A horizon:
Hue: 10YR or 2.5Y
Value: 3 to 5 moist
Chroma: 4 dry and moist

C horizon:
Hue: 2.5Y
Value: 5 or 6 dry; 4 or 5 moist
Chroma: 2 to 6 dry
Texture: silty clay loam or clay loam

Evpark Series

Taxonomic class: Fine-loamy, mixed, superactive, mesic Aridic Haplustalfs
Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately slow

Geomorphic position: Mesas, cuestas, and ridges
Parent material: Eolian material and slope alluvium derived from sandstone and shale
Slope range: 2 to 8 percent
Elevation: 6,800 to 8,000 feet
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 13 to 16 inches
Frost-free period: 100 to 135 days

Typical Pedon

Evpark fine sandy loam, in an area of mapping unit 555, Parkelei-Evpark fine sandy loams, 2 to 8 percent slopes; Cibola County, New Mexico; Plumasano Basin Quadrangle; 1,600 feet south and 1,200 feet west of the northeast corner of sec. 12, T. 8 N., R. 19 W.; latitude 34 degrees, 56 minutes, 22 seconds and longitude 108 degrees, 47 minutes, 13 seconds.

A—0 to 3 inches; brown (7.5YR 5/4) fine sandy loam, dark brown (7.5YR 3/4) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and common fine roots; few fine tubular pores; neutral (pH 7.2); abrupt smooth boundary.

Bt1—3 to 16 inches; brown (7.5YR 4/4) clay loam, dark brown (7.5YR 3/4) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; few fine tubular pores; common distinct clay films bridging sand grains; neutral (pH 7.2); clear smooth boundary.

Bt2—16 to 20 inches; brown (7.5YR 4/4) clay loam, strong brown (7.5YR 4/6) moist; strong medium prismatic structure; hard, firm, sticky and slightly plastic; common very fine and few fine roots; few fine tubular pores; many prominent clay films on faces of peds; neutral (pH 7.2); clear smooth boundary.

Bt3—20 to 29 inches; strong brown (7.5YR 4/6) sandy clay loam, strong brown (7.5YR 4/6) moist; strong medium prismatic structure; hard, firm, slightly sticky and slightly plastic; few very fine and fine roots; few very fine tubular pores; many prominent clay films on faces of peds and bridging sand grains; slightly alkaline (pH 7.4); abrupt smooth boundary.

Btk—29 to 35 inches; strong brown (7.5YR 4/6) sandy clay loam, brown (7.5YR 5/4) moist; weak medium prismatic structure; hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; few very fine tubular pores; common prominent clay films on faces of peds and bridging sand grains; strongly effervescent; common fine seams and filaments of calcium carbonate; slightly alkaline (pH 7.6); abrupt smooth boundary.

2R—35 inches; sandstone

Range in Characteristics

Particle-size control section: 20 to 35 percent clay and greater than 35 percent sand
Depth to lithic contact: 20 to 40 inches to sandstone
Reaction: neutral to slightly alkaline in the surface and neutral to moderately alkaline in the subsoil

A horizon:
Hue: 7.5YR or 10YR
Value: 3 or 4 moist
Chroma: 3 or 4 moist
Texture: fine sandy loam or loam
Rock fragments: 0 to 10 percent sandstone gravel

Bt horizons:
Hue: 5YR or 7.5YR
Value: 4 or 5 dry, 3 to 5 moist
Texture: sandy clay loam or clay loam
Rock fragments: 0 to 5 percent sandstone gravel

Btk horizon (when present):
Value: 4 or 5
Chroma: 4 or 6
Calcium carbonate equivalent: 1 to 10 percent

Some pedons have a Bk horizon above the lithic contact.

Fajada Series

Taxonomic class: Fine-loamy, mixed, superactive, mesic Typic Natrargids
Depth class: Moderately deep
Drainage class: Well drained
Permeability: Slow
Geomorphic position: Valley floors and cuestas
Parent material: Alluvial material derived from sandstone and shale
Slope range: 1 to 5 percent
Elevation: 5,800 to 6,800 feet
Mean annual air temperature: 50 to 55 degrees F
Mean annual precipitation: 7 to 9 inches
Frost-free period: 130 to 150 days

Typical Pedon

Fajada gravelly sandy clay loam, in an area of mapping unit 116, Fajada-Huerfano-Benally complex, 1 to 5 percent slopes; McKinley County, New Mexico; Seven Lakes NW Quadrangle; 200 feet west and 2,100 feet north of the southeast corner of sec. 25, T. 20 N., R. 11 W.; latitude 35 degrees, 56 minutes, 40 seconds and longitude 107 degrees, 56 minutes, 55 seconds.

E—0 to 2 inches; light yellowish brown (10YR 6/4)

gravelly sandy clay loam, dark yellowish brown (l0YR 4/6) moist; moderate fine granular structure; soft, friable, slightly sticky and nonplastic; few fine and very fine roots; common fine vesicular pores; 30 percent gravel; slightly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.

Btkn1—2 to 6 inches; yellowish brown (10YR 5/4) clay loam yellowish brown (l0YR 5/6) moist; moderate fine prismatic structure; hard, firm, sticky and slightly plastic; few medium, fine and very fine roots; many fine irregular pores; common prominent clay films on faces of peds and lining pores; strongly effervescent; very few very fine and fine masses of calcium carbonate; very strongly alkaline (pH 9.4); abrupt smooth boundary.

Btkn2—6 to 12 inches; yellowish brown (10YR 5/6) sandy clay loam, dark yellowish brown (10YR 4/6) moist; weak medium prismatic structure parting to weak medium subangular blocky; hard, friable, slightly sticky and nonplastic; few medium, fine and very fine roots; few fine tubular pores; common distinct clay films bridging sand grains; strongly effervescent; few fine masses and seams of calcium carbonate; very strongly alkaline (pH 9.6); clear smooth boundary.

Btknz—12 to 16 inches; light yellowish brown (10YR 6/4) sandy clay loam, dark yellowish brown (10YR 4/6) moist; weak medium subangular blocky structure; hard, friable, slightly sticky and nonplastic; few fine and very fine roots; few fine tubular pores; few distinct clay films bridging sand grains; few clusters of very fine and fine sodium sulfate crystals; EC of 3.7 mmhos/cm; strongly effervescent; few fine masses, seams and filaments of calcium carbonate; very strongly alkaline (pH 9.4); clear smooth boundary.

Bkyz—16 to 28 inches; light yellowish brown (l0YR 6/4) clay loam (10YR 5/6) yellowish brown moist, massive, hard, firm, sticky and plastic; few very fine irregular pores; many clusters of very fine and fine sodium sulfate and gypsum crystals; EC of 10.6 mmhos/cm; 2 percent gypsum; strongly effervescent; very few very fine and fine masses of calcium carbonate; moderately alkaline (pH 8.2); clear smooth boundary.

2Cr—28 inches; soft sandstone interbedded with soft shale.

Range in Characteristics

Particle-size control section: 20 to 35 percent clay and greater than 35 percent sand
Depth to paralithic contact: 20 to 40 inches to interbedded soft sandstone and shale
Depth to sodium sulfate and/or gypsum accumulations: 10 to 25 inches. Sodium sulfate is present in all pedons. Gypsum may be absent, or insignificant, in some pedons.

E horizon:
Value: 3 to 6 dry, 3 to 5 moist
Chroma: 3 to 6
Rock fragments: 5 to 35 percent siderite and sandstone gravel
Reaction: moderately or strongly alkaline

Btkn horizon:
Hue: 10YR or 2.5Y
Value: 3 to 6 dry, 3 to 5 moist
Chroma: 3 to 6
Texture: clay loam or sandy clay loam
Rock fragments: 0 to 5 percent siderite and sandstone gravel
Calcium carbonate equivalent: 1 to 15 percent
Sodicity: SAR of 13 to 35
Salinity: EC of 1 to 4 mmhos/cm
Reaction: strongly or very strongly alkaline

Bkyz horizon:
Hue: 10YR or 2.5Y
Value: 4 to 6 dry and moist
Chroma: 4 to 6
Texture: clay loam or sandy clay loam
Rock fragments: 0 to 5 percent siderite and sandstone gravel
Calcium carbonate equivalent: 1 to 15 percent
Sodicity: SAR of 5 to 13
Salinity: EC of 4 to 16 mmhos/cm
Gypsum: 5 to 10 percent
Reaction: moderately to strongly alkaline

Farb Series

Taxonomic class: Loamy, mixed, superactive, calcareous, mesic Lithic Torriorthents
Depth class: Very shallow and shallow
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Geomorphic position: Cuestas mesas, hills, and ridges
Parent material: Eolian material over residuum derived from sandstone
Slope range: 2 to 15 percent
Elevation: 5,800 to 6,800 feet
Mean annual air temperature: 50 to 55 degrees F
Mean annual precipitation: 7 to 9 inches
Frost-free period: 130 to 150 days

Typical Pedon

Farb sandy loam, in an area of mapping unit 118, Farb-

Chipeta-Rock outcrop complex, 2 to 30 percent slopes; McKinley County, New Mexico; Seven Lakes NW Quadrangle; 1,100 feet west and 1,600 feet north of the southeast corner of sec. 6, T. 19 N., R. 10 W.; latitude 35 degrees, 54 minutes, 12 seconds and longitude 107 degrees, 56 minutes, 9 seconds.

A—0 to 2 inches; light yellowish brown (10YR 6/4) sandy loam, yellowish brown (10YR 5/4) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; few very fine roots; few very fine irregular pores; slightly effervescent; slightly alkaline (pH 7.4); abrupt smooth boundary.
C—2 to 9 inches; light yellowish brown (10YR 6/4) sandy loam, yellowish brown (10YR 5/4) moist; massive; soft, very friable, nonsticky and nonplastic; few fine and common very fine roots; few very fine irregular pores; 5 percent gravel; slightly effervescent; slightly alkaline (pH 7.8); abrupt smooth boundary.
2R—9 inches; sandstone.

Range in Characteristics

Particle-size control section: 5 to 18 percent clay
Depth to a lithic contact: 5 to 20 inches to sandstone
Calcium carbonate equivalent: 1 to 10 percent
Reaction: slightly alkaline

A horizon:
Hue: 10YR or 2.5Y
Value: 4 or 5 moist
Chroma: 3 or 4 moist
Rock fragments: 0 to 60 percent sandstone gravel

C horizon:
Hue: 10YR or 2.5Y
Value: 4 or 5 moist
Chroma: 3 or 4 moist
Rock fragments: 0 to 15 percent sandstone gravel

Farview Series

Taxonomic class: Loamy, mixed, active, calcareous, mesic Lithic Ustic Torriorthents
Depth class: Very shallow and shallow
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Geomorphic position: Cuestas
Parent material: Eolian material derived from sandstone
Slope range: 2 to 15 percent
Elevation: 6,500 to 6,900 feet
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 100 to 135 days

Typical Pedon

Farview loamy fine sand, in an area of mapping unit 255, Farview-Rock outcrop complex, 2 to 15 percent slopes; McKinley County, New Mexico; Navajo Reservation; Oak Spring Quadrangle; T. 17N, R. 15 W.; latitude 35 degrees, 43 minutes, 53 seconds and longitude 108 degrees, 28 minutes, 51 seconds.

A—0 to 1 inches; yellowish brown (10YR 5/4) loamy fine sand, dark yellowish brown (10YR 4/4) moist; weak very fine granular structure; loose, very friable, nonsticky and nonplastic; common very fine roots; 5 percent gravel; very slightly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.
C—1 to 10 inches; strong brown (7.5YR 5/6) fine sandy loam, strong brown (7.5YR 4/6) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine, fine, and few medium roots; 1 percent gravel; slightly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.
Ck—10 to 17 inches; strong brown (7.5YR 5/6) fine sandy loam, strong brown (7.5YR 4/6) moist; massive; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; 1 percent gravel; slightly effervescent; few very fine masses of calcium carbonate; moderately alkaline (pH 8.0); abrupt smooth boundary.
2R—17 inches; sandstone bedrock

Range in Characteristics

Particle-size control section: 10 to 18 percent clay
Rock fragments: 0 to 10 percent gravel and 0 to 5 percent cobbles. All fragments are sandstone.
Depth to lithic contact: 5 to 20 inches to sandstone
Calcium carbonate equivalent: 1 to 10 percent
Reaction: slightly alkaline in the surface and moderately alkaline in the substratum

A horizon:
Hue: 7.5YR or 10YR
Value: 5 or 6 dry, 4 or 5 moist
Chroma: 4 dry or moist

C horizon:
Hue: 7.5YR or 10YR
Value: 5 or 6 dry, 4 or 5 moist
Chroma: 4 to 6, dry and moist

Fikel Series

Taxonomic class: Fine, mixed, superactive, mesic Aridic Haplustalfs
Depth class: Very deep

Drainage class: Well drained
Permeability: Slow
Geomorphic position: Valley sides
Parent material: Fan alluvium derived from sandstone and shale
Slope range: 1 to 6 percent
Elevation: 7,000 to 7,600 feet
Mean annual air temperature: 49 to 53 degrees F
Mean annual precipitation: 13 to 16 inches
Frost-free period: 115 to 135 days

Typical Pedon

Fikel clay loam, in an area of mapping unit 308, Fikel-Venzuni complex, 1 to 6 percent slopes; McKinley County, New Mexico; Pine Canyon Quadrangle; 600 feet east, 1,400 feet south of the northwest corner of sec. 9, T. 13 N., R. 13 W.; latitude 35 degrees, 22 minutes, 28 seconds and longitude 108 degrees, 13 minutes, 39 seconds.

A—0 to 3 inches; reddish brown (5YR 4/3) clay loam, dark reddish brown (5YR 3/3) moist; moderate fine granular structure; soft, friable, slightly sticky and slightly plastic; many very fine and fine roots; 3 percent siliceous gravel; neutral (pH 7.2); abrupt smooth boundary (1 to 3 inches thick).

Bt—3 to 14 inches; reddish brown (5YR 4/3) clay, dark reddish brown (5YR 3/3) moist; moderate fine and medium subangular blocky structure; hard, firm, sticky and plastic; common very fine and fine roots; few fine irregular pores; many prominent clay films on faces of peds; slightly effervescent; slightly alkaline (pH 7.8); abrupt smooth boundary (5 to 21 inches thick).

Btk1—14 to 32 inches; reddish brown (5YR 4/3) clay, dark reddish brown (5YR 3/3) moist; moderate fine and medium subangular blocky structure; very hard, very firm, sticky and plastic; common very fine and fine roots; few very fine irregular pores; many prominent clay films on faces of peds; few fine masses of calcium carbonate; strongly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.

Btk2—32 to 50 inches; reddish brown (5YR 4/3) sandy clay loam, reddish brown (5YR 4/3) moist; moderate fine subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few very fine roots; common distinct clay films on faces of peds; common fine and medium masses of calcium carbonate; violently effervescent (6 percent calcium carbonate equivalent); moderately alkaline (pH 8.0); clear smooth boundary.

Btk3—50 to 65 inches; reddish brown (5YR 4/3) clay, dark reddish brown (5YR 4/3) moist; moderate fine subangular blocky structure; very hard, very firm, sticky and plastic; few very fine roots; common distinct clay films on faces of peds; few very fine masses of calcium carbonate; strongly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.

Btk4—65 to 70 inches; reddish brown (5YR 4/3) sandy clay loam, dark reddish brown (5YR 4/3) moist; moderate fine subangular blocky structure; hard, very firm, slightly sticky and slightly plastic; few very fine roots; common distinct clay films on faces of peds; few very fine masses of calcium carbonate; very slightly effervescent; moderately alkaline (pH 8.0). (The combined thickness of the Btk horizons is 28 to 60 inches.)

Range in Characteristics

Particle-size control section: 35 to 50 percent clay and greater than 30 percent sand
Depth to secondary calcium carbonate: 7 to 28 inches, with some pedons calcareous to the surface
Salinity: 0 to 2 mmhos/cm
Sodicity: SAR of 0 to 5
Reaction: neutral to slightly alkaline in the surface and slightly to moderately alkaline in the subsoil

A horizon:
Hue: 2.5YR to 7.5YR
Value: 3 to 5 dry, 2.5 or 3 moist
Chroma: 2 or 3
Rock fragments: 0 to 5 percent siliceous gravel
Calcium carbonate equivalent: 0 to 5 percent

Bt horizon:
Hue: 2.5YR to 5YR
Value: 3 to 5 dry, 2.5 or 3 moist
Chroma: 2 or 3 moist
Rock fragments: 0 to 10 percent siliceous gravel
Calcium carbonate equivalent: 0 to 5 percent

Btk horizons:
Hue: 2.5YR or 5YR
Value: 3 to 6 dry, 2.5 to 4 moist
Chroma: 3 or 4 dry, 2 to 4 moist
Texture: clay, clay loam, sandy clay, or sandy clay loam
Rock fragments: 0 to 10 percent siliceous gravel
Calcium carbonate equivalent: 3 to 10 percent

Flugle Series

Taxonomic class: Fine-loamy, mixed, superactive, mesic Aridic Haplustalfs
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate or moderately slowly

Geomorphic position: Mesas, cuestas, hills, ridges, and valley sides
Parent material: Eolian material and slope alluvium derived from sandstone and shale
Slope range: 1 to 8 percent
Elevation: 6,200 to 7,300 feet
Mean annual air temperature: 49 to 53 degrees F
Mean annual precipitation: 13 to 14 inches
Frost-free period: 115 to 135 days

Typical Pedon

Flugle loam, in an area of mapping unit 315, Flugle-Fragua complex, 1 to 10 percent slopes; McKinley County, New Mexico; Thoreau Quadrangle; 800 feet south and 1,000 feet west of the northeast corner of sec. 17, T. 14 N., R. 12 W.; latitude 35 degrees, 26 minutes, 54 seconds and longitude 108 degrees, 7 minutes, 31 seconds.

A—0 to 3 inches; light brown (7.5YR 6/4) loam, dark brown (7.5YR 3/4) moist, moderate fine platy structure parting to moderate fine granular; soft, friable, slightly sticky and slightly plastic; many very fine and fine roots; common fine vesicular and irregular pores; strongly effervescent; moderately alkaline; abrupt smooth boundary.
Bt1—3 to 10 inches; dark brown (7.5YR 4/4) sandy clay loam, dark brown (7.5YR 3/4) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; few very fine irregular pores; many distinct clay films on ped faces and bridging sand grains; strongly effervescent; moderately alkaline; abrupt smooth boundary.
Bt2—10 to 28 inches; reddish brown (5YR 4/3) clay loam, dark reddish brown (5YR 3/3) moist; moderate fine and medium subangular blocky structure; very hard, firm, slightly sticky and slightly plastic; common very fine and fine roots; few very fine irregular pores; strongly effervescent; moderately alkaline; abrupt smooth boundary.
Bk—28 to 65 inches; light yellowish brown (10YR 6/4) sandy loam, dark yellowish brown (10YR 3/4) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; few very fine irregular pores; strongly effervescent; many very fine and fine masses of calcium carbonate; moderately alkaline.

Range in Characteristics

Particle-size control section: 18 to 35 percent clay and greater than 35 percent sand
Reaction: neutral to moderately alkaline

A horizon:
Hue: 7.5YR or 10YR
Value: 4 to 6 dry; 3 or 4 moist
Chroma: 3 or 4 dry; 3 to 6 moist
Texture: fine sandy loam or loam
Rock fragments: 0 to 5 percent sandstone gravel
Calcium carbonate equivalent: 0 to 5 percent

Bt horizon:
Hue: 5YR to 10YR
Value: 4 or 5 dry; 3 to 5 moist
Chroma: 3 to 6
Texture: sandy clay loam or clay loam
Calcium carbonate equivalent: 0 to 5 percent

Bk or C horizon:
Hue: 7.5YR or 10YR
Value: 3 to 5 moist
Chroma: 4 to 6 moist
Texture: sandy loam or sandy clay loam
Calcium carbonate equivalent: 5 to 10 percent

Fortwingate Series

Taxonomic class: Fine, mixed, superactive, frigid Vertic Haplustalfs
Depth class: Moderately deep
Drainage class: Well drained
Permeability: Slow
Geomorphic position: Cuestas, hogbacks, hills, and ridges
Parent material: Slope alluvium over residuum derived from sandstone, shale, or dolomitic limestone
Slope range: 2 to 45 percent
Elevation: 7,200 to 8,200 feet
Mean annual air temperature: 40 to 45 degrees F
Mean annual precipitation: 16 to 20 inches
Frost-free period: 90 to 110 days

Typical Pedon

Fortwingate loam, in an area of mapping unit 405, Fortwingate-Owlrock complex, 2 to 8 percent slopes; McKinley County, New Mexico; Upper Nutria Quadrangle; 1,650 feet east, 750 feet south of the northwest corner of sec. 22, T. 13 N., R. 16 W.; latitude 35 degrees, 20 minutes, 53 seconds and longitude 108 degrees, 31 minutes, 25 seconds.

Oi—0 to 1 inches; slightly decomposed pine needles, oak leaves, and grass.
A—1 to 4 inches; dark reddish gray (5YR 4/2) loam, dark reddish brown (5YR 3/2) moist; weak thin platy structure; slightly hard, very friable, slightly sticky and nonplastic; many very fine, fine, and few medium roots; 2 percent gravel size sandstone

fragments; neutral (pH 7.0); abrupt smooth boundary.
Bt—4 to 9 inches; reddish brown (5YR 4/3) clay loam, dark reddish brown (5YR 3/3) moist; moderate fine and medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common very fine, fine, and few medium roots; few very fine irregular pores; common distinct clay films on faces of peds; 2 percent gravel; neutral (pH 7.2); abrupt smooth boundary.
Btss—9 to 26 inches; reddish brown (2.5YR 4/4) clay, dark reddish brown (2.5YR 3/4) moist; strong fine and medium prismatic structure; very hard, very firm, very sticky and very plastic; few fine and medium roots; few very fine irregular pores; the bottom 1.5 inches is weathered sandstone; few pressure faces and slickensides; few vertical cracks 1 mm wide; many prominent clay films on faces of peds; 1 percent gravel; neutral (pH 7.2); abrupt smooth boundary.
2R—26 inches; San Andreas limestone.

Range in Characteristics

Particle-size control section: 35 to 50 percent clay
Depth to lithic contact: 20 to 40 inches to dolomitic limestone. Some pedons contact a locally present sandstone bed in the San Andreas formation.
Vertic features: pressure faces and slickensides evident between 5 and 40 inches depth. Some pedons have few vertical cracks less than 5 mm wide.
Reaction: Neutral to slightly alkaline

A horizon:
Hue: 5YR or 7.5YR
Value: 4 or 5 dry, 3 moist
Chroma: 2 or 3
Rock fragments: 0 to 25 percent total; 0 to 20 percent gravel, 0 to 5 percent cobbles, and 0 to 1 percent stones. All fragments are sandstone and limestone.
Reaction: neutral

Bt horizon:
Hue: 2.5YR or 5YR
Chroma: 3 or 4
Textures: clay loam or clay
Rock fragments: 0 to 5 percent sandstone gravel
Reaction: neutral or slightly alkaline

Btss horizon:
Hue: 2.5YR or 5YR
Chroma: 3 or 4
Textures: clay loam, sandy clay, or clay
Rock fragments: 0 to 5 percent sandstone gravel
Reaction: neutral or slightly alkaline

Some pedons have a Btk or Bk horizon immediately above the lithic contact.

Fragua Series

Taxonomic class: Coarse-loamy, mixed, superactive, mesic Aridic Haplustalfs
Depth class: Very deep
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Geomorphic position: Mesas, cuestas, and valley sides
Parent material: Eolian material and slope alluvium derived from sandstone
Slope range: 1 to 10 percent
Elevation: 6,400 to 7,300 feet
Mean annual air temperature: 49 to 53 degrees F
Mean annual precipitation: 13 to 14 inches
Frost-free period: 115 to 135 days

Typical Pedon

Fragua loamy fine sand, in an area of mapping unit 315, Flugle-Fragua complex, 1 to 10 percent slopes; McKinley County, New Mexico; Thoreau NE Quadrangle; about 200 feet south and 800 feet west of the northeast corner of sec. 17, T. 14 N., R. 12 W.; latitude 35 degrees, 26 minutes, 54 seconds and longitude 108 degrees, 7 minutes, 31 seconds.

A—0 to 2 inches; light brown (7.5YR 6/4) loamy fine sand, dark brown (7.5YR 3/4) moist; moderate medium platy structure parting to moderate fine granular; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common fine vesicular and irregular pores; strongly effervescent; moderately alkaline (pH 7.6); abrupt smooth boundary.
Btk—2 to 19 inches; reddish brown (5YR 4/4) sandy loam, dark reddish brown (5YR 3/4) moist; moderate fine and medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots; few very fine irregular pores; many distinct clay films bridging sand grains; violently effervescent; few very fine masses of calcium carbonate; moderately alkaline (pH 8.0); abrupt smooth boundary.
Bk—19 to 65 inches; brown (7.5YR 5/4) sandy loam, dark brown (7.5YR 3/4) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few

very fine roots; few very fine irregular pores; violently effervescent; few very fine masses of calcium carbonate; moderately alkaline (pH 8.0).

Range in Characteristics

Particle-size control section: 10 to 18 percent clay
Calcium carbonate equivalent: less than 10 percent
Reaction: neutral to moderately alkaline

A horizon:
Hue: 7.5YR or 10YR
Value: 5 or 6 dry; 3 or 4 moist
Chroma: 2 to 4 moist

Bt horizon:
Hue: 5YR or 7.5YR
Value: 4 or 5 dry; 3 to 5 moist
Chroma: 4 to 6 dry; 3 to 6 moist

Bk horizon:
Hue: 7.5YR or 10YR
Value: 3 to 6 moist
Chroma: 4 to 6 dry or moist

Some pedons have a sandy C horizon below the Bk horizon.

Fraguni Series

Taxonomic class: Coarse-loamy, mixed, superactive, mesic Aridic Haplustalfs
Depth class: Very deep
Drainage class: Somewhat excessively drained
Permeability: Moderate
Geomorphic position: Mesas, cuestas, plateaus, and valley sides
Parent material: Eolian material and slope alluvium derived from sandstone
Slope range: 1 to 8 percent
Elevation: 6,500 to 7,500 feet
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 13 to 16 inches
Frost-free period: 100 to 135 days

Typical Pedon

Fraguni loamy fine sand, in an area of mapping unit 320, Parkelei-Fraguni complex, 1 to 8 percent slopes; McKinley County, New Mexico; Vanderwagen Draw Quadrangle; 2,000 feet north and 2,600 feet west of the southeast corner of sec. 31, T. 12 N., R. 18 W.; latitude 35 degrees, 13 minutes, 26 seconds and longitude 108 degrees, 46 minutes, 39 seconds.

A—0 to 4 inches; brown (7.5YR 5/3) loamy fine sand, dark brown (7.5YR 3/3) moist; single grain structure; loose, very friable, nonsticky and nonplastic; many very fine and few fine roots; slightly alkaline (pH 7.4); abrupt smooth boundary.

Bt1—4 to 20 inches; brown (7.5YR 5/3) fine sandy loam, dark brown (7.5YR 4/3) moist; moderate fine and medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; few very fine and common fine and medium roots; few very fine and fine irregular pores; few distinct clay films on faces of peds and bridging sand grains; slightly alkaline (pH 7.4); abrupt smooth boundary.

Bt2—20 to 46 inches; light brown (7.5YR 6/4) loamy fine sand, brown (7.5YR 5/4) moist; weak very fine and fine subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; few very fine, fine, and medium roots; few very fine irregular pores; few distinct clay films on faces of peds and bridging sand grains; slightly alkaline (pH 7.4); abrupt smooth boundary.

Bt3—46 to 58 inches; reddish brown (5YR 5/4) sandy clay loam, reddish brown (5YR 4/4) moist; strong fine and medium subangular blocky structure; hard, firm, moderately sticky and slightly plastic; few very fine and fine roots; few very fine irregular pores; common distinct clay films on faces of peds; neutral (pH 6.8); abrupt smooth boundary.

BC—58 to 70 inches; yellowish red (5YR 5/6) fine sandy loam, yellowish red (5YR 4/6) moist; moderate very fine and medium subangular blocky structure; slightly hard, very friable, slightly sticky and nonplastic; few very fine roots; slightly alkaline (pH 7.6).

Range in Characteristics

Particle-size control section: 10 to 18 percent clay and greater than 35 percent sand
Reaction: neutral or slightly alkaline

A horizon:
Hue: 7.5YR or 10YR
Value: 5 or 6 dry, 3 or 4 moist
Chroma: 3 or 4

Bt horizon:
Hue: 5YR to 10YR
Value: 4 to 6 dry, 3 or 4 moist
Chroma: 3 to 6 dry, 3 or 4 moist
Texture: sandy loam, fine sandy loam, loamy fine sand, or sandy clay loam

BC horizon:
Hue: 5YR or 7.5YR
Value: 4 to 6 dry, 3 or 4 moist

Chroma: 4 to 6 dry, 4 to 6 moist
Texture: sandy loam, fine sandy loam, or sandy clay loam

Some pedons have a Btk horizon.

Fruitland Series

Taxonomic class: Coarse-loamy, mixed, superactive, calcareous, mesic Typic Torriorthents
Depth class: Very deep
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Geomorphic position: Valley floors
Parent material: Eolian material and stream alluvium derived from sandstone
Slope range: 1 to 5 percent
Elevation: 5,800 to 6,800 feet
Mean annual air temperature: 50 to 55 degrees F
Mean annual precipitation: 7 to 9 inches
Frost-free period: 130 to 150 days

Typical Pedon

Fruitland loamy fine sand, in an area of mapping unit 110, Benally-Fruitland association, 1 to 5 percent slopes; Navajo Reservation; San Juan County, New Mexico; Red Lake Well Quadrangle; T. 19 N., R. 14 W.; latitude 35 degrees, 52 minutes, 25 seconds and longitude 108 degrees, 19 minutes, 18 seconds.

A—0 to 3 inches; light yellowish brown (10YR 6/4) loamy fine sand, yellowish brown (10YR 5/4) moist; single grain; loose, very friable, nonsticky and nonplastic; many very fine roots; very slightly effervescent; slightly alkaline (pH 7.4); abrupt smooth boundary.
C1—3 to 10 inches; light yellowish brown (10YR 6/4) loamy fine sand, yellowish brown (10YR 6/4) moist; massive; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots; very slightly effervescent; slightly alkaline (pH 7.6); clear smooth boundary.
C2—10 to 19 inches; light yellowish brown (10YR 6/4) loamy fine sand, yellowish brown (10YR 5/4) moist; massive; slightly hard, very friable, nonsticky and nonplastic; common very fine, fine, and medium roots; few very fine irregular pores; slightly effervescent; slightly alkaline (pH 7.8); clear smooth boundary.
Ck1—19 to 29 inches; light yellowish brown (10YR 6/4) loamy fine sand, yellowish brown (10YR 5/4) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine and fine roots; few very fine irregular pores; slightly effervescent; few very fine masses of calcium carbonate; slightly alkaline (pH 7.6); abrupt smooth boundary.
Ck2—29 to 65 inches; light yellowish brown (10YR 6/4) fine sandy loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; few very fine irregular pores; strongly effervescent; few very fine masses of calcium carbonate; moderately alkaline (pH 8.0).

Range in Characteristics

Particle-size control section: 5 to 18 percent clay

A horizon:
Hue: 10YR or 2.5Y
Value: 5 or 6 dry; 4 or 5 moist
Chroma: 4 to 6, dry and moist
Calcium carbonate equivalent: 0 to 1 percent
Reaction: slightly alkaline

C horizon:
Hue: 10YR
Value: 5 or 6, dry and moist
Chroma: 4 to 6, dry and moist
Texture: loamy sand or loamy fine sand
Calcium carbonate equivalent: 0 to 1 percent
Reaction: slightly or moderately alkaline

Ck horizon:
Hue: 10YR
Value: 5 or 6, dry and moist
Chroma: 4 to 6, dry and moist
Calcium carbonate equivalent: 1 to 10 percent
Reaction: moderately alkaline

Galzuni Series

Taxonomic class: Fine, mixed, superactive, mesic Aridic Paleustalfs
Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
Geomorphic position: Mesas, cuestas, and hills
Parent material: Eolian material and slope alluvium derived from shale and sandstone
Slope range: 1 to 8 percent
Elevation: 6,800 to 7,600 feet
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 13 to 16 inches
Frost-free period: 100 to 135 days

Typical Pedon

Galzuni loam, in an area of mapping unit 550, Bryway-Galzuni loams, 1 to 8 percent slopes; Cibola County, New Mexico; Shoemaker Canyon Quadrangle; 2,000

feet east and 800 feet north of the southwest corner of sec. 2, T. 8 N., R. 17 W.; latitude 34 degrees, 56 minutes, 47 seconds and longitude 108 degrees, 35 minutes, 59 seconds.

A—0 to 2 inches; yellowish brown (10YR 5/6) loam, dark yellowish brown (10YR 4/4) moist; weak medium platy structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common fine vesicular pores; 5 percent gravel; slightly alkaline (pH 7.4); abrupt smooth boundary.

Bt1—2 to 4 inches; dark yellowish brown (10YR 4/4) clay, dark yellowish brown (10YR 3/6) moist; moderate fine subangular blocky structure; hard, firm, sticky and plastic; common very fine and fine roots; common very fine irregular pores; common distinct clay films on faces of peds; slightly alkaline (pH 7.4); abrupt smooth boundary.

Bt2—4 to 14 inches; strong brown (7.5YR 5/6) clay, brown (7.5YR 4/4) moist; strong medium prismatic structure; very hard, very firm, sticky and plastic; few very fine, fine, and medium roots; few fine tubular pores; many prominent clay films on faces of peds; slightly alkaline (pH 7.4); clear smooth boundary.

Bt3—14 to 23 inches; yellowish brown (10YR 5/6) clay, brown (7.5YR 4/4) moist; weak coarse prismatic structure; very hard, very firm, sticky and plastic; few very fine and fine roots; few fine tubular pores; many prominent clay films on faces of peds; slightly alkaline (pH 7.8); abrupt smooth boundary.

Btk—23 to 32 inches; strong brown (7.5YR 5/6) clay loam, brown (7.5YR 4/4) moist; weak medium prismatic structure; hard, firm, sticky and plastic; few very fine roots; few very fine irregular pores; common distinct clay films bridging sand grains and on faces of peds; slightly effervescent; few fine irregular filaments of calcium carbonate; slightly effervescent; slightly alkaline (pH 7.8); clear smooth boundary.

Bk1—32 to 52 inches; yellowish brown (10YR 5/6) sandy clay, dark yellowish brown (10YR 4/4) moist; massive; hard, firm, sticky and plastic; few very fine roots; common very fine irregular pores; slightly effervescent; few fine irregular filaments of calcium carbonate; slightly alkaline (pH 7.6); clear smooth boundary.

Bk2—52 to 65 inches; yellowish brown (10YR 5/6) sandy clay loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; common very fine irregular pores; slightly effervescent; few fine irregular filaments of calcium carbonate; slightly alkaline (pH 7.6).

Range in Characteristics

Particle-size control section: 35 to 50 percent clay
Depth to calcium carbonate: 10 to 30 inches
Reaction: neutral to slightly alkaline in the surface and slightly to moderately alkaline in the subsoil

A horizon:
Value: 3 or 4 moist
Chroma: 3 to 6 dry, 3 or 4 moist
Rock fragments: 0 to 10 percent sandstone gravel

Bt horizons:
Textures: clay or clay loam

Btk horizon:
Hue: 7.5YR or 10YR
Calcium carbonate equivalent: 1 to 5 percent

Bk horizons:
Hue: 7.5YR or 10YR
Value: 4 or 5 moist
Chroma: 4 or 6 moist
Texture: sandy clay, sandy clay loam, or clay loam
Calcium carbonate equivalent: 1 to 5 percent

Gapmesa Series

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ustic Haplargids
Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately slow
Geomorphic position: Cuestas, hills, and ridges
Parent material: Eolian material and slope alluvium derived from sandstone and shale
Slope range: 1 to 3 percent
Elevation: 6,400 to 6,800
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 100 to 135 days

Typical Pedon

Gapmesa fine sandy loam, in an area of mapping unit 245, Buckle-Gapmesa-Barboncito complex, 1 to 6 percent slopes; McKinley County, New Mexico; Gallup West Quadrangle; 350 feet west and 2,200 feet south of the northwest corner of sec. 18, T. 16 N., R. 18 W.; latitude 35 degrees, 38 minutes, 24 seconds and longitude 108 degrees, 04 minutes, 55 seconds.

A—0 to 1 inches; brown (10YR 5/3) fine sandy loam, brown (10YR 4/4) moist; weak very fine granular structure; soft, very friable, nonsticky and nonplastic; few very fine roots; slightly alkaline (pH 7.6); abrupt smooth boundary.

Bt—1 to 9 inches; yellowish brown (10YR 5/4) loam,

dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine roots; few faint clay films on faces of peds and bridging sand grains; very slightly effervescent; slightly alkaline (pH 7.8); clear smooth boundary.

Btk1—9 to 20 inches; light yellowish brown (10YR 6/4) loam, yellowish brown (10YR 5/4) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine, fine and few medium roots; few very fine irregular pores; common distinct clay films on faces of peds; strongly effervescent; common very fine and fine masses of calcium carbonate; moderately alkaline (pH 8.0); clear wavy boundary.

Btk2—20 to 31 inches; light yellowish brown (10YR 6/6) clay loam, yellowish brown (10YR 5/4) moist; moderate very fine and fine subangular blocky structure; hard, friable, sticky and plastic; few very fine and fine roots; few very fine irregular pores; 1 percent gravel; common distinct clay films on faces of peds; strongly effervescent; many fine masses of calcium carbonate; moderately alkaline (pH 8.0); abrupt smooth boundary.

R—31 inches; sandstone bedrock.

Range in Characteristics

Particle-size control section: 18 to 35 percent clay
Rock fragments: 0 to 5 percent sandstone gravel
Depth to a lithic contact: 20 to 40 inches to sandstone
Depth to calcium carbonate: 8 to 17 inches

A horizon:
Hue: 10YR
Value: 5 dry and 4 or 5 moist
Chroma: 4 to 6 dry and moist
Reaction: slightly alkaline

Bt horizon:
Hue: 7.5YR or 10YR
Value: 4 or 5 dry and 4 moist
Chroma: 4 to 6 dry and moist
Texture: sandy clay loam, fine sandy loam, or loam
Reaction: slightly alkaline

Btk horizon:
Hue: 7.5YR or 10YR
Value: 5 or 6 dry and 4 or 5 moist
Chroma: 4 to 6 dry and moist
Texture: sandy clay loam or clay loam
Reaction: moderately alkaline
Calcium carbonate equivalent: 1 to 5 percent

Gish Series

Classification: Fine, mixed, superactive, mesic Ustic Haplocambids
Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
Geomorphic position: Valley sides and drainageways
Parent material: Fan alluvium derived from shale
Slope range: 1 to 8 percent
Elevation: 6,100 to 7,200 feet
Mean annual air temperature: 45 to 49 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 100 to 135 days

Typical Pedon

Gish clay loam, in an area of mapping unit 242, Gish-Mentmore complex, 1 to 8 percent slopes; McKinley County, New Mexico; Gallup East Quadrangle; 2,600 feet west, 900 feet north of the southeast corner sec. 21, T. 16 N., R. 17 W. latitude 35 degrees, 35 minutes, 52 seconds and longitude 108 degrees, 38 minutes, 37 seconds.

A—0 to 3 inches; light olive brown (2.5Y 5/3) clay loam, olive brown (2.5Y 4/3) moist; thin surface crust above strong very fine granular structure; slightly hard, firm, slightly sticky and slightly plastic; many very fine roots; moderately alkaline (pH 8.0); abrupt smooth boundary.

Bw—3 to 13 inches; light olive brown (2.5Y 5/4) clay, olive brown (2.5Y 4/4) moist; strong very fine, fine and medium angular blocky structure; very hard, very firm, moderately sticky and moderately plastic; many very fine roots; few very fine irregular pores; few sand coatings on ped faces; few pressure faces; slightly alkaline (pH 7.8); abrupt smooth boundary.

Bky1—13 to 27 inches; grayish brown (2.5Y 5/2) clay, dark grayish brown (2.5Y 4/2) moist; weak very fine and fine subangular blocky structure; very hard, very firm, moderately sticky and moderately plastic; common very fine and few fine roots; few very fine irregular pores; 1 percent gravel; very slightly effervescent; few very fine masses of calcium carbonate; common very fine masses of gypsum; slightly alkaline (pH 7.8); abrupt wavy boundary.

Bky2—27 to 55 inches; olive brown (2.5Y 4/4) and (2.5Y 3/2) clay, olive brown (2.5Y 4/4) moist; weak medium and coarse subangular blocky structure; very hard, very firm, moderately sticky and

moderately plastic; few very fine roots; few very fine irregular pores; few pressure faces; very slightly effervescent; few very fine masses of calcium carbonate; common very fine masses of gypsum; slightly alkaline (pH 7.8); clear smooth boundary.

Bky3—55 to 64 inches; grayish brown (2.5Y 5/2) clay loam, dark grayish brown (2.5Y 4/2) moist; massive; very hard, very firm, moderately sticky and moderately plastic; few very fine roots; few very fine irregular pores; 4 percent gravel; very slightly effervescent; few very fine masses of calcium carbonate; few very fine masses of gypsum; slightly alkaline (pH 7.6); clear smooth boundary.

Bky4—64 to 70 inches; grayish brown (2.5Y 5/2) clay, dark grayish brown (2.5Y 4/2) moist; massive; very hard, very firm, moderately sticky and moderately plastic; few very fine roots; 1 percent gravel; very slightly effervescent; few very fine masses of calcium carbonate; few very fine masses of gypsum; slightly alkaline (pH 7.6).

Range in Characteristics

Particle-size control section: 35 to 50 percent clay
Calcium carbonate equivalence: 0 to 2 percent in the upper part of the soil and 1 to 10 percent in the lower subsoil.
Gypsum percent: 0 to 2 percent in the By horizons
Salinity: 0 to 2 mmhos/cm
Reaction: Slightly to moderately alkaline

A horizon:
Hue: 2.5Y or 10YR
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 3 or 4 dry and moist
Rock fragments: 0 to 10 percent gravel

Bw horizon:
Hue: 2.5Y
Value: 4 to 6 dry, 4 or 5 moist
Chroma: 2 to 4 dry and moist
Texture: clay or clay loam.

Bky and Bk horizons:
Hue: 2.5Y
Value: 4 to 6 dry or moist
Chroma: 2 to 4 dry and moist
Texture: clay, clay loam, loam, or silt loam

Hagerwest Series

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ustic Haplargids
Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderate
Geomorphic position: Mesas, cuestas, hills, and ridges
Parent material: Eolian material and slope alluvium derived from sandstone and shale
Slope range: 1 to 5 percent
Elevation: 6,500 to 7,200 feet
Mean annual air temperature: 49 to 54 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 120 to 140 days

Typical Pedon

Hagerwest fine sandy loam, in an area of mapping unit 220, Hagerwest-Bond fine sandy loams, 1 to 8 percent slopes; McKinley County, New Mexico; Heart Rock Quadrangle; 1,600 feet east and 600 feet north of the southwest corner of sec. 2, T. 16 N., R. 12 W.; latitude 35 degrees, 38 minutes, 24 seconds and longitude 108 degrees, 4 minutes, 55 seconds.

A—0 to 2 inches; light brown (7.5YR 6/4) fine sandy loam, brown (7.5YR 4/4) moist; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; few medium and common fine and very fine roots; many very fine irregular pores; neutral (pH 7.2); abrupt smooth boundary.

Bt1—2 to 7 inches; brown (7.5YR 5/4) sandy clay loam, brown (7.5YR 4/4) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; few medium and common fine and very fine roots; common very fine irregular pores; few faint clay films bridging sand grains; neutral (pH 7.2); clear smooth boundary.

Bt2—7 to 13 inches; strong brown (7.5YR 4/6) sandy clay loam, strong brown (7.5YR 4/6) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and very fine roots; common very fine irregular pores; common distinct clay films on faces of peds, lining pores and bridging sand grains; slightly effervescent; neutral (pH 7.2); abrupt smooth boundary.

Btk—13 to 19 inches; reddish yellow (7.5YR 6/6) sandy clay loam, strong brown (7.5YR 5/6) moist; massive; slightly hard, friable, slightly sticky and nonplastic; few fine and common very fine roots; common very fine irregular pores; 2 percent gravel; strongly effervescent; slightly alkaline (pH 7.6); abrupt smooth boundary.

Bk—19 to 35 inches; very pale brown (10YR 7/3) sandy loam, pale brown (10YR 6/3) moist; massive; hard, friable, nonsticky and nonplastic;

common very fine irregular pores; 10 percent gravel; strongly effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.
2R—35 inches; hard sandstone.

Range in Characteristics

Particle-size control section: 18 to 35 percent clay
Rock fragments: 0 to 15 percent sandstone gravel
Depth to a lithic contact: 20 to 40 inches to hard sandstone
Depth to calcium carbonate: 8 to 23 inches
Other features: C horizons are present in some pedons. A few of these C horizons have hues of 2.5Y.

A horizon:
Hue: 7.5YR or 10 YR
Value: 5 or 6 dry; 3 to 5 moist
Chroma: 4 to 6 dry and moist
Reaction: neutral or slightly alkaline

Bt horizon:
Hue: 7.5YR or 10YR
Value: 4 or 5 dry; 3 to 5 moist
Chroma: 4 to 6 dry; 3 to 6 moist
Texture: sandy clay loam or clay loam
Reaction: neutral or slightly alkaline

Btk and Bk horizon:
Hue: 7.5YR or 10YR
Value: 5 or 7 dry; 4 to 6 moist
Chroma: 3 to 6 dry and moist
Texture: sandy clay loam, sandy loam, or clay loam
Reaction: moderately alkaline
Calcium carbonate equivalent: 1 to 10 percent

Hamburn Series

Taxonomic class: Fine-loamy, mixed, superactive, calcareous, mesic Ustic Torrifluvents
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Geomorphic position: Valley floors
Parent material: Stream alluvium derived from sandstone and shale
Slope range: 0 to 2 percent
Elevation: 5,600 to 6,000 feet
Mean annual air temperature: 50 to 55 degrees F
Mean annual precipitation: 7 to 9 inches
Frost-free period: 130 to 150 days

Typical Pedon

Hamburn clay loam, in an area of mapping unit 235, Notal-Hamburn complex, 0 to 2 percent slopes; San Juan County, New Mexico; Navajo Reservation; The Pillar 3 SE Quadrangle; latitude 36 degrees, 04 minutes, 18 seconds and longitude 108 degrees, 21 minutes, 53 seconds.

AC—0 to 3 inches; olive brown (2.5Y 4/4) clay loam, olive brown (2.5Y 4/4) moist; massive; slightly hard, very friable, sticky and plastic; many very fine and fine roots; very slightly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.
C1—3 to 8 inches; light olive brown (2.5Y 5/6) sandy clay loam, light olive brown (2.5Y 5/6) moist; massive; slightly hard, friable, sticky and plastic; many very fine and fine roots; vertical crack from a depth of 5 to 14 inches and less than 5 mm wide; pockets of finely stratified silt and very fine sand; slightly effervescent; moderately alkaline (pH 8.0); abrupt wavy boundary.
C2—8 to 29 inches; light olive brown (2.5Y 5/4) clay loam, olive brown (2.5Y 4/4) moist; massive; hard, firm, sticky and plastic; many very fine and fine roots; vertical crack less than 5 mm wide to a depth of 14 inches; slightly effervescent; moderately alkaline (pH 8.4); abrupt wavy boundary.
C3—29 to 40 inches; light olive brown (2.5Y 5/4) sandy clay loam, olive brown (2.5Y 4/4) moist; massive; hard, firm, sticky and plastic; common very fine and fine roots; slightly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.
Cky1—40 to 52 inches; light olive brown (2.5Y 5/4) sandy clay loam, olive brown (2.5Y 4/4) moist; massive; hard, firm, sticky and plastic; few very fine and fine roots; slightly effervescent; common very fine masses of calcium carbonate; few very fine masses of gypsum; strongly alkaline (pH 8.8); abrupt smooth boundary.
Cky2—52 to 70 inches; light olive brown (2.5Y 5/4) clay loam, light olive brown (2.5Y 5/4) moist; hard, firm, sticky and plastic; few very fine and fine roots; slightly effervescent; common very fine masses of calcium carbonate; few very fine masses of gypsum; moderately alkaline (pH 8.2).

Range in Characteristics

Particle-size control section: 27 to 35 percent clay
Calcium carbonate equivalent: 1 to 5 percent
Gypsum: 0 to 5 percent
Salinity: EC of 1 to 6 mmhos/cm
Sodicity: SAR of 0 to 10. SAR increases with depth.

A and AC horizons:
Hue: 10YR or 2.5Y
Value: 5 or 6 dry; 4 or 5 moist

Chroma: 4 dry and moist
Textures: sandy clay loam or clay loam
Reaction: moderately alkaline

C and Cky horizons:
Hue: 10YR or 2.5Y
Value: 5 or 6 dry; 4 or 5 moist
Chroma: 3 or 4, dry and moist
Texture: clay loam, sandy clay loam, silty clay loam, silt loam, or sandy loam
Reaction: moderately to strongly alkaline

Hawaikuh Series

Taxonomic class: Fine, mixed, superactive, mesic Ustic Haplargids
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow and slow
Geomorphic position: Valley sides and valley floors
Parent material: Fan and stream alluvium derived from sandstone and shale
Slope range: 1 to 5 percent
Elevation: 6,000 to 6,900 feet
Mean annual air temperature: 49 to 54 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 120 to 140 days

Typical Pedon

Hawaikuh silt loam, in an area of mapping unit 225, Aquima-Hawaikuh silt loams, 1 to 5 percent slopes; McKinley County, New Mexico; Tekapo Quadrangle; 1,200 feet south and 1,500 feet west of the northeast corner of sec. 12, T. 9 N., R. 20 W.; latitude 35 degrees, 1 minute, 45 seconds and longitude 108 degrees, 53 minutes, 44 seconds.

A—0 to 3 inches; yellowish red (5YR 4/6) silt loam, dark reddish brown (5YR 3/4) moist; weak medium granular structure; soft, friable, nonsticky and slightly plastic; few medium and many fine and very fine roots; common fine irregular pores; slightly effervescent; slightly alkaline (pH 7.6); abrupt smooth boundary.

Btk1—3 to 12 inches; red (2.5YR 4/6) silty clay loam, reddish brown (2.5YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many fine and very fine roots; common fine irregular pores; many prominent clay films on faces of peds; strongly effervescent; few fine irregular masses of calcium carbonate; moderately alkaline (pH 8.0); clear smooth boundary.

Btk2—12 to 29 inches; red (2.5YR 4/6) clay loam, dark reddish brown (2.5YR 3/4) moist; moderate medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common fine and very fine roots; few very fine tubular pores; common prominent clay films on faces of peds; strongly effervescent; common fine irregular filaments and masses of calcium carbonate; moderately alkaline (pH 8.0); clear smooth boundary.

Bk1—29 to 39 inches; red (2.5YR 5/6) sandy clay loam, reddish brown (2.5YR 4/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; few very fine tubular pores; strongly effervescent; common fine irregular filaments and masses of calcium carbonate; moderately alkaline (pH 8.2); clear smooth boundary.

Bk2—39 to 54 inches; reddish brown (2.5YR 5/4) sandy loam, reddish brown (2.5YR 4/4) moist; massive; soft very friable, nonsticky and slightly plastic; few very fine roots; few very fine irregular pores; strongly effervescent; common fine irregular filaments and masses of calcium carbonate; moderately alkaline (pH 8.4); clear smooth boundary.

Bk3—54 to 65 inches; light red (2.5YR 6/6) silty clay loam, reddish brown (2.5YR 4/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; few very fine irregular pores; violently effervescent; common fine irregular filaments and masses of calcium carbonate; moderately alkaline (pH 8.4).

Range in Characteristics

Particle-size control section: 35 to 50 percent clay and greater than 20 percent sand
Rock fragments: 0 to 5 percent sandstone gravel
Calcium carbonate equivalent: 3 to 14 percent

A horizon:
Hue: 2.5YR or 5YR
Chroma: 4 or 6 dry
Texture: silt loam or clay loam
Reaction: neutral to slightly alkaline

Bt horizons:
Hue: 2.5YR or 5YR
Value: 3 or 4 moist
Texture: silty clay loam, clay loam, or sandy clay
Reaction: slightly or moderately alkaline

Bk horizons:
Hue: 2.5YR or 5YR
Value: 3 to 5 moist, 4 to 6 dry

Chroma: 3 or 4 moist, 4 or 6 dry
Texture: clay loam, silty clay loam, clay, sandy clay loam, or sandy loam
Reaction: moderately or strongly alkaline

Heckly Series

Taxonomic class: Fine, mixed, superactive, frigid Typic Haplustalfs
Depth class: Moderately deep
Drainage class: Well drained
Permeability: Slow
Geomorphic position: Hills and ridges
Parent material: Slope alluvium over residuum derived from sandstone and siltstone
Slope range: 5 to 40 percent
Elevation: 7,800 to 8,200 feet
Mean annual air temperature: 40 to 45 degrees F
Mean annual precipitation: 16 to 20 inches
Frost-free period: 90 to 110 days

Typical Pedon

Heckly extremely channery sandy loam, in an area of mapping unit 407, Cinnadale-Heckly association, 5 to 40 percent slopes; McKinley County, New Mexico; Page Quadrangle; 2,050 feet south and 700 feet west of the northeast corner of sec. 29, T. 13 N., R. 15 W.; latitude 35 degrees, 19 minutes, 46 seconds and longitude 108 degrees, 26 minutes, 34 seconds.

A—0 to 3 inches; reddish brown (2.5YR 5/4) extremely channery sandy loam, dark reddish brown (2.5YR 3/4) moist; moderate very fine granular structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; 55 percent channers, 10 percent flagstones; slightly alkaline (pH 7.4); abrupt smooth boundary.
Bt1—3 to 15 inches; reddish brown (2.5YR 4/4) channery clay, dark reddish brown (2.5YR 3/4) moist; strong very fine and fine subangular blocky structure; very hard, very firm, very sticky and very plastic; many very fine, fine, and few medium roots; few very fine irregular pores; many prominent clay films on faces of peds; 25 percent channers; slightly alkaline (pH 7.4); gradual wavy boundary.
Bt2—15 to 38 inches; reddish brown (2.5YR 4/4) very channery silty clay loam, dark reddish brown (2.5YR 3/4) moist; moderate very fine and fine subangular blocky structure; very hard, very firm, sticky and plastic; common very fine and fine roots; common prominent clay films on faces of peds and coating rock fragments; 40 percent channers; slightly alkaline (pH 7.4); abrupt smooth boundary.
R—38 inches; very fine-grained sandstone and siltstone of the Abo formation.

Range in Characteristics

Particle-size control section: 35 to 45 percent clay and 20 to 35 percent rock fragments
Depth to lithic contact: 20 to 40 inches
Reaction: neutral to slightly alkaline

A horizon:
Hue: 2.5YR to 7.5YR
Rock fragments: 10 to 70 percent total; 10 to 55 percent channers; 0 to 10 percent flagstones. All fragments are sandstone.

Bt horizon:
Hue: 2.5YR or 5YR
Textures: clay loam, silty clay loam, or clay
Rock fragments: 10 to 35 percent total; 10 to 30 percent channers; 0 to 10 percent flagstones. All fragments are sandstone and siltstone.

Heshotauthla Series

Taxonomic class: Fine, mixed, active, mesic Aridic Natrustolls
Depth class: Very deep
Drainage class: Well drained
Permeability: Very slow
Geomorphic position: Valley floors
Parent material: Stream alluvium derived from sandstone and shale
Slope range: 0 to 1 percent
Elevation: 6,300 to 7,000 feet
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 13 to 16 inches
Frost-free period: 100 to 135 days

Typical Pedon

Heshotauthla clay, in an area of mapping unit 357, Heshotauthla clay, 0 to 1 percent slopes; McKinley County, New Mexico; Horsehead Canyon NW Quadrangle; 2,000 feet north and 200 feet west of the southeast corner of sec. 5, T. 11 N., R. 17 W.; latitude 35 degrees, 12 minutes, 43 seconds and longitude 108 degrees, 38 minutes, 43 seconds.

ABn—0 to 3 inches; brown (10YR 5/5) clay, dark brown (10YR 3/3) moist; moderate medium prismatic structure; very hard, very firm, very sticky and very plastic; few very fine roots; many fine and

medium vesicular pores; strongly effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.
Btn1—3 to 9 inches; brown (10YR 5/3) clay, dark brown (10YR 3/3) moist; weak coarse prismatic structure parting to moderate coarse subangular blocky; extremely hard, very firm, very sticky and very plastic; common very fine and fine roots; few very fine irregular pores; many prominent clay films on faces of peds; common slickensides up to 2 inches in diameter; strongly effervescent; strongly alkaline (pH 8.6); clear wavy boundary.
Btn2—9 to 18 inches; brown (10YR 5/3) clay dark brown (10YR 3/3) moist; moderate medium and coarse subangular blocky structure; extremely hard, very firm, very sticky and very plastic; few very fine roots; few very fine irregular pores; many prominent clay films on faces of peds; strongly effervescent; strongly alkaline (pH 9.0); gradual wavy boundary.
Btkz—18 to 32 inches; brown (10YR 5/3) clay, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; extremely hard, very firm, very sticky and very plastic; few very fine roots; few very fine irregular pores; common distinct clay films on faces of peds; strongly effervescent; few fine masses of calcium carbonate; few fine salt crystals; moderately alkaline (pH 8.2); gradual irregular boundary.
Bkz—32 to 65 inches; brown (10YR 5/3) clay, dark brown (10YR 3/3) moist; massive; extremely hard, very firm, very sticky and very plastic; few very fine roots; few very fine irregular pores; strongly effervescent; few fine masses of calcium carbonate; common fine and medium salt crystals; moderately alkaline (pH 8.2).

Range in Characteristics

Particle-size control section: 48 to 60 percent clay
Depth to salt (mostly sodium sulfate) crystals: 18 to 35 inches
Reaction: moderately to very strongly alkaline

A horizon:
Value: 4 or 5 dry
Chroma: 2 or 3
Calcium carbonate equivalent: 0 to 5 percent
Sodicity: SAR of 10 to 20
Salinity: EC of 1 to 2 mmhos/cm

Btn horizons:
Hue: 7.5YR or 10YR
Value: 4 or 5 dry
Chroma: 2 or 4
Calcium carbonate equivalent: 0 to 5 percent
Sodicity: SAR of 20 to 40
Salinity: EC of 2 to 4 mmhos/cm

Bkz horizon:
Hue: 7.5YR or 10YR
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 3 or 4
Calcium carbonate equivalent: 1 to 5 percent
Sodicity: SAR of 15 to 35
Salinity: EC of 5 to 10 mmhos/cm

Highdye Series

Taxonomic class: Clayey, mixed, superactive, mesic Lithic Haplustalfs
Depth class: Very shallow and shallow
Drainage class: Well drained
Permeability: Slow
Geomorphic position: Mesas, cuestas, hills, and ridges
Parent material: Eolian material and slope alluvium over residuum derived from sandstone and shale
Slope range: 2 to 20 percent
Elevation: 6,800 to 7,600 feet
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 13 to 16 inches
Frost-free period: 100 to 135 days

Typical Pedon

Highdye fine sandy loam, in an area of mapping unit 317, Highdye-Evpark-Bryway complex, 2 to 20 percent slopes; McKinley County, New Mexico; Pescado Quadrangle; 2,100 feet west and 1,700 feet north of the southeast corner of sec. 22, T. 10 N., R. 17 W.; latitude 35 degrees, 04 minutes, 49 seconds and longitude 108 degrees, 37 minutes, 00 seconds.

A—0 to 3 inches; yellowish brown (10YR 5/6) fine sandy loam, brown (7.5YR 4/4) moist; weak fine and medium granular structure; soft, friable, nonsticky and nonplastic; few very fine and fine roots; common fine irregular pores; 10 percent gravel; neutral (pH 6.6); clear smooth boundary.
Bt1—3 to 5 inches; yellowish brown (10YR 5/4) clay loam, dark brown (7.5YR 3/4) moist; weak fine and medium subangular blocky structure; hard, firm, sticky and plastic; common very fine and fine roots; few fine irregular pores; common distinct clay films on faces of peds and bridges; slightly acid (pH 6.4); clear smooth boundary.
2Bt2—5 to 12 inches; brown (7.5YR 5/4) clay, strong brown (7.5YR 4/6) moist; moderate fine and medium subangular blocky structure; very hard, very firm, very sticky and very plastic; common very fine and fine and few medium roots; few fine irregular pores; 5 percent gravel; many prominent

clay films on faces of peds; moderately acid (pH 6.0); abrupt smooth boundary.
2R—12 inches; sandstone—weathered in the upper part.

Range in Characteristics

Depth to the lithic contact: 6 to 20 inches to sandstone
Particle-size control section: 35 to 55 percent clay
Reaction: neutral in the surface and slightly acid to moderately acid in the subsoil

A horizon:
Hue: 7.5YR or 10YR
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 2 to 6 dry, 2 to 4 moist
Rock fragments: 0 to 30 percent total; 0 to 15 percent gravel; 0 to 20 percent cobbles or channers. All fragments are sandstone.

Bt horizon:
Hue: 5YR or 7.5YR
Value: 4 to 6 dry, 3 to 5 moist
Chroma: 3 to 6 dry, 3 to 6 moist
Texture: clay loam, clay, or sandy clay
Rock fragments: 0 to 10 percent total; 0 to 10 percent gravel; 0 to 10 percent cobbles. All fragments are sandstone.

Some pedons have a paralithic contact of interbedded shale and sandstone above the lithic contact.

Hospah Series

Taxonomic class: Clayey, mixed, superactive, calcareous, mesic, shallow Ustic Torriorthents
Depth class: Very shallow and shallow
Drainage class: Well drained
Permeability: Slow
Geomorphic position: Breaks, hills, and ridges
Parent material: Colluvium and residuum derived from sandstone and shale
Slope range: 2 to 35 percent slopes
Elevation: 6,400 to 7,000
Mean annual air temperature: 49 to 54 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 120 to 140 days

Typical Pedon

Hospah extremely cobbly clay loam, in an area of mapping unit 250, Hospah-Skyvillage-Rock outcrop complex, 2 to 35 percent slopes; McKinley County, New Mexico; Kin Nahzin Ruins Quadrangle; 300 feet south and 1,000 feet west of the northeast corner of sec. 26, T. 18N, R. 9W latitude 35 degrees, 46 minutes, 02 seconds and longitude 107 degrees, 45 minutes, 21 seconds.

The surface is covered by 30 percent cobbles, 20 percent channers and 30 percent stones.

A—0 to 3 inches; light yellowish brown (2.5Y 6/4) extremely cobbly clay loam, light olive brown (2.5Y 5/4) moist; thin surface crust; weak fine and medium granular structure; soft, very friable, sticky and plastic; common very fine and fine roots; common very fine and fine irregular pores; 30 percent cobbles, 20 percent channers, 30 percent stones; strongly effervescent; moderately alkaline (pH 8.2); abrupt wavy boundary.
2BC—3 to 15 inches; dark grayish brown (2.5Y 4/2) clay, very dark grayish brown (2.5Y 3/2) moist, with light olive brown (2.5Y 5/4) surface material occurring along cracks and ped faces; moderate coarse subangular blocky structure parting to moderate fine and medium subangular blocky; extremely hard, extremely firm, very sticky and very plastic; common very fine and fine and few medium roots; few very fine and fine irregular pores; 1 cm wide vertical cracks extend from 5 to 13 inches; common soft shale fragments; slightly effervescent; strongly alkaline (pH 8.8); clear wavy boundary.
2Cr—15 inches; gypsiferous, noncalcareous shale with common fine and medium seams of secondary gypsum crystals occurring in the top 3 inches and primary gypsum crystals occurring below.

Range in Characteristics

Particle-size control section: 40 to 60 percent clay, 10 to 25 percent rock fragments
Depth to paralithic contact: 4 to 20 inches to gypsiferous, noncalcareous shale
Salinity: EC of 0 to 4 mmhos/cm
Calcium carbonate equivalent: 1 to 5 percent
Gypsum: 1 to 5 percent
Reaction: moderately to very strongly alkaline

A horizon:
Hue: 2.5Y or 10YR
Value: 4 to 6 dry, 3 to 5 moist
Chroma: 2 to 4
Rock fragments: 50 to 85 percent total; 5 to 30 percent stones, 5 to 30 percent cobbles, and 15 to 65 percent channers. All fragments are sandstone.
Sodicity: SAR of 2 to 5

BC or C horizons:
Hue: 2.5Y or 10YR
Value: 4 or 5 dry, 3 or 4 moist

Chroma: 2 to 4
Rock fragments: 0 to 20 percent total; 0 to 10 percent cobbles, 0 to 20 percent channers. All fragments are sandstone.
Sodicity: SAR of 5 to 13

Hosta Series

Taxonomic class: Fine, mixed, superactive, mesic Aridic Haplustalfs
Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
Geomorphic position: Valley sides and drainageways
Parent material: Fan alluvium derived from sandstone and shale
Slope range: 1 to 5 percent
Elevation: 6,800 to 7,000 feet
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 13 to 16 inches
Frost-free period: 100 to 135 days

Typical Pedon

Hosta loam, in an area of mapping unit 360, Hosta-Concho association, 0 to 5 percent slopes; McKinley County, New Mexico; Horsehead Canyon Quadrangle; 400 feet north and 2,600 feet west of the southeast corner of sec. 5, T. 10 N., R. 17 W.; latitude 35 degrees, 7 minutes, 12 seconds and longitude 108 degrees, 39 minutes, 11 seconds.

A—0 to 2 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; moderate medium platy structure; soft, very friable, nonsticky and slightly plastic; few very fine and fine roots; many fine vesicular pores; neutral (pH 7.2); abrupt smooth boundary.
Bt—2 to 4 inches; brown (10YR 4/3) clay loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft friable, sticky and plastic; many very fine and common fine roots; common fine irregular pores; few faint bridges of clay films; slightly alkaline (pH 7.4); abrupt smooth boundary.
Btk1—4 to 11 inches; dark yellowish brown (10YR 4/4) clay loam, dark yellowish brown (10YR 3/4) moist; strong medium subangular blocky structure; very hard, very firm, sticky and plastic; common very fine and few fine and medium roots; common fine irregular pores; many prominent clay films on faces of peds; slightly effervescent; few fine filaments and masses of calcium carbonate; slightly alkaline (pH 7.6); clear smooth boundary.
Btk2—11 to 24 inches; yellowish brown (10YR 5/4) clay loam, dark yellowish brown (10YR 4/4) moist; strong medium subangular blocky structure; very hard, very firm, sticky and plastic; common very fine and few fine roots; common fine irregular pores; common prominent clay films on faces of peds; strongly effervescent; common fine filaments and masses of calcium of carbonate; slightly alkaline (pH 7.8); clear smooth boundary.
Btk3—24 to 37 inches; dark yellowish brown (10YR 4/4) clay, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; very hard, very firm, very sticky and very plastic; few very fine roots; few fine irregular pores; common prominent clay films on faces of peds; slightly effervescent; few fine masses of calcium carbonate; slightly alkaline (pH 7.8); clear smooth boundary.
Btk4—37 to 51 inches; yellowish brown (10YR 5/4) clay, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; very hard, very firm, very sticky and very plastic; few very fine roots; few very fine irregular pores; common distinct clay films on faces of peds; slightly effervescent; few fine masses of calcium carbonate; slightly alkaline (pH 7.8); clear smooth boundary.
Bk—51 to 65 inches; yellowish brown (10YR 5/4) sandy clay loam, dark yellowish brown (10YR 4/6) moist; massive; hard, firm, slightly sticky and slightly plastic; few very fine roots; few very fine irregular pores; strongly effervescent; common fine filaments of calcium carbonate; slightly alkaline (pH 7.8).

Range in Characteristics

Particle-size control section: 35 to 55 percent clay
Reaction: neutral to slightly alkaline in the surface and slightly to moderately alkaline in the subsoil

A horizon:
Hue: 10YR or 2.5Y
Value: 4 to 6 dry, 3 or 4 moist
Chroma: 3 or 4 dry, 2 to 4 moist
Rock fragments: 0 to 5 percent sandstone gravel

Bt horizons:
Hue: 7.5YR to 2.5Y
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 3 or 4 dry or moist
Texture: clay loam, clay, or sandy clay loam
Rock fragments: 0 to 5 percent sandstone gravel

Btk and Bk horizons:
Hue: 7.5YR to 2.5Y
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 4 or 5 dry, 3 to 6 moist

Texture: sandy clay loam, clay loam, or clay
Calcium carbonate equivalent: 1 to 5 percent

Huerfano Series

Taxonomic class: Loamy, mixed, superactive, mesic, shallow Typic Natrargids
Depth class: Shallow
Drainage class: Well drained
Permeability: Slow
Geomorphic position: Valley floors and cuestas
Parent material: Alluvial material derived from sandstone and shale
Slope range: 1 to 5 percent
Elevation: 5,800 to 6,800 feet
Mean annual air temperature: 50 to 55 degrees F
Mean annual precipitation: 7 to 9 inches
Frost-free period: 130 to 150 days

Typical Pedon

Huerfano loam, in an area of mapping unit 116, Fajada-Huerfano-Benally complex, 1 to 5 percent slopes; McKinley County, New Mexico; Seven Lakes NW Quadrangle; 260 feet east and 660 feet north of the southwest corner of sec. 3, T. 19 N., R. 10 W.; latitude 35 degrees, 54 minutes, 01 second and longitude 107 degrees, 53 minutes, 39 seconds.

A—0 to 2 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; weak fine granular structure; soft, friable, slightly sticky and slightly plastic; few fine and very fine roots; few very fine irregular pores; 10 percent gravel; slightly effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.
Btkn—2 to 17 inches; yellowish brown (10YR 5/4) clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium columnar structure; hard, firm, sticky and plastic; few fine and very fine roots; common very fine irregular pores; common prominent clay films on faces of peds and lining pores; 5 percent gravel; strongly effervescent; few fine masses of calcium carbonate; very strongly alkaline (pH 9.6); clear wavy boundary.
2Cr—17 inches; gypsiferous shale.

Range in Characteristics

Particle-size control section: 18 to 35 percent clay
Depth to a paralithic contact: 10 to 20 inches to shale

A horizon:
Hue: 10YR or 2.5Y
Value: 4 or 5 moist
Chroma: 3 or 4 moist
Rock fragments: 5 to 20 percent sandstone and siderite gravel
Salinity: EC of 0 to 4 mmhos/cm
Sodicity: SAR of 15 to 30
Calcium carbonate: 1 to 5 percent
Reaction: moderately or strongly alkaline

Btn horizon:
Hue: 10YR or 2.5Y
Value: 3 to 6 moist
Chroma: 2 to 4 moist
Texture: clay loam or sandy clay loam
Rock fragments: 0 to 15 percent sandstone and siderite gravel
Salinity: EC of 4 to 16 mmhos/cm
Sodicity: SAR of 15 to 40
Calcium carbonate: 1 to 10 percent
Reaction: moderately to very strongly alkaline

Kimnoli Series

Taxonomic class: Loamy, mixed, active, mesic Lithic Haplargids
Depth class: Very shallow and shallow
Drainage class: Well drained
Permeability: Moderate
Geomorphic position: Mesas, cuestas, hills, and ridges
Parent material: Eolian material and slope alluvium derived from sandstone and shale
Slope range: 1 to 6 percent
Elevation: 6,000 to 6,800 feet
Mean annual air temperature: 50 to 55 degrees F
Mean annual precipitation: 7 to 9 inches
Frost-free period: 130 to 150 days

Typical Pedon

Kimnoli fine sandy loam, in an area of mapping unit 100, Norkiki-Kimnoli complex, 1 to 8 percent slopes; McKinley County, New Mexico; Nose Rock Quadrangle; 2,064 feet west and 2,064 feet south of the northeast corner of sec. 18, T. 20 N., R. 11 W.; latitude 35 degrees, 58 minutes, 02 seconds and longitude 108 degrees, 02 minutes, 42 seconds.

A—0 to 2 inches; dark yellowish brown (10YR 4/4) fine sandy loam, dark brown (10YR 3/3) moist; weak very fine granular structure; soft, very friable, nonsticky and nonplastic; common fine and very fine roots; many fine irregular pores; neutral (pH 7.2); abrupt smooth boundary.
Bt—2 to 7 inches; yellowish brown (10YR 5/4) sandy loam, dark yellowish brown (10YR 4/4) moist; moderate fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common

fine and very fine roots; common fine irregular pores; few faint clay films bridging sand grains; neutral (pH 7.2); clear smooth boundary.
Btk—7 to 14 inches; strong brown (7.5YR 4/6) sandy clay loam, dark brown (7.5YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common fine and very fine roots; many fine irregular pores; common distinct clay films on faces of peds and bridging sand grains; 5 percent gravel and 5 percent cobbles; strongly effervescent; common fine irregular masses of calcium carbonate; slightly alkaline (pH 7.8); abrupt smooth boundary.
2R—14 inches; sandstone.

Range in Characteristics

Particle-size control section: 20 to 30 percent clay and greater than 45 percent sand
Depth to lithic contact: 10 to 20 inches to sandstone
Calcium carbonate equivalent: 0 to 15 percent
Rock fragments: 0 to 10 percent total; 0 to 5 percent gravel; 0 to 5 percent cobbles. All fragments are sandstone.
Reaction: neutral to slightly alkaline

A horizon:
Hue: 7.5YR or 10YR
Value: 4 through 6 dry; 3 through 4 moist
Chroma: 3 to 6 moist

Bt horizon:
Hue: 7.5YR or 10YR
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 3 to 6 dry and moist
Texture: sandy loam or sandy clay loam

Knifehill Series

Taxonomic class: Fine, mixed, superactive, mesic Pachic Argiustolls
Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
Geomorphic position: Valley floors and valley sides
Parent material: Fan and stream alluvium derived from sandstone and shale
Slope range: 1 to 5 percent
Elevation: 6,900 to 7,500 feet
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 13 to 16 inches
Frost-free period: 100 to 135 days

Typical Pedon

Knifehill loam, in an area of mapping unit 354, Knifehill loam, 1 to 5 percent slopes; McKinley County, New Mexico; Pescado Quadrangle; 2,500 feet east and 200 feet north of the southwest corner of sec 10. T. 9 N., R. 17 W.; latitude 35 degrees, 01 minute, 04 seconds and longitude 108 degrees, 37 minutes, 06 seconds.

A—0 to 2 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; weak medium platy structure; soft, very friable, slightly sticky and nonplastic; common fine and many very fine roots; many medium vesicular pores; slightly alkaline (pH 7.6); abrupt smooth boundary.
Bw—2 to 6 inches; brown (10YR 5/3) clay loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; common fine and many very fine roots; common fine irregular pores; neutral (pH 7.2); clear smooth boundary.
Bt1—6 to 11 inches; dark grayish brown (10YR 4/2) clay loam, very dark grayish brown (10YR 3/2) moist; strong medium subangular blocky structure; slightly hard, friable, sticky and plastic; few medium and common fine and very fine roots; common fine irregular pores; common distinct clay films on faces of peds and lining pores; neutral (pH 7.2); clear smooth boundary.
Bt2—11 to 26 inches; very dark grayish brown (10YR 3/2) clay, very dark grayish brown (10YR 3/2) moist; strong medium prismatic structure; hard, firm, very sticky and very plastic; common fine and very fine roots; few fine tubular pores; many prominent clay films on faces of peds and lining pores; neutral (pH 7.2); abrupt smooth boundary.
Btk—26 to 35 inches; brown (10YR 5/3) clay, dark brown (10YR 3/3) moist; weak medium angular blocky structure; hard, firm, very sticky and very plastic; few medium and very fine roots; few very fine irregular pores; few faint clay films on faces of peds; strongly effervescent; few very fine irregular filaments and masses of calcium carbonate; 1 percent calcium carbonate equivalent; slightly alkaline (pH 7.4); clear smooth boundary.
Bk—35 to 65 inches; yellowish brown (10YR 5/4) clay, dark grayish brown (10YR 4/2) moist; massive; hard, firm, very sticky and very plastic; few very fine roots; few very fine irregular pores; strongly effervescent; few very fine irregular filaments and

masses of calcium carbonate; 4 percent calcium carbonate equivalent; slightly alkaline (pH 7.8).

Range in Characteristics

Particle-size control section: 35 to 50 percent clay
Mollic epipedon: 20 to 40 inches thick

A horizon:
Hue: 10YR or 7.5YR
Value: 4 or 5 dry
Chroma: 2 or 3
Reaction: neutral or slightly alkaline

Bt horizon:
Hue: 10YR or 7.5YR
Value: 3 to 5 dry
Chroma: 2 or 3
Texture: clay loam or clay
Reaction: neutral or slightly alkaline

Bk horizon:
Value: 3 or 4 moist
Chroma: 2 to 4 moist
Texture: clay loam or clay
Calcium carbonate equivalent: 1 to 15 percent
Reaction: slightly to moderately alkaline

Kwakina Series

Taxonomic class: Sandy, mixed, mesic Ustic Torrifluvents
Depth class: Very deep
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Geomorphic position: Valley sides and valley floors
Parent material: Fan and stream alluvium derived from sandstone
Slope range: 0 to 2 percent
Elevation: 6,000 to 7,300 feet
Mean annual air temperature: 49 to 53 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 120 to 140 days

Typical Pedon

Kwakina loamy fine sand, in an area of mapping unit 51, Kwakina loamy fine sand, 0 to 2 percent slopes; McKinley County, New Mexico; Zuni Quadrangle; 1,500 feet west and 1,300 feet north of the southeast corner of sec. 17, T. 9 N., R. 18 W.; latitude 35 degrees, 00 minutes, 54 seconds and longitude 108 degrees, 45 minutes, 18 seconds.

A—0 to 7 inches; brown (10YR 5/3) loamy fine sand, brown (10YR 4/3) moist; weak fine granular structure; loose, loose, nonsticky and nonplastic; common very fine and fine roots; common fine irregular pores; strongly effervescent; slightly alkaline (pH 7.6); abrupt smooth boundary.

C1—7 to 11 inches; yellowish brown (10YR 5/4) loamy fine sand, dark yellowish brown (10YR 4/4) moist; massive; hard, very friable, nonsticky and nonplastic; common very fine and fine roots; common fine irregular pores; violently effervescent; strongly alkaline (pH 8.8); abrupt smooth boundary.

C2—11 to 23 inches; brown (10YR 5/3) fine sand, brown (10YR 5/3) moist; single grain; loose, loose, nonsticky and nonplastic; common very fine and fine roots; few fine irregular pores; strongly effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

C3—23 to 33 inches; brown (7.5YR 5/4) sandy loam, dark brown (7.5YR 4/4) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; few fine irregular pores; violently effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

C4—33 to 53 inches; light yellowish brown (10YR 6/4) loamy fine sand, yellowish brown (10YR 5/4) moist; single grain; loose, loose, nonsticky and nonplastic; few very fine roots; few fine irregular pores; violently effervescent; strongly alkaline (pH 8.8); gradual smooth boundary.

Ck—53 to 65 inches; light yellowish brown (10YR 6/4) loamy fine sand, yellowish brown (10YR 5/4) moist; single grain; loose, loose, nonsticky and nonplastic; few very fine roots; few fine irregular pores; violently effervescent; few very fine masses of calcium carbonate; strongly alkaline (pH 8.8).

Range in Characteristics

Particle-size control section: 5 to 18 percent clay and greater than 40 percent sand
Reaction: slightly to strongly alkaline

A horizon:
Hue: 2.5YR to 10YR
Value: 3 to 6
Chroma: 3 to 8
Calcium carbonate equivalent: 0 to 5 percent
Salinity: EC of 0 to 2 mmhos/cm

C horizons:
Hue: 2.5YR to 10YR
Value: 3 to 6
Chroma: 3 to 8
Texture: stratified layers of loamy fine sand, loamy sand, fine sand, sand, sandy loam, fine sandy loam, and silt loam.
Calcium carbonate equivalent: 5 to 10 percent

Salinity: EC of 1 to 2 mmhos/cm

Lavodnas Series

Taxonomic class: Loamy, mixed, superactive, mesic, shallow Leptic Haplogypsids
Depth class: Shallow
Drainage class: Well drained
Permeability: Slow
Geomorphic position: Hills and ridges
Parent material: Slope alluvium derived from shale
Slope range: 2 to 15 percent
Elevation: 6,600 to 7,200 feet
Mean annual air temperature: 49 to 54 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 120 to 140 days

Typical Pedon

Lavodnas loam, in an area of mapping unit 22, Querencia-Lavodnas association, 2 to 15 percent slopes; McKinley County, New Mexico; Tinian Quadrangle; 1,200 feet west and 2,200 feet south of the northeast corner of sec. 2, T. 18 N., R. 5 W.; latitude 35 degrees, 49 minutes, 19 seconds and longitude 107 degrees, 19 minutes, 55 seconds.

A—0 to 3 inches; light yellowish brown (2.5Y 6/4) gypsiferous loam, olive brown (2.5Y 4/4) moist; moderate medium granular structure; soft, very friable, slightly sticky and nonplastic; few fine and common very fine roots; common very fine irregular pores; strongly effervescent; slightly alkaline (pH 7.4); abrupt smooth boundary.
By1—3 to 9 inches; pale yellow (2.5Y 7/4) gypsiferous clay loam, olive brown (2.5Y 4/4) moist; massive; soft, very friable, slightly sticky and slightly plastic; few medium and common fine and very fine roots; common very fine irregular pores; 2 percent gravel; many medium clusters of gypsum crystals; strongly effervescent; slightly alkaline (pH 7.4); clear smooth boundary.
By2—9 to 13 inches; light yellowish brown (2.5Y 6/4) gypsiferous clay, olive brown (2.5Y 4/4) moist; massive; hard, friable sticky and plastic; few fine and common very fine roots; common very fine irregular pores; 5 percent gravel; common large clusters of gypsum crystals; slightly effervescent; neutral (pH 7.2); gradual smooth boundary.
Cr—13 to 28 inches; gypsiferous shale and sandstone.
2R—28 inches; sandstone.

Range in Characteristics

Particle-size control section: 18 to 35 percent clay
Depth to a paralithic contact: 10 to 20 inches to gypsiferous shale
Calcium carbonate equivalent: 1 to 5 percent
Reaction: slightly to moderately alkaline

A horizon:
Hue: 10YR or 2.5Y
Value: 5 or 6 dry, 4 or 5 moist
Chroma: 4 or 6 moist
Rock fragments: 0 to 5 percent sandstone gravel

By horizon:
Value: 5 to 7 dry; 4 or 5 moist
Chroma: 2 or 4 moist
Texture: clay loam or clay
Gypsum: 10 to 35 percent
Rock fragments: 0 to 5 percent sandstone gravel

Ligocki Series

Taxonomic class: Fine, mixed, superactive, frigid Typic Haplustalfs
Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
Geomorphic position: Valley sides
Parent material: Fan alluvium derived from sandstone, shale, and granite
Slope range: 1 to 5 percent
Elevation: 7,700 to 8,000 feet
Mean annual air temperature: 40 to 45 degrees F
Mean annual precipitation: 16 to 20 inches
Frost-free period: 90 to 110 days

Typical Pedon

Ligocki fine sandy loam, in an area of mapping unit 411, Ligocki-Robolata complex, 1 to 5 percent slopes; McKinley County, New Mexico; Page Quadrangle; 700 feet north and 500 feet west of the southeast corner of sec. 32, T. 13 N., R. 15 W.; latitude 35 degrees, 18 minutes, 31 seconds and longitude 108 degrees, 26 minutes, 35 seconds.

A—0 to 3 inches; brown (7.5YR 5/2) fine sandy loam, dark brown (7.5YR 3/2) moist; weak thin platy structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; neutral (pH 7.2); abrupt smooth boundary.
AB—3 to 9 inches; brown (7.5YR 5/2) fine sandy loam, dark brown (7.5YR 3/2) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; neutral (pH 7.2); clear smooth boundary.

Bt1—9 to 20 inches; reddish brown (5YR 4/4) clay, dark reddish brown (5YR 3/4) moist; strong fine and medium subangular blocky structure; very hard, very firm, sticky and plastic; common very fine, fine, and few medium roots; few fine and medium irregular pores; many prominent clay films on faces of peds; slightly alkaline (pH 7.4); abrupt wavy boundary.

2Btk1—20 to 30 inches; red (2.5YR 5/6) clay loam, red (2.5YR 4/6) moist; moderate medium subangular blocky structure; very hard, very firm, sticky and plastic; common very fine and fine roots; few very fine irregular pores; 4 percent gravel; many prominent clay films on faces of peds; strongly effervescent; common fine masses and concretions of calcium carbonate; 10 percent calcium carbonate equivalent; moderately alkaline (pH 8.2); clear wavy boundary.

2Btk2—30 to 48 inches; red (2.5YR 5/6) gravelly sandy clay loam, red (2.5YR 4/6) moist; moderate fine subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few very fine and fine roots; 20 percent gravel-sized limestone fragments; common distinct clay films on faces of peds; slightly effervescent; few very fine masses and concretions of calcium carbonate; calcium carbonate equivalent 11 percent; moderately alkaline (pH 8.2); clear wavy boundary.

3Btk3—48 to 70 inches; red (2.5YR 5/6) sandy clay loam, red (2.5YR 4/6) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; few distinct clay films bridging sand grains; very slightly effervescent; few very fine masses of calcium carbonate; 5 percent calcium carbonate equivalent; slightly alkaline (pH 7.8).

Range in Characteristics

Particle-size control section: 35 to 50 percent clay

A and AB horizons:
Hue: 7.5YR
Value: 4 or 5 dry, 3 moist
Chroma: 2 or 3
Textures: fine sandy loam or silt loam
Rock fragments: 0 to 5 percent gravel. All fragments are granite, sandstone, or limestone.
Reaction: neutral

Bt horizon:
Hue: 2.5YR or 5YR
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 4 or 6
Texture: clay
Rock fragments: 0 to 5 percent gravel. All fragments are granite, sandstone, or limestone.
Reaction: slightly alkaline

Btk horizon:
Hue: 2.5YR or 5YR
Value: 5 or 6 dry, 4 moist
Chroma: 6
Textures: clay loam or sandy clay loam
Rock fragments: 0 to 20 percent gravel. All fragments are granite, sandstone, or limestone.
Calcium carbonate equivalent: 5 to 15 percent
Reaction: moderately alkaline

Lockerby Series

Taxonomic class: Fine, smectitic, mesic Ustertic Haplocambids
Depth class: Moderately deep
Drainage class: Well drained
Permeability: Very slow
Geomorphic position: Hills and ridges
Parent material: Residuum derived from shale
Slope range: 5 to 15 percent
Elevation: 6,500 to 7,200
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 100 to 135 days

Typical Pedon

Lockerby silty clay loam, in an area of mapping unit 338, Zyme-Lockerby association, 5 to 35 percent slopes; McKinley County, New Mexico; Pinedale Quadrangle; about 1,950 feet east and 450 feet south of the northwest corner of sec. 27, T. 16 N., R. 15 W. latitude 35 degrees, 35 minutes, 35 seconds and longitude 108 degrees, 24 minutes, 27 seconds.

A—0 to 1 inches; light olive brown (2.5Y 5/4) silty clay loam, olive brown (2.5Y 4/4) moist; weak very fine granular structure; soft, very friable, moderately sticky and moderately plastic; few very fine roots; 5 percent gravel; very slightly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.

Bw—1 to 11 inches; light olive brown (2.5Y 5/4) clay, olive brown (2.5Y 4/4) moist; weak very fine subangular blocky structure; very hard, very firm, very sticky and very plastic; many very fine and fine roots; few to many pressure faces; 1 percent gravel; very slightly effervescent; slightly alkaline (pH 7.6); clear wavy boundary.

Bss—11 to 15 inches; light olive brown and dark grayish brown (2.5Y 5/4) and (2.5Y 4/2) clay, olive

brown and very dark grayish brown (2.5Y 4/4) and (2.5Y 3/2) moist; weak fine subangular blocky structure; very hard, very firm, very slightly effervescent; slightly alkaline (pH 7.6); abrupt wavy boundary.

Bssy—15 to 26 inches; light olive brown and dark grayish brown (2.5Y 5/4) and (2.5Y 4/2) clay, olive brown and very dark grayish brown (2.5Y4/4) and (2.5Y 3/2) moist; weak fine subangular blocky structure; very hard, very firm, very sticky and very plastic; few very fine roots; few non-intersecting slickensides; many very fine and fine masses of gypsum; non-effervescent; slightly alkaline (pH 7.6); abrupt smooth boundary.

Cr—26 inches; shale.

Range in Characteristics

Particle-size control section: 40 to 50 percent clay
Depth to paralithic contact: 20 to 40 inches
Vertic features: pressure faces and slickensides
Calcium carbonate equivalent: 1 to 5 percent
Reaction: slightly to moderately alkaline

A horizon:
Hue: 2.5Y or 10YR
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 3 or 4, dry and moist
Textures: silty clay loam or clay loam

Bw horizon:
Hue: 2.5Y or 10YR
Value: 5 to 6 dry, 4 to 5 moist
Chroma: 3 or 4, dry and moist
Textures: clay or silty clay

Bss and Bssy horizon:
Hue: 2.5Y or 10YR
Value: 4 to 6 dry, 3 to 5 moist
Chroma: 2 to 4, dry and moist
Textures: clay or silty clay

Marianolake Series

Taxonomic class: Fine-loamy, mixed, active, mesic Ustic Haplargids
Depth class: Very Deep
Drainage class: Well drained
Permeability: Moderately slow
Geomorphic position: Valley sides, mesas, cuestas, and drainageways
Parent material: Slope and fan alluvium derived from sandstone and shale
Slope range: 1 to 8 percent
Elevation: 6,200 to 7,300 feet
Mean annual air temperature: 49 to 54 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 120 to 140 days

Typical Pedon

Marianolake fine sandy loam, in an area of mapping unit 208, Marianolake fine sandy loam, 1 to 8 percent slopes; McKinley County, New Mexico; Casamero Lake Quadrangle; about 1,000 feet west and 1,500 feet south of the northeast corner of sec. 17, T. 15 N., R. 11 W.; latitude 35 degrees, 32 minutes, 05 seconds and longitude 108 degrees, 01 minutes, 02 seconds.

A—0 to 2 inches; light olive brown (2.5Y 5/3) fine sandy loam, olive brown (2.5Y 4/3) moist; weak very fine granular structure; soft, very friable, nonsticky and nonplastic; common very fine roots; 3 percent gravel; very slightly effervescent; slightly alkaline (pH 7.8); abrupt smooth boundary.

Bt1—2 to 8 inches; light olive brown (2.5Y 5/4) loam, olive brown (2.5Y 4/4) moist; weak fine and medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine roots; 1 percent gravel; few faint clay films on faces of peds; slightly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.

Bt2—8 to 14 inches; light olive brown (2.5Y 5/3) clay loam, olive brown (2.5Y 4/3) moist; strong very fine and fine subangular blocky structure; hard, firm, sticky and plastic; common very fine roots; common very fine irregular pores; 1 percent gravel; many distinct clay films on faces of peds; slightly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.

Bt3—14 to 24 inches; light olive brown (2.5Y 5/4) fine sandy loam, olive brown (2.5Y 4/3) moist; moderate medium prismatic parting to moderate very fine subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common very fine roots; few very fine irregular pores; 2 percent gravel; very few pockets of remnant alluvial stratification; few faint clay films on faces of peds; slightly effervescent; moderately alkaline (pH 8.0); clear wavy boundary.

Bk—24 to 39 inches; light yellowish brown (2.5Y 6/4) fine sandy loam, olive brown (2.5Y 5/4) moist; weak coarse subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common very fine roots; many very fine irregular pores; very few pockets of remnant alluvial stratification; slightly effervescent; few very fine masses of calcium carbonate; moderately alkaline (pH 8.0); clear smooth boundary.

C—39 to 70 inches; light olive brown (2.5Y 5/4) loamy

sand, olive brown (2.5Y 5/4) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; 5 percent gravel; slightly effervescent; moderately alkaline (pH 8.0).

Range in Characteristics

Particle-size control section: 18 to 34 percent clay
Calcium carbonate equivalence: 0 to 10 percent.
Gypsum percent: 0 to 2 percent
Rock fragments: 0 to 10 percent gravel. All fragments are sandstone.
Reaction: slightly alkaline in the surface to moderately alkaline in the subsoil

A horizon:
Hue: 2.5Y or 10YR
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 3 or 4 dry or moist
Textures: loam or fine sandy loam

Bt or Btk horizons:
Hue: 2.5Y or 10YR
Value: 4 or 5 dry, 3 to 5 moist
Chroma: 2 to 4 dry or moist
Texture: sandy clay loam, loam, silt loam, silty clay, silty clay loam, or clay loam.

BC and C horizons:
Hue: 2.5Y
Value: 4 or 5 dry and moist
Chroma: 2 to 4 dry and moist
Textures: loamy sand, fine sandy loam, or loam

Mcorreon Series

Taxonomic class: Fine, smectitic, mesic Calcidic Argiustolls
Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
Geomorphic position: Lava Plateaus
Parent material: Eolian material and slope alluvium over residuum derived from basalt
Slope range: 2 to 40 percent
Elevation: 6,500 to 8,600 feet
Mean annual air temperature: 47 to 53 degrees F
Mean annual precipitation: 13 to 16 inches
Frost-free period: 100 to 135 days

Typical Pedon

Mcorreon loam, in an area of mapping unit 395, Cabezon-Mcorreon complex, 2 to 8 percent slopes; McKinley County, New Mexico; Cerro Parido Quadrangle; 11,300 feet south and 1,600 feet west of the southeast corner of sec. 26, T. 16 N., R. 5 W.; latitude 35 degrees, 33 minutes, 07 seconds and longitude 107 degrees, 19 minutes, 50 seconds.

The surface is covered by about 10 percent gravel, 2 percent cobbles, and 1 percent stones.

A—0 to 2 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; moderate thin and medium platy structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; many fine and medium vesicular pores; 10 percent gravel, 2 percent cobbles, and 1 percent stones; neutral (pH 7.2); clear smooth boundary.
Bt1—2 to 13 inches; very dark grayish brown (10YR 3/2) clay, dark brown (7.5YR 3/2) moist; strong fine angular blocky structure; hard, firm, sticky and plastic; many very fine and fine, and few medium roots; common fine tubular pores; many prominent clay films on faces of peds; 2 percent gravel; neutral (pH 7.2); clear smooth boundary.
Bt2—13 to 19 inches; dark brown (7.5YR 3/3) clay, dark brown (7.5YR 3/2) moist; moderate medium prismatic parting to moderate medium angular blocky structure; very hard, very firm, very sticky and very plastic; common very fine and fine roots; common fine tubular pores; many prominent clay films on faces of peds; 10 percent gravel, 2 percent cobbles; slightly alkaline (pH 7.4); gradual irregular boundary.
Btk—19 to 27 inches; light brownish gray (10YR 6/2) clay loam, grayish brown (10YR 5/2) moist; moderate fine and medium subangular blocky structure; hard, firm, sticky and plastic; few very fine and fine roots; common fine irregular pores; common distinct clay films on faces of peds; 5 percent gravel; violently effervescent; 37 percent calcium carbonate equivalent; moderately alkaline (pH 8.0); clear smooth boundary.
Bk—27 to 70 inches; pinkish gray (7.5YR 7/2) clay loam, pinkish gray (7.5YR 6/2) moist; massive; hard, firm, sticky and plastic; few very fine and fine roots; common fine irregular pores; 5 percent gravel and 1 percent cobbles; violently effervescent; 43 percent calcium carbonate equivalent; moderately alkaline (pH 8.4).
R—70 inches; Basalt bedrock.

Range in Characteristics

Particle-size control section: 35 to 60 percent clay
Depth to calcic horizon: 15 to 40 inches
Depth to lithic contact: 60 to 80 inches to basalt

A horizon:
Hue: 7.5YR or 10YR

Value: 4 or 5 dry, 2 or 3 moist
Chroma: 2 or 3 dry or moist
Textures: loam, clay loam, or silty clay loam
Rock fragments: 0 to 60 percent total; 10 to 60 percent gravel, 0 to 40 percent cobbles, 0 to 1 percent stones. Rock fragments are basalt.
Reaction: neutral

Bt horizon
Hue: 7.5YR or 10YR
Value: 4 to 6 dry, 3 or 4 moist
Chroma: 2 to 4 dry or moist
Textures: clay loam or clay
Rock fragments: 0 to 15 percent total; 0 to 10 percent gravel, 0 to 5 percent cobbles. Rock fragments are basalt.
Reaction: neutral to slightly alkaline

Btk and Bk horizons:
Hue: 7.5YR or 10YR
Value: 4 to 6 dry, 3 or 4 moist
Chroma: 2 to 4 dry or moist
Textures: clay loam or clay
Rock fragments: 0 to 15 percent total; 0 to 10 percent gravel, 0 to 5 percent cobbles. Rock fragments are basalt.
Calcium carbonate equivalent: 15 to 45 percent
Reaction: Slightly to moderately alkaline

Mentmore Series

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ustic Haplargids
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Geomorphic position: Cuestas, drainageways, and valley sides
Parent material: Slope and fan alluvium derived from sandstone and shale
Slope range: 1 to 8 percent
Elevation: 6,100 to 7,200 feet
Mean annual air temperature: 45 to 49 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 100 to 135 days

Typical Pedon

Mentmore fine sandy loam, in an area of mapping unit 242, Gish-Mentmore complex, 1 to 8 percent slopes; McKinley County, New Mexico; Gallup East Quadrangle; 2,100 feet west, 1,400 feet north of the southeast corner sec. 21, T. 16 N., R. 17 W.; latitude 35 degrees, 35 minutes, 58 seconds and longitude 108 degrees, 38 minutes, 30 seconds.

A—0 to 2 inches; light olive brown (2.5Y 5/4) fine sandy loam, olive brown (2.5Y 4/4) moist; weak medium subangular blocky parting to weak very fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine roots; slightly alkaline (pH 7.6); abrupt smooth boundary (2 to 4 inches thick).

Bt1—2 to 4 inches; light olive brown (2.5Y 5/4) clay loam, olive brown (2.5Y 4/4) moist; strong very fine subangular blocky structure; hard, firm, sticky and plastic; many very fine roots; few very fine irregular pores; few faint clay films on faces of peds; slightly alkaline (pH 7.6); abrupt smooth boundary.

Bt2—4 to 13 inches; light olive brown (2.5Y 5/4) clay loam, olive brown (2.5Y 4/4) moist; strong fine and medium subangular blocky structure; hard, firm, sticky and plastic; many very fine roots; few very fine irregular pores; many distinct clay films on faces of peds; very slightly effervescent; slightly alkaline (pH 7.8); clear smooth boundary.

Bt3—13 to 24 inches; light olive brown (2.5Y 5/3) clay loam, olive brown (2.5Y 5/3) moist; moderate fine and medium subangular blocky structure; hard, firm, sticky and plastic; common very fine and few medium roots; common very fine irregular pores; common distinct clay films on faces of peds; 2 percent gravel; few krotovinas; common distinct clay films and very fine sand coating faces of peds; very slightly effervescent; slightly alkaline (pH 7.8); clear smooth boundary.

Bk1—24 to 44 inches; grayish brown (2.5Y 5/2) clay loam, dark grayish brown (2.5Y 4/2) moist; weak very fine and fine subangular blocky structure; hard, firm, sticky and plastic; common very fine roots; few very fine irregular pores; 1 percent gravel; few pockets of finely stratified material; slightly effervescent; few very fine masses of calcium carbonate; moderately alkaline (pH 8.0); clear smooth boundary.

Bk2—44 to 62 inches; grayish brown (2.5Y 5/2) clay loam, dark grayish brown (2.5Y 4/2) moist; weak fine and medium subangular blocky structure; hard, firm, sticky and plastic; few very fine roots; common very fine irregular pores; 3 percent gravel and 1 percent cobbles; few pockets of finely stratified material; slightly effervescent; few very fine masses of calcium carbonate; moderately alkaline (pH 8.0).

By—62 to 70 inches; grayish brown (2.5Y 5/2) clay loam, dark grayish brown (2.5Y 4/2) moist; weak fine and medium subangular blocky structure; very hard, very firm, sticky and plastic; few very fine roots; 3 inch strata of fine sandy loam;

noneffervescent; common very fine masses and filaments of gypsum; slightly alkaline (pH 7.6).

Range in Characteristics

Particle-size control section: 20 to 35 percent clay. The clay content of the Bt1 horizon can range up to 39 percent but is too thin to affect the particle-size family.
Calcium carbonate equivalent: 0 to 2 percent in the upper part and 2 to 10 percent in the lower subsoil
Gypsum percent: 0 to 2 percent in the lower subsoil
Reaction: slightly alkaline in the upper part and moderately alkaline in the lower subsoil.

A horizon:
Hue: 10YR or 2.5Y
Value: 5 to 7 dry, 3 to 5 moist
Chroma: 2 to 4 dry and moist
Rock fragments: 0 to 5 percent sandstone gravel
Texture: fine sandy loam, loam, or silt loam

Bt and Btk horizons:
Hue: 2.5Y
Value: 4 to 5 dry, 3 to 5 moist
Chroma: 2 to 4 dry and moist
Rock fragments: 0 to 5 percent sandstone gravel and 0 to 1 percent cobbles
Texture: loam, sandy clay loam or clay loam

Bk horizon:
Hue: 2.5Y
Value: 5 or 6 dry, 3 to 5 moist
Chroma: 2 to 4 dry and moist
Texture: clay loam or loam

Some pedons have By horizons.

Mido Series

Taxonomic class: Mixed, mesic Ustic Torripsamments
Depth class: Very deep
Drainage class: Excessively drained
Permeability: Rapid
Geomorphic position: Valley sides and valley floors
Parent material: Eolian material derived from sandstone
Slope range: 1 to 6 percent
Elevation: 6,300 to 6,700 feet
Mean annual air temperature: 49 to 53 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 120 to 140 days

Typical Pedon

Mido loamy fine sand, in an area of mapping unit 353, Mido loamy fine sand, 1 to 6 percent slopes; McKinley County, New Mexico; Zuni Quadrangle; 2,400 feet north and 100 feet east of sec. 20, T. 10 N., R. 19 W.; latitude 35 degrees, 04 minutes, 55 seconds and longitude 108 degrees, 52 minutes, 22 seconds.

A—0 to 3 inches; reddish brown (5YR 5/4) loamy fine sand, reddish brown (5YR 4/4) moist; weak medium platy structure; soft, very friable, nonsticky and nonplastic; common fine and many very fine roots; common very fine irregular pores; strongly effervescent; slightly alkaline (pH 7.8); abrupt smooth boundary.
C1—3 to 16 inches; yellowish red (5YR 5/6) loamy fine sand, reddish brown (5YR 4/4) moist; massive; soft, very friable, nonsticky and nonplastic; many fine and very fine roots; common very fine irregular pores; strongly effervescent; slightly alkaline (pH 7.8); gradual smooth boundary.
C2—16 to 65 inches; yellowish red (5YR 5/6) loamy fine sand, yellowish red (5YR 4/6) moist; massive; soft, very friable, nonsticky and nonplastic; common fine and very fine roots; common very fine irregular pores; strongly effervescent; slightly alkaline (pH 7.8).

Range in Characteristics

Particle-size control section: 2 to 10 percent clay
Reaction: slightly or moderately alkaline
Calcium carbonate equivalent: 0 to 1 percent

A horizon:
Hue: 2.5YR or 5YR
Value: 4 or 5 dry, 4 moist
Chroma: 4 to 6 dry and moist

C horizon:
Hue: 2.5YR or 5YR
Value: 4 or 5 moist
Chroma: 4 or 6 moist
Texture: loamy fine sand or fine sand

Mirabal Series

Taxonomic class: Loamy-skeletal, mixed, superactive, nonacid, frigid Typic Ustorthents
Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately rapid
Geomorphic position: Igneous domes of mountains
Parent material: Colluvial material over residuum derived from gneissic-granite
Slope range: 5 to 40 percent
Elevation: 7,800 to 8,200 feet
Mean annual air temperature: 40 to 45 degrees F
Mean annual precipitation: 16 to 20 inches

Frost-free period: 90 to 110 days

Typical Pedon

Mirabal extremely gravelly loamy sand, in an area of mapping unit 408, Mirabal-Zuni complex, 1 to 40 percent slopes; McKinley County, New Mexico; Upper Nutria Quadrangle; 2,000 feet east and 1,050 feet south of the northwest corner of sec. 23, T. 13 N., R. 16 W.; latitude 35 degrees, 20 minutes, 50 seconds and longitude 108 degrees, 30 minutes, 07 seconds.

The surface is covered by 60 percent gravel, 15 percent cobbles, and 15 percent stones.

Oi—0 to 1 inches; slightly decomposed pine needles.
A—1 to 2 inches; grayish brown (10YR 5/2) extremely gravelly loamy sand, very dark grayish brown (10 3/2) moist; single grain; soft, loose, nonsticky and nonplastic; common very fine and fine roots; 60 percent gravel, 15 percent cobbles, 15 percent stones; slightly acid (pH 6.4); abrupt smooth boundary.
AC—2 to 6 inches; dark grayish brown (10YR 4/2) gravelly sandy loam, very dark brown (10YR 2/2) moist; weak very fine and fine granular structure; soft, very friable, nonsticky and nonplastic; many fine and common medium roots; 20 percent gravel, 5 percent cobbles; slightly acid (pH 6.4); abrupt wavy boundary.
C1—6 to 13 inches; yellowish brown (10YR 5/4) very gravelly sandy loam, dark yellowish brown (10YR 3/4) moist; massive; soft, very friable, nonsticky and nonplastic; common fine and medium roots; 40 percent gravel, 10 percent cobbles, 1 percent stones; neutral (pH 6.8); clear wavy boundary.
C2—13 to 30 inches; yellowish brown (10YR 5/4) extremely gravelly sandy loam, dark yellowish brown (10YR 3/4) moist; massive; soft, very friable, nonsticky and nonplastic; few fine roots; 50 percent gravel, 10 percent cobbles, 10 percent stones; neutral (pH 6.8); abrupt smooth boundary.
R—30 inches; gneissic-granite.

Range in Characteristics

Particle size control section: 12 to 18 percent clay with 35 to 80 percent rock fragments
Depth to a lithic contact: 20 to 40 inches

A and AC horizons:
Hue: 5YR to 10YR
Value: 4 or 5 dry, 2 or 3 moist
Chroma: 2 or 3
Textures: sandy loam or loamy sand
Rock fragments: 80 percent total; 40 to 60 percent gravel, 5 to 15 percent cobbles, 0 to 15 percent stones. All fragments are gneissic-granite.
Reaction: slightly acid or neutral

C horizons:
Hue: 5YR to 10YR
Value: 5 or 6 dry, 3 or 4 moist
Chroma: 3 or 4
Textures: sandy loam or loamy sand
Rock fragments: 80 percent total: 40 to 60 percent gravel, 5 to 15 percent cobbles, 0 to 15 percent stones. All fragments are gneissic-granite.
Reaction: neutral

Moncisco Series

Taxonomic class: Loamy-skeletal over fragmental, mixed, active, mesic Typic Haplocalcids
Depth class: Very deep
Drainage class: Excessively drained
Permeability: Moderate over very rapid
Geomorphic position: Hills and ridges
Parent material: Eolian material from sandstone over residuum from porcelanite
Slope range: 2 to 45 percent
Elevation: 5,800 to 6,300 feet
Mean annual air temperature: 50 to 55 degrees F
Mean annual precipitation: 7 to 9 inches
Frost-free period: 130 to 150 days

Typical Pedon

Moncisco extremely channery sandy clay loam in an area of mapping unit 130, Chipeta-Badland-Moncisco complex, 2 to 45 percent slopes; San Juan County, New Mexico; The Pillar 3 NE Quadrangle; latitude 36 degrees, 06 minutes, 27 seconds and longitude 108 degrees, 16 minutes, 57 seconds.

A—0 to 3 inches; pale brown (10YR 6/3) extremely channery sandy clay loam, dark brown (10YR 4/3) moist; weak medium platy parting to moderate fine granular structure; soft, very friable, slightly sticky and slightly plastic; few very fine and fine roots; 65 percent channers and 5 percent flagstones; slightly effervescent; slightly alkaline (pH 7.6); clear smooth boundary.
Bk—3 to 13 inches; pinkish gray (7.5YR 7/2) extremely channery sandy loam, brown (7.5YR 5/4) moist; weak very fine granular structure; soft, very friable, slightly sticky and nonplastic; common very fine, fine, and few medium roots; 75 percent channers and 5 percent flagstones; violently effervescent; common very fine and fine masses of calcium carbonate; slightly alkaline (pH 7.8); clear wavy boundary.
2BCky—13 to 27 inches; brownish yellow (10YR 6/6) fragmental, yellowish brown (10YR 5/6) moist;

massive; loose; common very fine and few fine roots; 85 percent channers and 10 percent cobbles; strongly effervescent; few very fine and fine masses of calcium carbonate and gypsum crystals; clear wavy boundary.
2C1—27 to 39 inches; light red (2.5YR 6/6) fragmental, red (2.5YR 5/6) moist; massive; loose; few very fine and fine roots; 80 percent channers and 10 percent cobbles; gradual irregular boundary.
2C2—39 to 60 inches; light red (2.5YR 6/6) fragmental, red (2.5YR 5/6) moist; massive; loose; few very fine roots; 5 percent flagstones.

Range in Characteristics

Particle-size control section: 12 to 25 percent clay in the fine earth fraction and more than 35 percent rock fragments
Soil depth: more than 60 inches to bedrock
Depth to fragmental material: 11 to 20 inches
Reaction: slightly to moderately alkaline

A horizon:
Value: 5 or 6 dry
Chroma: 3 or 4
Calcium carbonate equivalence: 1 to 3 percent
Salinity: EC of 0 to 2 mmhos/cm
Rock fragments: 60 to 75 percent total; 0 to 10 percent gravel, 60 to 70 percent channers less than 3 inches long, 0 to 5 percent flagstones less than 10 inches long. All fragments are sandstone and porcelanite.

Bk horizon:
Hue: 5YR or 7.5YR
Value: 6 or 7 dry, 4 or 5 moist
Chroma: 2 to 4
Calcium carbonate equivalent: 5 to 20 percent. (In those profiles with sandy clay loam textures, the carbonates exceed 15 percent, and in those with sandy loam textures, the carbonate percentage may range as low as 5 percent.)
Salinity: EC of 4 to 8 mmhos/cm
Texture: sandy clay loam or sandy loam
Rock fragments: 70 to 85 percent total; 0 to 5 percent gravel; 65 to 75 percent channers with 10 to 15 percent greater than 3 inches long; 0 to 10 percent flagstones with 0 to 5 percent greater than 10 inches long.

2BCky or 2C horizons:
Hue: 10R to 5YR
Value: 4 to 7 dry, 4 to 6 moist
Chroma: 4 to 8
Calcium carbonate equivalent: 0 to 1 percent
Gypsum content: 0 to 1 percent
Salinity: EC of 0 to 2 mmhos/cm
Texture: fragmental material
Rock fragments: 90 to 100 percent total; 0 to 10 percent gravel, 60 to 85 percent channers with 10 to 15 percent greater than 3 inches long, 5 to 20 percent angular cobbles or flagstones with 0 to 5 percent greater than 10 inches long, 0 to 5 percent stones.
Other features: some pedons have horizons of loamy sand or sandy loam below 40 inches.

Monpark Series

Taxonomic class: Fine, smectitic, mesic Leptic Haplotorrerts
Depth class: Moderately deep
Drainage class: Well drained
Permeability: Very slow
Geomorphic position: Hills and valley sides
Parent material: Slope alluvium over residuum derived from shale
Slope range: 2 to 8 percent
Elevation: 6,000 to 7,000 feet
Mean annual air temperature: 49 to 53 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 120 to 140 days

Typical Pedon

Monpark silty clay in an area of mapping unit 361 Monpark silty clay, 2 to 8 percent slopes; McKinley County, New Mexico; Zuni Quadrangle; about 2.9 miles southwest of Zuni Pueblo; 1,900 feet east and 1,700 feet south of the northwest corner of Sec. 8, T. 9 N., R. 19 W.; latitude 35 degrees, 01 minutes, 40 seconds and longitude 108 degrees, 54 minutes, 32 seconds.

A—0 to 4 inches; red (2.5YR 4/6) silty clay, dark red (2.5YR 3/6) moist; strong thin platy structure parting to strong fine granular; soft, very friable, sticky and plastic; common very fine and fine roots; common fine irregular pores; vertical cracks 1 cm wide extend from surface to 20 inches; strongly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.
BC—4 to 7 inches; red (2.5YR 4/6) silty clay, dark red (2.5YR 3/6) moist; moderate fine and medium subangular blocky structure; hard, firm, sticky and plastic; many very fine and fine roots; common fine irregular pores; many pressure faces; strongly effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.
2BCss—7 to 27 inches; red (2.5YR 4/6) clay, dark red (2.5YR 3/6) moist; massive; extremely hard, extremely firm, very sticky and very plastic; few very fine and fine roots; few fine irregular pores; 5

percent shale fragments; many pressure faces and few 1- to 2-inch-diameter slickensides; strongly effervescent; strongly alkaline (pH 8.6); gradual wavy boundary.

2Cr—27 inches; shale.

Range in Characteristics

Particle-size control section: 40 to 60 percent clay
Depth to paralithic contact: 20 to 40 inches to shale
Calcium carbonate equivalent: 1 to 10 percent

A horizon:
Hue: 2.5YR or 5YR
Value: 3 to 5 dry, 3 or 4 moist
Chroma: 3 to 6
Salinity: EC of 0 to 2 mmhos/cm
Sodicity: SAR of 0 to 2
Reaction: slightly or moderately alkaline

BC horizons:
Hue: 2.5YR or 5YR
Value: 3 to 5 dry, 3 or 4 moist
Chroma: 3 to 6
Texture: silty clay or clay
Salinity: EC of 0 to 4 mmhos/cm
Sodicity: SAR of 2 to 5
Reaction: slightly to strongly alkaline

Montillo Series

Taxonomic class: Fine, mixed, superactive, frigid Vertic Argiustolls
Depth class: Moderately deep
Drainage class: Well drained
Permeability: Slow
Geomorphic position: Lava plateaus and cinder cones
Parent material: Eolian material and slope alluvium over residuum derived from basalt
Slope range: 2 to 15 percent
Elevation: 7,800 to 9,000 feet
Mean annual air temperature: 40 to 45 degrees F
Mean annual precipitation: 16 to 20 inches
Frost-free period: 90 to 110 days

Typical Pedon

Montillo very gravelly loam in an area of mapping unit 410, Montillo-Tsoodzil complex, 5 to 35 percent slopes; McKinley County, New Mexico; Marquez Quadrangle; latitude 35 degrees, 20 minutes, 05 seconds and longitude 107 degrees, 20 minutes, 07 seconds.

A—0 to 3 inches; reddish brown (5YR4/3), very gravelly loam, dark reddish brown (5YR3/2) moist; moderate thin and medium platy structure; soft, very friable, nonsticky and slightly plastic; common very fine and fine roots; common fine irregular pores; 25 percent gravel, 10 percent cobbles, and 1 percent stones; slightly acid (pH 6.4); clear smooth boundary.

Bt1—3 to 8 inches; dark reddish brown (5YR3/2), silty clay loam, dark reddish brown (5YR3/2) moist; moderate medium granular structure; hard, firm, sticky and very plastic; many very fine and fine roots; common fine irregular pores; common distinct clay films on faces of peds; 5 percent gravel and 2 percent cobbles; neutral (pH 6.6); clear smooth boundary.

Btss1—8 to 15 inches; dark reddish brown (5YR3/2) silty clay, dark reddish brown (5YR3/2) moist; moderate fine and medium angular blocky structure; very hard, very firm, sticky and very plastic; common very fine and fine and few medium roots; common fine tubular pores; few slickensides and pressure faces; few vertical cracks greater than 5 mm wide occur from 8 to 27 inches; many prominent clay films on faces of peds; 5 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.4); clear smooth boundary.

Btss2—15 to 27 inches; dark reddish brown (5YR 3/4) clay, dark reddish brown (5YR 3/3) moist; strong medium angular blocky structure; very hard, very firm, sticky and very plastic; common very fine and fine and few medium roots; common fine tubular pores; common slickensides and pressure faces; few vertical cracks greater than 5 mm wide occur from 8 to 27 inches; many prominent clay films on faces of peds; 5 percent gravel; slightly alkaline (pH 7.4); clear smooth boundary.

2Bt2—27 to 32 inches; reddish brown (5YR 4/3) very gravelly clay, dark reddish brown (5YR 3/3) moist; strong medium subangular blocky structure; very hard, very firm, sticky and very plastic; common very fine and fine roots; common fine tubular pores; many prominent clay films on faces of peds; 35 percent gravel and 1 percent cobbles; slightly alkaline (pH 7.6); abrupt irregular boundary.

2R—32 inches; basalt with few thin discontinuous coats of calcium carbonate at the upper contact.

Range in Characteristics

Particle-size control section: 40 to 60 percent clay with 0 to 30 percent rock fragments
Depth to lithic contact: 20 to 40 inches to basalt
Mollic epipedon thickness: 18 to 38 inches

Vertic features: Depth to slickensides and pressure faces is 8 to 13 inches; subsurface vertical cracks occur from 5 to 30 inches

A horizon:
Hue: 5YR, 7.5YR, or 10YR
Value: 3 or 4 dry, 2.5 or 3 moist
Chroma: 2 or 3 dry
Rock fragments: 5 to 40 percent total; 5 to 25 percent gravel, 0 to 10 percent cobbles, and 0 to 1 percent stones. All fragments are basalt and cinders.
Reaction: slightly acid to neutral

Bt horizons:
Hue: 5YR or 7.5YR
Value: 3 to 5 dry, 2.5 to 4 moist
Chroma: 2 to 6 dry, 1 to 4 moist
Texture: clay, silty clay, or clay loam and silty clay loam
Rock fragments: 0 to 45 percent total; 0 to 30 percent gravel, 0 to 25 percent cobbles, and 0 to 5 percent stones. All fragments are basalt and cinders.
Note: When a Bt horizon has greater than 35 percent rock fragments, it is either too thin or is too far below the particle size control section to affect the particle size class.
Reaction: neutral to slightly alkaline

Morclay Series

Taxonomic class: Fine, mixed, superactive, frigid Chromic Haplusterts
Depth class: Very deep
Drainage class: Well drained
Permeability: Very slow
Geomorphic position: Valley sides and floors
Parent material: Slope alluvium over residuum derived from shale
Slope range: 1 to 5 percent
Elevation: 7,400 to 7,800 feet
Mean annual air temperature: 40 to 45 degrees F
Mean annual precipitation: 16 to 20 inches
Frost-free period: 90 to 110 days

Typical Pedon

Morclay silty clay, in an area of mapping unit 413, Morclay silty clay, 1 to 5 percent slopes; McKinley County, New Mexico; Upper Nutria Quadrangle; about 1,500 feet south and 1,100 feet west of the northwest corner of sec. 14, T. 12 N., R. 16 W.; latitude 35 degrees, 16 minutes, 24 seconds and longitude 108 degrees, 30 minutes, 00 seconds.
A—0 to 1 inches; reddish brown (2.5YR 4/3) silty clay, dark reddish brown (2.5YR 3/3) moist; strong very fine granular structure; slightly hard, friable, sticky and plastic; common very fine and fine roots; slightly effervescent; slightly alkaline (pH 7.8); abrupt smooth boundary.
Bk1—1 to 5 inches; reddish brown (2.5YR 4/3) clay, dark reddish brown (2.5YR 3/3) moist; moderate thick platy structure; very hard, very firm, very sticky and very plastic; many very fine and fine roots; few very fine irregular pores; few pressure faces; few vertical cracks 1 cm wide; slightly effervescent; few very fine masses of calcium carbonate; slightly alkaline (pH 7.6); clear wavy boundary.
Bssk—5 to 48 inches; reddish brown (2.5YR 4/3) clay, dark reddish brown (2.5YR 3/3) moist; wedge-shaped aggregates; extremely hard, extremely firm, very sticky and very plastic; common very fine and fine roots; few very fine irregular pores; many pressure faces and intersecting slickensides; few vertical cracks more than 1 cm wide visible to a depth of 42 inches; slightly effervescent; few very fine masses of calcium carbonate; slightly alkaline (pH 7.6); gradual wavy boundary.
2Ck1—48 to 56 inches; pale red (2.5YR 6/2) clay, weak red (2.5YR 5/2) moist; massive; very hard, very firm, sticky and plastic; few very fine and fine roots; slightly effervescent; few very fine masses of calcium carbonate; slightly alkaline (pH 7.6); gradual wavy boundary.
2Ck2—56 to 70 inches; light gray (5YR 7/1) clay, gray (5YR 6/1) moist; massive; few very fine roots; 70 to 80 percent small (2 to 5 mm) soft shale fragments; slightly effervescent; few very fine masses of calcium carbonate; moderately alkaline (pH 8.0); gradual irregular boundary.
Cr—70 to 80 inches; dark gray (7.5YR 4/1) Chinle Shale.

Range in Characteristics

Particle-size control section: 40 to 60 percent clay
Vertic properties: slight gilgai microrelief on the surface, 0.5 inch-wide vertical cracks extend from the surface to 42 inches or more, pressure faces and slickensides are present below 2 inches.
Salinity: 0-2 mmhos/cm
Sodicity: SAR of 0 to 1
Calcium carbonate equivalent: 0 to 1 percent in the surface and 1 to 5 percent in the subsoil
Reaction: neutral to moderately alkaline

A horizons:
Hue: 2.5YR or 5YR
Value: 4 or 5 dry and 3 or 4 moist
Chroma: 3 dry and moist
Rock fragments: 0 to 5 percent sandstone gravel

Bssk horizons:
Hue: 2.5YR or 5YR
Value: 3 or 4 moist
Chroma: 3 dry and moist
Texture: clay or silty clay

Ck horizons:
Hue: 2.5YR or 5YR
Value: 6 or 7 dry, 5 or 6 moist
Chroma: 1 or 2

Nahodish Series

Taxonomic class: Fine, mixed, superactive, mesic Ustifluventic Haplocambids
Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
Geomorphic position: Valley floors
Parent material: Stream alluvium derived from sandstone and shale
Slope range: 0 to 2 percent
Elevation: 6,100 to 6,800 feet
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 100 to 135 days

Typical Pedon

Nahodish silt loam, in an area of mapping unit 240, Breadsprings and Nahodish soils, 0 to 2 percent slopes; McKinley County, New Mexico; 900 feet north and 200 feet east of the southwest corner of sec 25, T. 16 N., R. 20 W.; latitude 35 degrees 34 minutes 50 seconds and longitude 108 degrees 55 minutes 05 seconds.

A—0 to 1 inches; light olive brown (2.5Y 5/3) silt loam, olive brown (2.5Y 4/3) moist; thin surface crust and massive; soft, very friable, slightly sticky and slightly plastic; few very fine roots; slightly alkaline (pH 7.8); abrupt smooth boundary.
Bw1—1 to 9 inches; light olive brown (2.5Y 5/3) silty clay loam, olive brown (2.5Y 4/3) moist; weak fine subangular blocky structure; hard, friable, moderately sticky and moderately plastic; common very fine and fine roots; few very fine irregular pores; slightly alkaline (pH 7.8); abrupt smooth boundary.
Bw2—9 to 17 inches; light olive brown (2.5Y 5/4) silty clay, olive brown (2.5Y 4/4) moist; weak fine and medium subangular blocky structure; very hard, firm, moderately sticky and moderately plastic; many very fine and fine roots; common very fine irregular pores; few pressure faces and non-intersecting slickensides; very slightly effervescent; slightly alkaline (pH 7.8); gradual smooth boundary.
Bk1—17 to 31 inches; light olive brown (2.5Y 5/4) silty clay, olive brown (2.5Y 4/4) moist; weak fine and medium subangular blocky structure; very hard, firm, moderately sticky and moderately plastic; many very fine and fine roots; common very fine irregular pores; few pressure faces; few very fine masses of calcium carbonate; slightly effervescent; slightly alkaline (pH 7.8); abrupt smooth boundary.
Bk2—31 to 36 inches; light olive brown (2.5Y 5/4) clay loam, olive brown (2.5Y 4/4) moist; weak fine subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common very fine roots; few very fine irregular pores; few very fine masses of calcium carbonate; very slightly effervescent; slightly alkaline (pH 7.8); abrupt smooth boundary.
Bk3—36 to 58 inches; light olive brown (2.5Y 5/4) silt loam, olive brown (2.5Y 4/4) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; few very fine strata of silt loam; few very fine masses of calcium carbonate; strongly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.
Bky—58 to 70 inches; light olive brown (2.5Y 5/4) clay, olive brown (2.5Y 4/4) moist; massive; very hard, very firm, moderately sticky and moderately plastic; few very fine roots; few very fine masses of calcium carbonate and gypsum; slightly effervescent; moderately alkaline (pH 8.0).

Range in Characteristics

Particle-size control section: 35 to 50 percent clay
Depth to calcium carbonate: 10 to 30 inches
Percent calcium carbonate equivalent: less than 10 percent
Depth to gypsum accumulation: 21 to 58 inches
Percent gypsum: 1 to 10 percent
Reaction: Slightly to moderately alkaline
Salinity: EC of 0 to 4 mmhos/cm
Sodicity: SAR of 1 to 10.
Thin stratification occurs in some horizons.

A horizon:
Hue: 2.5Y
Value: 4 to 6 dry and 4 moist
Chroma: 2 or 3 dry and moist
Textures: silt loam or silty clay loam

Bw horizons:
Hue: 2.5Y
Value: 4 or 5 dry and moist

Chroma: 2 to 4 dry and moist
Textures: clay, silty clay loam, clay loam, or silty clay

Bk and Bky horizons:
Hue: 2.5Y
Value: 4 to 6 dry and 4 or 5 moist
Chroma: 3 or 4 dry or moist
Textures: clay, silty clay loam, silt loam, or clay loam

Some pedons are calcareous to the surface and have Bss horizons.

Norkiki Series

Taxonomic class: Fine-loamy, mixed, active, mesic Typic Haplargids
Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderate
Geomorphic position: Mesas, cuestas, hills, and ridges
Parent material: Eolian material and slope alluvium derived from sandstone and shale
Slope range: 1 to 8 percent
Elevation: 6,000 to 6,800 feet
Mean annual air temperature: 50 to 55 degrees F
Mean annual precipitation: 7 to 9 inches
Frost-free period: 130 to 150 days

Typical Pedon

Norkiki loamy sand, in an area of mapping unit 100, Norkiki-Kimnoli complex, 1 to 8 percent slopes; McKinley County, New Mexico; Becenti Lake Quadrangle; 300 feet north and 1,900 feet west of the southeast corner of sec 26. T. 19 N., R. 12 W.; latitude 35 degrees, 50 minutes, 30 seconds and longitude 108 degrees, 04 minutes, 47 seconds.

A—0 to 3 inches; brown (10YR 4/3) loamy sand, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; common fine and very fine roots; common fine irregular pores; neutral (pH 7.2); abrupt smooth boundary.
Bt1—3 to 13 inches; brown (7.5YR 4/4) sandy clay loam, dark brown (7.5YR 3/4) moist; moderate medium subangular blocky structure; soft, friable, slightly sticky and slightly plastic; common fine and very fine roots; common medium irregular pores; common distinct clay films bridging sand grains and lining pores; slightly alkaline (pH 7.4); clear smooth boundary.
Bt2—13 to 19 inches; strong brown (7.5YR 4/6) sandy loam, dark brown (7.5YR 3/4) moist; moderate fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common fine and very fine roots; common medium irregular pores; few faint clay films bridging sand grains; slightly alkaline (pH 7.4); clear smooth boundary.
Btk—19 to 28 inches; brown (7.5YR 5/4) sandy clay loam, dark brown (7.5YR 4/4) moist; moderate medium subangular blocky structure; hard, firm, sticky and plastic; common fine and very fine roots; common medium irregular pores; common faint clay films bridging sand grains and lining pores; 5 percent cobbles; strongly effervescent; common medium irregular seams of calcium carbonate; slightly alkaline (pH 7.6); abrupt smooth boundary.
2R—28 inches; hard sandstone.

Range in Characteristics

Particle-size control section: 18 to 30 percent clay
Depth to bedrock: 20 to 40 inches to hard sandstone.
*Depth to secondary calcium carbonates:*13 to 25 inches.
Calcium carbonate equivalence: 0 to 5 percent in the surface and 5 to 15 percent in the subsoil.

A horizon:
Hue: 7.5YR or 10YR
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 3 or 4 dry and moist
Rock fragments: 0 to 10 percent gravel

Bt horizon:
Hue: 7.5YR or 10YR
Value: 4 or 5 dry, 3 to 5 moist
Chroma: 4 or 6 dry and moist
Texture: sandy clay loam, fine sandy loam, sandy loam, or clay loam.

Btk and Bk horizons:
Hue: 7.5YR or 10YR
Value: 5 to 7 dry, 4 to 6 moist
Chroma: 4 or 6 dry and moist
Texture: sandy clay loam, clay loam, or loamy fine sand

Notal Series

Taxonomic class: Fine, mixed, active, calcareous, mesic Typic Torriorthents
Depth class: Very deep
Drainage class: Well drained
Permeability: Very slow
Geomorphic position: Valley floors
Parent material: Stream alluvium derived from sandstone and shale
Slope range: 0 to 2 percent
Elevation: 5,600 to 6,000 feet

Mean annual air temperature: 50 to 55 degrees F
Mean annual precipitation: 7 to 9 inches
Frost-free period: 130 to 150 days

Typical Pedon

Notal loam, in an area of mapping unit 235, Notal-Hamburn complex, 0 to 2 percent slopes; McKinley County, New Mexico; Mesa Cortada Quadrangle; 7,600 feet south and 1,500 feet west of the southeast corner of sec. 26, T. 16 N., R. 6 W.; latitude 35 degrees, 33 minutes, 43 seconds and longitude 107 degrees, 26 minutes, 20 seconds.

A—0 to 1 inches; light yellowish brown (2.5Y 6/3) loam, olive brown (2.5Y 4/3) moist; strong medium thick platy structure; slightly hard, friable, sticky and plastic; few very fine and fine roots; common very fine and fine vesicular pores; SAR of 10; EC of 1.3 mmhos/cm; slightly effervescent; strongly alkaline (pH 8.8); abrupt smooth boundary.

C—1 to 3 inches; light olive brown (2.5Y 5/3) clay loam, olive brown (2.5Y 4/3) moist; moderate medium and thick platy structure; extremely hard, extremely firm, very sticky and very plastic; common very fine and fine roots; common fine irregular pores; SAR is 8; EC is 0.8 mmhos/cm; slightly effervescent; strongly alkaline (pH 8.8); clear wavy boundary.

Cn1—3 to 13 inches; olive brown (2.5Y 4/4) sandy clay loam, olive brown (2.5Y 4/3) moist; weak thin and medium platy structure; very hard, very firm, slightly sticky and plastic; common very fine and fine roots; common fine irregular pores; SAR of 15; EC of 1.8 mmhos/cm; slightly effervescent; strongly alkaline (pH 9.0); clear wavy boundary.

Cn2—13 to 21 inches; light olive brown (2.5Y 5/3) clay loam, olive brown (2.5Y 4/3) moist; weak medium and thick platy structure; extremely hard, extremely firm, very sticky and very plastic; common very fine and fine roots; common fine irregular pores; SAR of 15; EC of 2.0; slightly effervescent; strongly alkaline (pH 8.7); clear smooth boundary.

Cnkz1—21 to 27 inches; light olive brown (2.5Y 5/3) clay loam, olive brown (2.5Y 4/3) moist; weak medium and thick platy structure; extremely hard, extremely firm, very sticky and very plastic; common very fine and fine roots; common fine irregular pores; SAR of 11; EC of 5.4 mmhos/cm; trace percent of gypsum; common fine filaments of sodium sulfate; slightly effervescent; very few very fine masses of calcium carbonate; strongly alkaline (pH 8.6); gradual wavy boundary.

Cnkz2—27 to 44 inches; light olive brown (2.5Y 5/3) silty clay, olive brown (2.5Y 4/3) moist; strong fine and medium subangular blocky structure; extremely hard, extremely firm, very sticky and very plastic; few very fine and fine roots; common fine tubular pores; SAR of 13; EC of 5.3 mmhos/cm; common fine filaments of sodium sulfate; slightly effervescent; very few very fine masses of calcium carbonate; moderately alkaline (pH 8.2); clear wavy boundary.

Cnkz3—44 to 65 inches; light olive brown (2.5Y 5/4) sandy clay loam, olive brown (2.5Y 4/4) moist; weak very thick platy structure; very hard, very firm, sticky and plastic; few very fine and fine roots; few fine irregular pores; SAR of 15; EC of 2.2 mmhos/cm; common fine filaments and masses of sodium sulfate; strongly effervescent; very few very fine masses of calcium carbonate; strongly alkaline (pH 8.8).

Range in Characteristics

Particle-size control section: 35 to 55 percent clay
Calcium carbonate equivalent: 0 to 5 percent
Rock fragments: 1 to 5 percent gravel
Reaction: slightly to very strongly alkaline

A horizon:
Hue: 10YR or 2.5Y
Value: 5 or 6 dry, 4 or 5 moist
Chroma: 2 or 3
Salinity: EC of 0 to 4 mmhos/cm
Sodicity: SAR of 5 to 13

C horizons:
Hue: 10YR or 2.5Y
Value: 4 to 6 dry, 4 or 5 moist
Chroma: 3 or 4
Texture: clay loam, sandy clay loam, silty clay, or clay
Salinity: EC of 2 to 16 mmhos/cm
Sodicity: SAR of 8 to 30

Some pedons have thin strata of silt loam, very fine sandy loam, or loam.

Nuffel Series

Taxonomic class: Fine-silty, mixed, superactive, calcareous, mesic Ustic Torrifluvents
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow and slow
Geomorphic position: Valley floors
Parent material: Stream alluvium derived from siltstone and shale
Slope range: 0 to 3 percent
Elevation: 6,100 to 6,500 feet
Mean annual air temperature: 49 to 54 degrees F

Mean annual precipitation: 10 to 13 inches
Frost-free period: 120 to 140 days

Typical Pedon

Nuffel silt loam, in an area of mapping unit 336, Nuffel-Venadito complex, 1 to 3 percent slopes; McKinley County, New Mexico; Tekapo Quadrangle; 1,200 feet north and 600 feet east of the southwest corner of sec. 16, T. 9 N., R. 20 W.; latitude 35 degrees, 00 minutes, 13 seconds and longitude 108 degrees, 58 minutes, 09 seconds.

A—0 to 2 inches; light red (2.5YR 6/6) silt loam, reddish brown (2.5YR 4/4) moist; moderate medium platy structure; soft, very friable, slightly sticky and slightly plastic; few medium and common fine and very fine roots; common fine tubular pores; violently effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.
C1—2 to 10 inches; reddish brown (2.5YR 5/4) sandy loam, reddish brown (2.5YR 4/4) moist; massive; soft, very friable, nonsticky and nonplastic; few medium and common fine and very fine roots; few very fine irregular pores; strongly effervescent; moderately alkaline (pH 8.0); abrupt wavy boundary.
C2—10 to 17 inches; reddish brown (2.5YR 5/4) silt loam, reddish brown (2.5YR 4/4) moist; massive; soft, very friable, slightly sticky and slightly plastic; common fine and very fine roots; common fine tubular pores; violently effervescent; moderately alkaline (pH 8.0); clear smooth boundary.
C3—17 to 20 inches; red (2.5YR 4/6) loam, reddish brown (2.5YR 4/4) moist; massive; slightly hard, friable, slightly sticky and nonplastic; common fine and very fine roots; common fine tubular pores; strongly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.
C4—20 to 47 inches; red (2.5YR 5/6) silty clay loam, reddish brown (2.5YR 4/4) moist; massive; slightly hard, friable slightly sticky and slightly plastic; common fine and very fine roots; common fine tubular pores; violently effervescent; moderately alkaline (pH 8.0); clear smooth boundary.
2Ab—47 to 65 inches; red (2.5YR 4/6) silty clay, dark red (2.5YR 3/6) moist; massive; very hard, very firm, very sticky and very plastic; few fine and very fine roots; few very fine irregular pores; violently effervescent; moderately alkaline (pH 8.0).

Range in Characteristics

Particle-size control section: 18 to 35 percent clay and less than 15 percent fine sand or coarser
Calcium carbonate equivalent: 5 to 10 percent
Sodicity: SAR of 0 to 5
Reaction: slightly to strongly alkaline

A horizon:
Hue: 2.5YR or 5YR
Value: 4 to 6 dry, 3 or 4 moist
Chroma: 4 or 6

C horizons:
Hue: 2.5YR or 5YR
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 4 or 6
Texture: Highly stratified layers of silt loam, silty clay loam, and loam in the particle-size control section and fine sandy loam, sandy loam, loam, sandy clay loam, silty clays, and clay loams in the lower C horizons.

Nutreeah Series

Taxonomic class: Fine, mixed, superactive, mesic Pachic Argiustolls
Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Very slow
Geomorphic position: Valley floors
Parent material: Stream alluvium derived from sandstone and shale
Slope range: 0 to 2 percent
Elevation: 6,600 to 7,000 feet
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 13 to 16 inches
Frost-free period: 100 to 135 days

Typical Pedon

Nutreeah clay loam, in an area of mapping unit 45, Nutreeah clay loam, 0 to 2 percent slopes; McKinley County, New Mexico; Upper Nutria Quadrangle; 800 feet north and 100 feet east of the southwest corner of sec. 24, T. 12 N., R. 17 W.; latitude 35 degrees, 15 minutes, 08 seconds and longitude 108 degrees, 35 minutes, 30 seconds.

Ap1—0 to 5 inches; reddish brown (5YR 4/4) clay loam, dark reddish brown (5YR 3/2) moist; strong medium granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine irregular and few fine tubular pores; slightly effervescent; slightly alkaline (pH 7.6); clear smooth boundary.
Ap2—5 to 10 inches; reddish brown (5YR 4/3) clay loam, dark reddish brown (5YR 3/2) moist; strong medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many

very fine and fine roots; many very fine irregular and few fine tubular pores; common prominent clay films on faces of peds; slightly effervescent; slightly alkaline (pH 7.6); clear smooth boundary.

Bt1—10 to 16 inches; reddish brown (5YR 4/3) clay loam, dark reddish brown (5YR 3/2) moist; strong coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine irregular and common medium tubular pores; common prominent clay films on faces of peds; slightly effervescent; slightly alkaline (pH 7.6); clear smooth boundary.

Btk—16 to 24 inches; reddish brown (5YR 4/3) clay, dark reddish brown (5YR 3/2) moist; strong coarse subangular blocky structure; hard, firm, sticky and plastic; many very fine and fine roots; many very fine irregular and few fine tubular pores; common prominent clay films on faces of peds; slightly effervescent; few fine irregular filaments of calcium carbonate; slightly alkaline (pH 7.6); clear smooth boundary.

Btz—24 to 40 inches; dark reddish brown (5YR 3/3) clay, dark reddish brown (5YR 3/2) moist; weak medium subangular blocky structure; very hard, very firm, sticky and plastic; common very fine and fine roots; few very fine irregular pores; common prominent clay films on faces of peds; common fine clusters of salt crystals; slightly effervescent; slightly alkaline (pH 7.6); abrupt wavy boundary.

C—40 to 65 inches; dark brown (10YR 3/3) clay, very dark grayish brown (10YR 3/2) moist; common fine distinct dark yellowish brown (10 YR 3/6) and few fine faint gray mottles; massive; very hard, very firm, very sticky and very plastic; few very fine roots; few very fine irregular pores; few small slickensides and few pressure faces; slightly effervescent; slightly alkaline (pH 7.6).

Range in Characteristics

Particle-size control section: 35 to 55 percent clay
Depth to salt crystals: 20 to 35 inches
Water table: Intermittent below 40 inches during March through June
Reaction: Slightly to moderately alkaline

A horizon:
Value: 3 to 5 dry
Chroma: 3 or 4 dry, 2 or 3 moist

Bt horizons:
Value: 3 to 5 dry, 3 or 4 moist
Chroma: 2 to 4 dry, 2 or 3 moist
Texture: clay loam or clay
Salinity: EC of 0 to 2 mmhos/cm in the upper part and 2 to 4 mmhos/cm in the lower part.
Sodicity: SAR of 0 to 5

C horizon:
Hue: 5YR, 7.5YR or 10YR
Value: 3 or 4 dry or moist
Chroma: 2 to 4 dry or moist
Texture: clay loam or clay
Reaction: slightly or moderately alkaline
Salinity: EC of 2 to 8 mmhos/cm
Sodicity: SAR of 0 to 5

Orlie Series

Taxonomic class: Fine-loamy, mixed, superactive, mesic Aridic Haplustalfs
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Geomorphic position: Mesas and cuestas
Parent material: Eolian material and slope alluvium derived from sandstone and shale
Slope range: 1 to 5 percent
Elevation: 6,800 to 7,500 feet
Average annual air temperature: 46 to 49 degrees F
Average annual precipitation: 13 to 14 inches
Frost-free period: 100 to 135 days

Typical Pedon

Orlie fine sandy loam, in an area of mapping unit 30, Orlie-Tinian complex, 1 to 6 percent slopes; McKinley County, New Mexico; Rincon Marquez Quadrangle; 1,200 feet east and 500 feet south of the northwest corner of sec. 7, T. 18 N., R. 5 W.; latitude 35 degrees, 49 minutes, 29 seconds and longitude 107 degrees, 24 minutes, 15 seconds.

A—0 to 2 inches; brown (10YR 5/3) fine sandy loam, dark brown (7.5YR 4/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; common fine and very fine roots; many very fine irregular pores; neutral (pH 7.2); abrupt smooth boundary.

BA—2 to 5 inches; brown (10YR 4/3) loam, dark brown (7.5YR 3/4) moist; weak medium subangular blocky structure; soft, friable, nonsticky and nonplastic; common fine and very fine roots; common fine irregular pores; neutral; abrupt smooth boundary.

Bt—5 to 15 inches; brown (7.5YR 4/4) clay loam, dark brown (7.5YR 3/4) moist; weak medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common fine and very fine roots; common medium and fine irregular pores;

many distinct clay films on faces of peds and lining pores; neutral (pH 7.2); abrupt smooth boundary.
Bk1—15 to 36 inches; yellowish brown (10YR 5/4) sandy clay loam, dark yellowish brown (10YR 4/4) moist; massive; hard, firm, slightly sticky and nonplastic; common fine and very fine roots; common fine irregular pores; strongly effervescent; common fine irregular seams and filaments of calcium carbonate; 10 percent calcium carbonate equivalent; slightly alkaline (pH 7.8); clear smooth boundary.
Bk2—36 to 50 inches; brown (10YR 4/3) silty clay loam, dark brown (10YR 3/3) moist; massive; slightly hard, friable sticky and slightly plastic; few fine and very fine roots; common fine irregular pores; slightly effervescent; few very fine seams of calcium carbonate; moderately alkaline (pH 8.4); clear smooth boundary.
Bk3—50 to 62 inches; yellowish brown (10YR 5/4) clay loam, dark yellowish brown (10YR 4/4) moist; massive; hard, firm, slightly sticky and slightly plastic; common very fine irregular pores; slightly effervescent; few very fine seams of calcium carbonate; slightly alkaline (pH 7.6).

Range in Characteristics

Particle-size control section: 27 to 35 percent clay
Rock fragments: 0 to 5 percent sandstone gravel

A horizon:
Hue: 7.5YR or 10YR
Value: 4 or 5 dry and moist
Chroma: 3 or 4 moist
Reaction: neutral to slightly alkaline

Bt horizons:
Hue: 7.5YR or 10YR
Value: 3 or 4 moist
Chroma: 4 dry and moist
Texture: clay loam or silty clay loam
Reaction: neutral to slightly alkaline

Bk horizons:
Hue: 7.5YR or 10YR
Value: 4 or 5 dry, 3 to 5 moist
Chroma: 3 or 4 dry, 3 to 6 moist
Texture: sandy clay loam, silty clay loam, or clay loam
Calcium carbonate equivalent: 5 to 10 percent
Reaction: slightly alkaline to moderately alkaline

Osoridge Series

Taxonomic class: Clayey, mixed, superactive, frigid Lithic Haplustalfs
Depth class: Shallow
Drainage class: Well drained
Permeability: Slow
Geomorphic position: Cuestas
Parent material: Slope alluvium over residuum derived from sandstone and shale
Slope range: 2 to 15 percent
Elevation: 7,500 to 7,900 feet
Mean annual air temperature: 40 to 45 degrees F
Mean annual precipitation: 16 to 20 inches
Frost-free period: 90 to 110 days

Typical Pedon

Osoridge very gravelly clay loam, in an area of mapping unit 418, Asaayi-Osoridge complex, 2 to 15 percent slopes; McKinley County, New Mexico; Page Quadrangle; 2,550 feet west and 700 feet south of the northeast corner of sec. 12, T. 12 N., R. 16 W.; latitude 35 degrees, 17 minutes, 26 seconds and longitude 108 degrees, 28 minutes, 33 seconds.

The surface is covered by 30 percent gravel, 5 percent cobbles, and 5 percent stones.

A—0 to 2 inches; reddish brown (2.5YR 4/3) very gravelly clay loam, dark reddish brown (2.5YR 3/3) moist; weak fine granular structure; slightly hard, friable, moderately sticky and moderately plastic; few very fine and fine roots; common fine vesicular pores; 30 percent gravel, 5 percent cobbles, and 5 percent stones; neutral; abrupt smooth boundary.
Bt1—2 to 6 inches; reddish brown (2.5YR 4/4) clay, dark reddish brown (2.5YR 3/4) moist; moderate fine subangular blocky structure; hard, firm, very sticky and very plastic; common very fine and fine roots; common fine irregular pores; many distinct clay films on faces of peds; 10 percent gravel and 2 percent cobbles; neutral; clear smooth boundary.
Bt2—6 to 18 inches; red (2.5YR 4/6) clay, dark red (2.5YR 3/6) moist; strong moderate and coarse subangular blocky structure; very hard, very firm, very sticky and very plastic; few very fine and fine roots; few fine irregular pores; many prominent clay films on faces of peds; neutral; abrupt smooth boundary.
R—18 inches; Chinle sandstone.

Range in Characteristics

Particle-size control section: 35 to 50 percent clay
Depth to lithic contact: 10 to 20 inches to sandstone
Reaction: slightly acid or neutral

A horizon:
Hue: 2.5YR to 7.5YR
Value: 3 or 4 dry and moist
Chroma: 3 or 4

Rock fragments: 15 to 70 percent total; 15 to 50 percent gravel, 0 to 5 percent cobbles, 0 to 5 percent stones. All fragments are sandstone.

Bt horizon:
Hue: 10R to 5YR
Value: 3 or 4 dry and moist
Chroma: 4 or 6
Textures: clay loam or clay
Rock fragments: 0 to 15 percent total; 0 to 15 percent gravel, 0 to 5 percent cobbles. All fragments are sandstone.

Owlrock Series

Taxonomic class: Loamy-skeletal, mixed, superactive, frigid Lithic Argiustolls
Depth class: Very shallow and shallow
Drainage class: Well drained
Permeability: Moderate
Geomorphic position: Cuestas
Parent material: Residuum derived from dolomitic limestone
Slope range: 2 to 8 percent
Elevation: 7,200 to 8,200 feet
Mean annual air temperature: 40 to 45 degrees F
Mean annual precipitation: 16 to 20 inches
Frost-free period: 90 to 110 days

Typical Pedon

Owlrock very gravelly loam, in an area of mapping unit 405, Fortwingate-Owlrock complex, 2 to 8 percent slopes; McKinley County, New Mexico; Upper Nutria Quadrangle; 2,200 feet east and 1,250 feet south of the northwest corner of sec. 22, T. 13 N., R. 16 W.; latitude 35 degrees, 20 minutes, 51 seconds and longitude 108 degrees, 31 minutes, 18 seconds.

The surface is covered by 40 percent gravel, 10 percent cobbles, and 5 percent stones.

A—0 to 1 inch; grayish brown (10YR 5/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; weak very fine granular structure; soft, very friable, slightly sticky and nonplastic; many very fine and fine roots; few very fine irregular pores; 40 percent gravel, 10 percent cobbles, 5 percent stones; strongly effervescent; 14 percent calcium carbonate equivalent; moderately alkaline (8.2); abrupt smooth boundary.
Btk1—1 to 6 inches; grayish brown (10YR 5/2) very cobbly loam, very dark grayish brown (10YR 3/2) moist; weak very fine and fine subangular blocky structure; slightly hard, very friable, slightly sticky and nonplastic; common very fine, fine, and few medium roots; few very fine irregular pores; few distinct clay films on faces of peds; 10 percent gravel, 50 percent cobbles, 5 percent stones; slightly effervescent; few very fine and fine concretions and masses of calcium carbonate; 10 percent calcium carbonate equivalent; moderately alkaline (8.0); abrupt smooth boundary.
Btk2—6 to 13 inches; brown (7.5YR 5/2) very cobbly loam, dark brown (7.5YR 3/2) moist; weak very fine and fine subangular blocky structure; soft, very friable, slightly sticky and nonplastic; few very fine, fine, and medium roots; 10 percent gravel, 50 percent cobbles, 5 percent stones; strongly effervescent; common very fine and fine concretions of calcium carbonate; 14 percent calcium carbonate equivalent; moderately alkaline (8.0); abrupt smooth boundary.
R—13 inches; San Andreas limestone.

Range in Characteristics:

Particle-size control section: 15 to 30 percent clay and 35 to 75 percent rock fragments
Mollic epipedon: 4 to 15 inches thick
Depth to lithic contact: 7 to 20 inches to limestone
Calcium carbonate equivalent: 5 to 15 percent
Reaction: slightly to moderately alkaline

A horizon:
Hue: 5YR, 7.5YR, or 10YR
Value: 4 or 5 dry
Chroma: 2 or 3
Rock fragments: 50 to 80 percent total; 35 to 40 percent gravel, 10 to 40 percent cobbles, 0 to 5 percent stones. All fragments are limestone.

Btk1 horizon:
Hue: 5YR, 7.5YR, or 10YR
Value: 4 or 5 dry
Chroma: 2 through 4
Rock fragments: 35 to 75 percent total; 5 to 10 percent gravel, 25 to 50 percent cobbles, and 5 to 10 percent stones. All fragments are limestone.

Btk2 horizon:
Hue: 5 YR or 7.5YR
Value: 4 or 5 dry
Chroma: 2 or 3
Textures: loam or clay loam
Rock fragments: 35 to 75 percent total; 5 to 10 percent gravel, 25 to 50 percent cobbles, and 5 to 10 percent stones. All fragments are limestone.

Some pedons have a Bk horizon above the lithic contact.

Parkelei Series

Taxonomic class: Fine-loamy, mixed, superactive, mesic Aridic Haplustalfs
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate and moderately slow
Geomorphic position: Mesas, cuestas, plateaus, drainageways, and valley sides
Parent material: Eolian material and slope alluvium derived from sandstone and shale
Slope range: 1 to 8 percent
Elevation: 6,500 to 8,000 feet
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 13 to 16 inches
Frost-free period: 100 to 135 days

Typical Pedon

Parkelei fine sandy loam, in an area of mapping unit 320, Parkelei-Fraguni complex, 1 to 8 percent slopes; McKinley County, New Mexico; Vanderwagon Draw Quadrangle; 1,700 feet north and 2,600 feet west of the southeast corner of sec. 31, T. 12 N., R. 18 W.; latitude 35 degrees, 13 minutes, 25 seconds and longitude 108 degrees, 46 minutes, 08 seconds.

A—0 to 4 inches; brown (7.5YR 5/3) fine sandy loam, dark brown (7.5YR 4/3) moist; weak very fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine, fine, and few medium roots; few very fine irregular pores; neutral (pH 6.8); abrupt smooth boundary.

Bt1—4 to 18 inches; reddish brown (5YR 4/4) sandy clay loam, dark reddish brown (5YR 3/4) moist; moderate fine and medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; many very fine, fine, and few medium roots; few very fine irregular pores; common distinct clay films on faces of peds; neutral (pH 7.0); clear smooth boundary.

Bt2—18 to 28 inches; yellowish red (5YR 5/6) sandy clay loam, yellowish red (5YR 4/6) moist; moderate medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few fine and medium roots; few very fine irregular pores; common distinct clay films on faces of peds; slightly alkaline (pH 7.4); clear smooth boundary.

Bt3—28 to 39 inches; reddish brown (5YR 5/4) sandy clay loam, reddish brown (5YR 4/4) moist; weak fine and medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; few faint clay films on faces of peds and bridging sand grains; 1 percent sandstone gravel; slightly alkaline (pH 7.6); abrupt smooth boundary.

Btk—39 to 52 inches; reddish brown (5YR 5/4) sandy clay loam, reddish brown (5YR 4/4) moist; weak fine and medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; few faint clay films on faces of peds and bridging sand grains; very slightly effervescent; common fine masses of calcium carbonate; moderately alkaline (pH 8.0); clear smooth boundary.

Bk—52 to 70 inches; light reddish brown (5YR 6/4) fine sandy loam, reddish brown (5YR 5/4) moist; weak very fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; very slightly effervescent; few very fine masses of calcium carbonate; moderately alkaline (pH 8.0).

Range in Characteristics

Particle-size control section: 20 to 35 percent clay greater than 35 percent sand

A horizon:
Hue: 7.5YR or 10YR
Value: 3 to 6 dry, 3 or 4 moist
Chroma: 3 or 4 dry, 2 or 4 moist
Texture: fine sandy loam, sandy loam, or loam
Rock fragments: 0 to 10 percent sandstone gravel or channers
Reaction: neutral to slightly alkaline

Bt horizons:
Hue: 5YR to 10YR
Value: 4 to 6 dry, 3 or 4 moist
Chroma: 3 to 6
Texture: sandy clay loam or clay loam
Rock fragments: 0 to 10 percent sandstone gravel or channers
Reaction: neutral to moderately alkaline

Btk or Bk horizons:
Hue: 5YR to 10YR
Value: 3 to 6 dry, 4 to 7 moist
Chroma: 4 to 6 dry, 2 to 6 moist
Texture: sandy clay loam, clay loam, or sandy loam
Rock fragments: 0 to 10 percent sandstone gravel or channers
Calcium carbonate equivalent: 2 to 10 percent
Reaction: moderately alkaline

Some pedons have a C horizon.

Penistaja Series

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ustic Haplargids
Depth class: Very deep
Drainage class: Well drained

Permeability: Moderate
Geomorphic position: Mesas, cuestas, drainageways, and valley sides
Parent material: Eolian material and slope alluvium derived from sandstone and shale
Slope range: 1 to 5 percent
Elevation: 6,200 to 7,100 feet
Mean annual air temperature: 49 to 54 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 120 to 140 days

Typical Pedon

Penistaja sandy loam, in an area of mapping unit 205, Penistaja-Tintero complex, 1 to 10 percent slopes; McKinley County, New Mexico; Bluewater Quadrangle; 700 feet west and 700 feet north of the southeast corner of sec. 32, T. 13 N., R. 10 W.; latitude 35 degrees, 18 minutes, 25 seconds and longitude 107 degrees, 54 minutes, 45 seconds.

A—0 to 3 inches; brown (7.5YR 5/4) sandy loam, dark brown (7.5YR 4/4) moist; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; common fine and very fine roots; common very fine irregular pores; neutral (pH 7.2); abrupt smooth boundary.

Bt1—3 to 12 inches; dark brown (7.5YR 4/4) sandy clay loam, strong brown (7.5YR 4/6) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; few medium and common fine and very fine roots; few fine tubular pores; common distinct clay films bridging sand grains and lining pores; neutral (pH 7.2); clear smooth boundary.

Bt2— 12 to 19 inches; strong brown (7.5YR 4/6) sandy clay loam, strong brown (7.5YR 4/6) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; common fine and very fine roots; few fine tubular pores; few distinct clay films bridging sand grains and lining pores; neutral (pH 7.2); abrupt smooth boundary.

Bk1—19 to 40 inches; strong brown (7.5YR 5/6) sandy clay loam, strong brown (7.5YR 4/6) moist; massive; slightly hard, friable, slightly sticky and nonplastic; few fine and common very fine roots; few very fine irregular pores; violently effervescent; few medium irregular seams and masses of calcium carbonate; slightly alkaline (pH 8.0); clear smooth boundary.

Bk2—40 to 65 inches; strong brown (7.5YR 5/6) sandy clay loam; strong brown (7.5YR 4/6) moist; massive; slightly hard, friable, slightly sticky and nonplastic; few very fine roots; few very fine irregular pores; violently effervescent; few fine irregular seams and filaments of calcium carbonate; slightly alkaline (pH 8.0).

Range in Characteristics

Particle-size control section: 20 to 35 percent clay and greater than 40 percent sand
Rock fragments: 0 to 5 percent sandstone gravel

A horizon:
Hue: 7.5YR
Value: 5 or 6 dry, 4 or 5 moist
Chroma: 4 or 6
Texture: sandy loam or fine sandy loam
Reaction: neutral or slightly alkaline

Bt horizon:
Hue: 7.5YR
Value: 4 to 6 dry, 4 or 5 moist
Chroma: 4 or 6
Texture: sandy clay loam or clay loam
Reaction: neutral to slightly alkaline

Bk horizon:
Hue: 7.5YR
Value: 5 or 6 dry, 4 or 5 moist
Chroma: 4 or 6
Texture: sandy clay loam or fine sandy loam
Calcium carbonate equivalent: 1 to 10 percent
Reaction: slightly to moderately alkaline

Pescado Series

Taxonomic class: Loamy, mixed, superactive, mesic Lithic Haplustalfs
Depth class: Very shallow and shallow
Drainage class: Well drained
Permeability: Moderately slow
Geomorphic position: Lava flows on valley floors
Parent material: Eolian material derived from sandstone
Slope range: 1 to 8 percent
Elevation: 6,400 to 7,000 feet
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 13 to 16 inches
Frost-free period: 100 to 135 days

Typical Pedon

Pescado fine sandy loam, in an area of mapping unit 575, Ramah-Pescado association, 1 to 8 percent slopes; McKinley County, New Mexico; Pescado Quadrangle; 600 feet south and 400 feet east of the

northwest corner of sec. 17, T. 10 N., R. 16 W.; latitude 35 degrees, 06 minutes, 10 seconds and longitude 108 degrees, 33 minutes, 20 seconds.

A—0 to 3 inches; brown (7.5YR 5/4) fine sandy loam, dark brown (7.5YR 3/4) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; few fine irregular pores; neutral (pH 6.8); clear smooth boundary.

Bt1—3 to 10 inches; reddish brown (5YR 4/4) sandy clay loam, dark reddish brown (5YR 3/4) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; few fine irregular pores; many prominent clay films bridging sand grains and on faces of peds; 1 percent gravel; neutral (pH 6.8); clear smooth boundary.

Bt2—10 to 16 inches; reddish brown (5YR 4/4) clay loam, dark reddish brown (5YR 3/4) moist; moderate fine and medium subangular blocky structure; hard, firm, sticky and plastic; few very fine and fine roots; few fine irregular pores; many prominent clay films bridging sand grains and on faces of peds; 1 percent gravel; matrix is very slightly effervescent with a violently effervescent 1-inch layer above the lithic contact with basalt; slightly alkaline (pH 7.4); abrupt smooth boundary.

2R—16 inches; basalt.

Range in Characteristics

Particle-size control section: 20 to 35 percent clay and greater than 35 percent sand
Depth to bedrock: 7 to 20 inches to basalt

A horizon:
Value: 3 or 4 moist
Rock fragments: 0 to 10 percent basalt gravel
Reaction: neutral

Bt horizons:
Hue: 7.5YR or 5YR
Rock fragments: 0 to 5 percent basalt gravel
Textures: sandy clay loam or clay loam
Reaction: neutral and slightly alkaline

Plumasano Series

Taxonomic class: Coarse-loamy, mixed, superactive, mesic Aridic Haplustepts
Depth class: Very deep
Drainage class: Somewhat excessive and well drained
Permeability: Moderate or moderately rapid
Geomorphic position: Cuestas, plateaus, valley sides, hills, and ridges
Parent material: Eolian material and fan and slope alluvium derived from sandstone
Slope range: 2 to 40 percent
Elevation: 6,200 to 7,200 feet
Mean annual air temperature: 49 to 53 degrees F
Mean annual precipitation: 13 to 14 inches
Frost-free period: 115 to 135 days

Typical Pedon

Plumasano sandy loam, in an area of mapping unit 561, Flugle-Plumasano association, 2 to 8 percent slopes; Cibola County, New Mexico; Plumasano Basin Quadrangle; 1,900 feet south and 800 feet east of the northwest corner of sec. 10, T. 8 N., R. 19 W.; latitude 34 degrees, 56 minutes, 24 seconds and longitude 108 degrees, 49 minutes, 59 seconds.

A—0 to 2 inches; dark yellowish brown (10YR 4/4) sandy loam, dark yellowish brown (10YR 3/4) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; common fine and very fine roots; common very fine irregular pores; slightly effervescent; slightly alkaline (pH 7.6); abrupt smooth boundary.

Bw—2 to 11 inches; brown (7.5YR 4/4) sandy loam, dark brown (7.5YR 3/4) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few medium and many fine and very fine roots; few very fine tubular pores; slightly effervescent; slightly alkaline (pH 7.6); clear smooth boundary.

Bk1—11 to 27 inches; light brown (7.5YR 6/4) sandy loam, brown (7.5YR 5/4) moist; massive; hard, friable, nonsticky and nonplastic; few fine and very fine roots; few fine tubular pores; violently effervescent; common medium filaments, seams and masses of calcium carbonate; slightly alkaline (pH 7.6); clear smooth boundary.

Bk2—27 to 43 inches; strong brown (7.5YR 5/6) fine sandy loam, brown (7.5YR 5/4) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; few very fine irregular pores; violently effervescent; few medium masses and seams of calcium carbonate; slightly alkaline (pH 7.4); clear smooth boundary.

Bk3—43 to 53 inches; light reddish brown (5YR 6/4) fine sandy loam, reddish brown (5YR 5/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; few very fine irregular pores; violently effervescent; common medium masses, filaments and seams of calcium carbonate; slightly alkaline (pH 7.8); clear smooth boundary.

Bk4—53 to 65 inches; light brown (7.5YR 6/4) sandy

clay loam, brown (7.5YR 5/4) moist; massive; hard, friable, slightly sticky and slightly plastic; few very fine roots; few very fine irregular pores; violently effervescent; few medium filaments and masses of calcium carbonate; slightly alkaline (pH 7.6).

Range in Characteristics

Particle-size control section: 5 to 18 percent clay
Depth to calcium carbonate: 5 to 25 inches
Depth to bottom of cambic: 11 to 24 inches
Reaction: neutral or slightly alkaline in the surface and slightly to moderately alkaline in the subsoil

A horizon:
Hue: 7.5YR or 10YR
Value: 4 to 6 dry, 3 to 5 moist
Chroma: 3 or 4 dry, 2 to 4 moist

Bw horizon:
Hue: 7.5YR or 10YR
Value: 4 or 6 dry, 3 or 4 moist
Chroma: 3 or 4 dry, 2 to 6 moist
Texture: sandy loam or fine sandy loam

Bk horizons:
Hue: 5YR, 7.5YR or 10YR
Value: 5 or 6 dry, 3 to 5 moist
Chroma: 3 to 6 dry, 2 to 4 moist
Texture: sandy loam, fine sandy loam, sandy clay loam, or loamy sand
Calcium carbonate equivalent: 1 to 15 percent

Polich Series

Taxonomic class: Fine-loamy, mixed, superactive, frigid Cumulic Haplustolls
Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderately slow
Geomorphic position: Valley floors
Parent material: Stream alluvium derived from sandstone, granite, and limestone
Slope range: 0 to 3 percent
Elevation: 7,600 to 8,000 feet
Mean annual air temperature: 40 to 45 degrees F
Mean annual precipitation: 16 to 20 inches
Frost-free period: 90 to 110 days

Typical Pedon

Polich silt loam, in an area of mapping unit 406, Polich silt loam, 0 to 3 percent slopes; McKinley County, New Mexico; Page Quadrangle; 1,950 feet north and 200 feet west of the southeast corner of sec. 34, T. 13 N., R. 15 W.; latitude 35 degrees, 18 minutes, 40 seconds and longitude 108 degrees, 24 minutes, 19 seconds.

A1—0 to 5 inches; very dark grayish brown (10YR 3/2) silt loam, very dark brown (10YR 2/2) moist; moderate fine granular structure; hard, friable, slightly sticky and nonplastic; many very fine and fine roots; slightly effervescent; 5 percent calcium carbonate equivalent; moderately alkaline (pH 8.2); clear smooth boundary.
A2—5 to 13 inches; brown (7.5YR 4/2) silt loam, dark brown (7.5YR 3/2) moist; strong medium granular structure; hard, friable, slightly sticky and nonplastic; common fine and medium roots; strongly effervescent; 7 percent calcium carbonate equivalent; moderately alkaline (pH 8.2); clear smooth boundary.
Bw—13 to 23 inches; brown (7.5YR 4/2) loam, dark brown (7.5YR 3/2) moist; strong medium subangular blocky structure; hard, friable, slightly sticky and nonplastic; few fine roots; many very fine irregular pores; strongly effervescent; 10 percent calcium carbonate equivalent; moderately alkaline (pH 8.2); clear smooth boundary.
Bk1—23 to 40 inches; dark brown (7.5YR 4/3) clay loam, dark brown (7.5YR 3/3) moist; few very fine distinct yellowish red (5YR 4/6) moist redox concentrations; weak medium subangular blocky structure; hard, firm, sticky and plastic; few medium roots; violently effervescent; common very fine and fine masses and concretions of calcium carbonate; 13 percent calcium carbonate equivalent; moderately alkaline (pH 8.2); clear smooth boundary.
Bk2—40 to 48 inches; brown (5YR 5/3) clay loam, dark brown (5YR 3/3) moist; common very fine distinct yellowish red (5YR 4/6) moist redox concentrations; weak medium subangular blocky structure parting to weak fine granular; hard, firm, sticky and plastic; few fine roots; slightly effervescent; few very fine masses and concretions of calcium carbonate; moderately alkaline (pH 8.0); gradual smooth boundary.
2BCk1—48 to 58 inches; reddish brown (5YR 5/4) clay loam, dark reddish brown (5YR 3/4) moist; common very fine and fine distinct yellowish red (5YR 4/6) moist redox concentrations and few very fine manganese concretions; massive; very hard, very firm, very sticky and very plastic; few very fine roots; slightly effervescent; few very fine masses and concretions of calcium carbonate; slightly alkaline (pH 7.8); clear smooth boundary.
2BCk2—58 to 70 inches; reddish brown (5YR 5/4) loam, dark reddish brown (5YR 3/4) moist; few

very fine faint yellowish red (5YR 4/6) redox concentrations; massive; hard, firm, slightly sticky and slightly plastic; apparent water table at a depth of 58 inches; slightly effervescent; slightly alkaline (pH 7.8).

Range in Characteristics

Particle-size control section: 25 to 35 percent clay.
Mollic epipedon: 20 to 45 inches thick
Calcium carbonate equivalent: 5 to 15 percent.
Depth to water table: 15 to 60 inches; water table is highest during March and April (after snow melt) and during August and September after the summer rains.
Depth to redox concentrations: 20 to 35 inches; few to common, faint to distinct, yellowish red redox concentrations.
Reaction: Slightly to moderately alkaline

A horizon:
Hue: 7.5YR or 10YR
Value: 2 or 3 moist, 3 to 5 dry
Chroma: 2 or 3

Bw and Bk horizons:
Hue: 5YR, 7.5YR or 10YR
Value: 3 to 5 dry, 2 or 3 moist
Chroma: 1 to 3
Texture: clay loam, silty clay loam, silt loam, or loam

2BCk horizon:
Hue: 5YR to 10YR
Value: 3 or 4 moist
Chroma: 2 to 4
Texture: clay loam, clay, silty clay loam, or loam

Querencia Series

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ustic Haplocambids
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Geomorphic position: Drainageways and valley sides
Parent material: Fan alluvium derived from sandstone and shale
Slope range: 2 to 10 percent
Elevation: 6,600 to 7,200 feet
Mean annual air temperature: 49 to 54 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 120 to 140 days

Typical Pedon

Querencia fine sandy loam, in an area of mapping unit 22, Querencia-Lavodnas association, 2 to 15 percent slopes; McKinley County, New Mexico; Tinian Quadrangle; 1,000 feet west and 1,800 feet south of the northeast corner of sec. 2, T. 18 N., R. 5 W.; latitude 35 degrees, 49 minutes, 22 seconds and longitude 107 degrees, 19 minutes, 48 seconds.

A—0 to 2 inches; light yellowish brown (2.5Y 6/4) fine sandy loam, olive brown (2.5Y 4/4) moist; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; common fine and very fine roots; common very fine irregular pores; neutral (pH 7.2); abrupt smooth boundary.
Bw1—2 to 9 inches; light olive brown (2.5Y 5/4) clay loam, olive brown (2.5Y 4/4) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and nonplastic; common fine and many very fine roots; few fine tubular and common very fine irregular pores; violently effervescent; slightly alkaline (pH 7.6); clear smooth boundary.
Bw2—9 to 15 inches; light yellowish brown (2.5Y 6/4) clay loam, olive brown (2.5Y 4/4) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and very fine roots; few fine tubular and common very fine irregular pores; violently effervescent; moderately alkaline (pH 8.2); clear smooth boundary.
Bk1—15 to 42 inches; light yellowish brown (2.5Y 6/4) clay loam, olive brown (2.5Y 4/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few fine and very fine roots; few fine tubular and common very fine irregular pores; 10 percent gravel; violently effervescent; moderately alkaline (pH 8.2); clear smooth boundary.
Bk2—42 to 65 inches; light yellowish brown (2.5Y 6/4) clay loam, olive brown (2.5Y 4/4) moist; massive; slightly hard, firm, sticky and slightly plastic; few very fine roots; common very fine irregular pores; 10 percent gravel; violently effervescent; few fine irregular filaments and seams of calcium carbonate and coating gravel; moderately alkaline (pH 8.0).

Range in Characteristics

Particle-size control section: 18 to 35 percent clay
Rock fragments: 0 to 10 percent sandstone gravel
Calcium carbonate equivalent: 0 to 1 percent in the surface and 1 to 15 percent in the subsoil

A horizon:
Hue: 10YR or 2.5Y
Value: 5 or 6 dry, 4 moist
Chroma: 4 dry and moist
Reaction: neutral or slightly alkaline

Bw horizon:
Hue: 10YR or 2.5Y
Value: 5 or 6 dry, 4 moist
Chroma: 4 dry and moist
Texture: clay loam, sandy clay loam, or loam
Reaction: slightly or moderately alkaline

Bk horizon:
Hue: 10YR or 2.5Y
Value: 5 or 6 dry, 4 moist
Chroma: 2 to 4 dry
Texture: clay loam, sandy clay loam, or loam
Reaction: slightly or moderately alkaline

Ramah Series

Taxonomic class: Fine, mixed, superactive, mesic Calcidic Haplustalfs
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Geomorphic position: Lava flows on valley floors
Parent material: Eolian and alluvial material derived from sandstone
Slope range: 1 to 4 percent
Elevation: 6,400 to 7,000 feet
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 13 to 14 inches
Frost-free period: 100 to 135 days

Typical Pedon

Ramah sandy loam, in an area of mapping unit 575, Ramah-Pescado association, 1 to 8 percent slopes; McKinley County, New Mexico; Pescado Quadrangle; 800 feet south and 1,300 feet east of the northwest corner of sec. 17, T. 10 N., R. 16 W.; latitude 35 degrees, 06 minutes, 08 seconds and longitude 108 degrees, 33 minutes, 11 seconds.

A—0 to 3 inches; brown (10YR 5/3) sandy loam, dark yellowish brown (10YR 3/4) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; few fine irregular pores; neutral (pH 7.2); clear smooth boundary.

Bt1—3 to 8 inches; brown (7.5YR 4/4) sandy clay loam, dark brown (7.5YR 3/4) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and common fine roots; few fine irregular pores; common distinct clay films bridging sand grains; neutral (pH 7.2); clear smooth boundary.

Bt2—8 to 15 inches; reddish brown (5YR 4/4) clay loam, dark reddish brown (5YR 3/4) moist; moderate fine and medium subangular blocky structure; hard, firm, very sticky and very plastic; common very fine and fine roots; common fine irregular pores; many prominent clay films bridging sand grains and on faces of peds; neutral (pH 7.2); abrupt smooth boundary.

Btk—15 to 23 inches; brown (7.5YR 5/4) clay loam, strong brown (7.5YR 4/6) moist; moderate fine and medium subangular blocky structure; hard, firm, very sticky and very plastic; common very fine and few fine roots; few fine irregular pores; many prominent clay films bridging sand grains and on faces of peds; violently effervescent; 9 percent calcium carbonate equivalent; moderately alkaline (pH 8.2); clear smooth boundary.

Bk1—23 to 33 inches; light brown (7.5YR 6/4) clay loam, brown (7.5YR 5/4) moist; massive; hard, firm, sticky and plastic; few very fine roots; few very fine irregular pores; violently effervescent; common fine and medium seams and masses of calcium carbonate; 12 percent calcium carbonate equivalent; moderately alkaline (pH 8.2); gradual irregular boundary.

Bk2—33 to 41 inches; pink (5YR 7/4) clay loam, yellowish red (5YR 5/6) moist; massive; hard, firm, sticky and plastic; few very fine roots; few very fine irregular pores; violently effervescent; many fine and medium seams, masses and common fine and medium concretions of calcium carbonate; 17 percent calcium carbonate equivalent; moderately alkaline (pH 8.2); clear smooth boundary.

Bk3—41 to 62 inches; yellowish red (5YR 5/6) sandy clay loam, yellowish red (5YR 4/6) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; few very fine irregular pores; violently effervescent; common fine seams and masses of calcium carbonate; 5 percent calcium carbonate equivalent; moderately alkaline (pH 8.0).

Range in Characteristics

Particle-size control section: 35 to 40 percent clay and greater than 30 percent sand
Depth to calcic horizon: 25 to 45 inches
Calcium carbonate equivalent: 0 to 15 percent and 15 to 30 percent in the calcic horizon

A horizon:
Hue: 7.5YR or 10YR
Value: 4 or 5 dry, 3 or 4 moist
Reaction: neutral

Bt horizons:
Hue: 5YR, 7.5YR, or 10YR
Value: 4 or 5 dry, 3, 4, or 6 moist

Chroma: 4 or 5 dry, 3, 4, or 6 moist
Textures: Typically clay loam, with some pedons having thin upper sandy clay loam Bt horizons
Reaction: neutral to slightly alkaline

Bk horizons:
Hue: 5YR, 7.5YR, or 10YR
Value: 4 or 5 dry, 3, 4, or 6 moist
Chroma: 4 or 5 dry, 3, 4, or 6 moist
Reaction: moderately alkaline

Rauster Series

Taxonomic class: Fine, mixed, superactive, frigid Vertic Argiustolls
Depth class: Deep
Drainage class: Well drained
Permeability: Very slow
Geomorphic position: Cuestas, hills, and ridges
Parent material: Slope alluvium over residuum from sandstone and shale
Slope range: 5 to 35 percent
Elevation: 7,100 to 8,000 feet
Mean annual air temperature: 40 to 45 degrees F
Mean annual precipitation: 16 to 20 inches
Frost-free period: 90 to 110 days

Typical Pedon

Rauster clay loam, in an area of mapping unit 409, Rauster-Rock outcrop complex, 5 to 35 percent slopes; McKinley County, New Mexico; Page Quadrangle; about 2,800 feet west and 2,600 feet north of the southeast corner of sec. 14, T. 12 N., R. 16 W.; latitude 35 degrees, 16 minutes, 13 seconds and longitude 108 degrees, 29 minutes, 50 seconds.

A—0 to 1 inches; dark reddish brown (5YR 3/3) clay loam, dark reddish brown (5YR 3/3) moist; moderate very fine granular structure; slightly hard, friable, moderately sticky and moderately plastic; few very fine and fine roots; 2 percent gravel; slightly alkaline (pH 7.4); abrupt smooth boundary.
Bt—1 to 5 inches; dark reddish brown (5YR 3/3) clay, dark reddish brown (5YR 3/3) moist; strong very fine and fine angular blocky structure; extremely hard, extremely firm, very sticky and very plastic; many very fine, fine, and few medium roots; few very fine irregular pores; few small pressure faces; few vertical cracks 0.25 inches wide; many distinct clay films on faces of peds; slightly alkaline (pH 7.4); clear smooth boundary.
Bssk—5 to 28 inches; weak red (10R 4/2) clay, dusky red (10R 3/2) moist; wedge-shaped aggregates; extremely hard, extremely firm, very sticky and very plastic; common very fine, fine, and few medium and coarse roots; few very fine irregular pores; many intersecting slickensides; few vertical cracks 0.5 inches wide extending to 27 inches in depth; slightly effervescent; few very fine masses of calcium carbonate; slightly alkaline (pH 7.6); clear wavy boundary.
Bk—28 to 55 inches; weak red (10R 4/2) clay, weak red (10R 4/2) moist; massive; extremely hard, extremely firm, very sticky and very plastic; few very fine and fine roots; few very fine irregular pores; few pressure faces; strongly effervescent; few very fine and fine masses of calcium carbonate; slightly alkaline (pH 7.8); clear smooth boundary.
Cr—55 inches; Purple and red shale —Chinle formation.

Range in Characteristics

Particle-size control section: 40 to 50 percent clay
Depth to a paralithic contact: 40 to 60 inches
Depth to vertic features: 2 to 50 inches
Thickness of mollic epipedon: 15 to 35 inches
Rock fragments: 0 to 5 percent sandstone, limestone, and siliceous gravel
Reaction: neutral to slightly alkaline

A horizon:
Hue: 5YR to 10YR
Value: 3 or 4 dry, 3 moist
Chroma: 2 or 3 dry and moist

Bt horizon:
Hue: 2.5YR to 7.5YR
Value: 3 or 4 dry, 2 to 4 moist
Chroma: 2 to 4 dry and moist
Texture: clay loam or clay

Bssk horizon:
Hue: 10R to 5YR
Value: 3 or 4 dry, 3 moist
Chroma: 2 to 4 dry and moist
Calcium carbonate equivalent: 1 to 5 percent

Bk or BCk horizons:
Hue: 10R to 2.5YR
Value: 3 or 4 dry, 3 moist
Chroma: 2 to 4 dry and moist
Calcium carbonate equivalent: 1 to 10 percent

Razito Series

Taxonomic class: Mixed, mesic Typic Torripsamments
Depth class: Very deep
Drainage class: Excessively drained
Permeability: Rapid

Geomorphic position: Dunes on mesas, cuestas, valley sides, and valley floors
Parent material: Eolian material derived from sandstone
Slope range: 1 to 8 percent
Elevation: 5,500 to 6,800 feet
Mean annual air temperature: 50 to 55 degrees F
Mean annual precipitation: 7 to 9 inches
Frost-free period: 130 to 150 days

Typical Pedon

Razito loamy sand, in an area of mapping unit 115, Razito-Shiprock complex, 3 to 8 percent slopes; McKinley County, New Mexico; Nose Rock Quadrangle; 1,400 feet south and 300 feet east of the northwest corner of sec. 19, T. 20 N., R. 11 W.; latitude 35 degrees, 57 minutes, 15 seconds and longitude 108 degrees, 03 minutes, 18 seconds.

A—0 to 4 inches; yellowish brown (10YR 5/4) loamy sand, dark yellowish brown (10YR 4/4) moist; single grain; loose, very friable, nonsticky and nonplastic; few fine and very fine roots; many very fine irregular pores; slightly alkaline (pH 7.4); abrupt smooth boundary.
C1—4 to 15 inches; dark yellowish brown (10YR 4/4) loamy sand, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, nonsticky and nonplastic; few fine and very fine roots; many very fine irregular pores; slightly alkaline (pH 7.4); clear smooth boundary.
C2—15 to 34 inches; yellowish brown (10YR 5/4) loamy sand, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, nonsticky and nonplastic; few fine and very fine roots; many very fine irregular pores; slightly alkaline (pH 7.4); abrupt smooth boundary.
Ck—34 to 65 inches; light yellowish brown (10YR 6/4) loamy sand, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, nonsticky and nonplastic; many very fine irregular pores; violently effervescent; few fine irregular masses and filaments of calcium carbonate; slightly alkaline (pH 7.8).

Range in Characteristics

Particle-size control section: 2 to 6 percent clay
Salinity: EC of 0 to 2 mmhos/cm

A horizon:
Hue: 10YR or 2.5Y
Value: 5 or 6 dry; 4 or 5 moist
Chroma: 4 to 6 moist
Reaction: slightly alkaline

C and Ck horizons:
Hue: 10YR or 2.5Y
Value: 4 or 5 dry and moist
Chroma: 4 to 6 moist
Texture: loamy sand or loamy fine sand
Reaction: slightly or moderately alkaline

Redpen Series

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ustic Haplargids
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Geomorphic position: Valley sides
Parent material: Eolian and fan alluvium derived from sandstone and shale
Slope range: 0 to 2 percent
Elevation: 6,000 to 6,500 feet
Mean annual air temperature: 49 to 54 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 120 to 140 days

Typical Pedon

Redpen sandy clay loam, in an area of mapping unit 60, Redpen sandy clay loam, 0 to 2 percent slopes; McKinley County, New Mexico; Zuni Quadrangle; 1,000 feet north and 1,200 feet east of the southwest corner of sec. 16, T. 10 N., R. 19 W.; latitude 35 degrees, 05 minutes, 33 seconds and longitude 108 degrees, 51 minutes, 07 seconds.

Ap—0 to 4 inches; reddish brown (2.5YR 4/4) sandy clay loam, dark reddish brown (2.5YR 3/4) moist; weak fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine irregular pores; violently effervescent; slightly alkaline (pH 7.6); clear smooth boundary.
Btk1—4 to 15 inches; reddish brown (2.5YR 4/4) sandy clay loam, dark reddish brown (2.5YR 3/4) moist; moderate medium and coarse prismatic structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; common fine irregular pores; many prominent clay films bridging sand grains; violently effervescent; few fine irregular filaments of calcium carbonate; slightly alkaline (pH 7.6); clear smooth boundary.
Btk2—15 to 24 inches; reddish brown (2.5YR 4/4) sandy clay loam, dark reddish brown (2.5YR 3/4) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots;

common fine irregular pores; common prominent clay films bridging sand grains; violently effervescent; many medium irregular filaments of calcium carbonate; moderately alkaline (pH 8.4); clear smooth boundary.

Bk1—24 to 52 inches; reddish brown (2.5YR 4/4) sandy clay loam, dark reddish brown (2.5YR 3/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; common fine irregular pores; violently effervescent; many medium irregular masses of calcium carbonate; moderately alkaline (pH 8.4); clear smooth boundary.

Bk2—52 to 65 inches; reddish brown (2.5YR 4/4) clay loam, dark reddish brown (2.5YR 3/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; common fine irregular pores; violently effervescent; few fine irregular filaments of calcium carbonate; moderately alkaline (pH 8.4).

Range in Characteristics

Particle-size control section: 27 to 35 percent clay and greater than 40 percent sand
Percent calcium carbonate equivalent: 5 to 10 percent, calcareous in all parts
Reaction: slightly alkaline in the surface and moderately alkaline in the subsoil

Ap or A horizon:
Hue: 2.5YR or 5YR
Value: 3 or 4 moist
Chroma: 4 or 6 moist
Rock fragments: 0 to 5 percent sandstone gravel

Bt or Btk horizon:
Value: 3 or 4 moist
Chroma: 4 or 6 moist
Texture: sandy clay loam or clay loam
Rock fragments: 0 to 10 percent sandstone gravel

Bk horizon:
Value: 3 or 4
Chroma: 4 or 6 moist
Texture: sandy clay loam or clay loam
Rock fragments: 0 to 10 percent sandstone gravel

Some pedons have a C horizon with highly stratified, calcareous, silt loam, fine sandy loam, clay loam, or sandy clay loam.

Regracic Series

Taxonomic class: Fine, mixed, superactive, mesic Aridic Paleustalfs
Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
Geomorphic position: Valley floors
Parent material: Stream alluvium derived from shale, sandstone, and conglomerate
Slope range: 2 to 6 percent
Elevation: 7,400 to 7,700 feet
Mean annual air temperature: 47 to 53 degrees F
Mean annual precipitation: 13 to 16 inches
Frost-free period: 100 to 135 days

Typical Pedon

Regracic gravelly sandy clay loam, in an area of mapping unit 300, Regracic gravelly sandy clay loam, 2 to 6 percent slopes; McKinley County, New Mexico; Pine Canyon Quadrangle; 2,200 feet south and 300 feet west of the northeast corner of sec. 20, T. 13 N., R. 13 W.; latitude 35 degrees, 20 minutes, 36 seconds and longitude 108 degrees, 13 minutes, 46 seconds.

The surface is covered by 30 percent gravel and 1 percent cobbles.

A—0 to 2 inches; brown (7.5YR 5/4) gravelly sandy clay loam, dark brown (7.5YR 3/3) moist; weak fine granular structure; slightly hard, friable, nonsticky and nonplastic; many very fine and fine roots; few fine vesicular pores; 30 percent gravel and 1 percent cobbles; noneffervescent; neutral (pH 7.2); abrupt smooth boundary.

Bt—2 to 19 inches; reddish brown (2.5YR 4/3) clay, dark reddish brown (2.5YR 3/4) moist; strong fine and medium subangular blocky structure; very hard, very firm, very sticky and very plastic; common very fine and fine roots; common fine tubular pores; many prominent clay films on faces of peds; 2 percent gravel; slightly alkaline (pH 7.6); abrupt smooth boundary.

Btk1—19 to 31 inches; reddish brown (2.5YR 4/3) clay loam, dark reddish brown (2.5YR 3/4) moist; moderate medium prismatic structure; very hard, very firm, sticky and plastic; common very fine and fine roots; common fine tubular pores; common distinct clay films coating faces of peds; 2 percent gravel; strongly effervescent; many very fine and fine masses and filaments of calcium carbonate; 8 percent calcium carbonate equivalent; moderately alkaline (pH 8.2); clear smooth boundary.

2Btk2—31 to 45 inches; reddish brown (2.5YR 4/3) very gravelly sandy clay, dark reddish brown (2.5YR 3/4) moist; weak very fine and fine subangular blocky structure; hard, friable, sticky and plastic; few very fine and fine roots; few fine irregular pores; common distinct clay films on

faces of peds and bridging sand grains; 55 percent gravel; violently effervescent; many very fine and fine masses and filaments, common fine concretions of calcium carbonate and coating rock fragments; 22 percent calcium carbonate equivalent; moderately alkaline (pH 8.0); abrupt smooth boundary.

2Btk3—45 to 50 inches; yellowish red (5YR 5/6) clay loam, yellowish red (5YR 4/6) moist; weak very fine and fine subangular blocky structure; hard, firm, slightly sticky and slight plastic; few very fine and fine roots; common fine irregular pores; common distinct clay films on faces of peds and bridging sand grains; 5 percent gravel; strongly effervescent; many very fine and fine masses and filaments, few fine concretions of calcium carbonate and coating rock fragments; 8 percent calcium carbonate equivalent; moderately alkaline (pH 8.2); abrupt smooth boundary.

2Btk4—50 to 56 inches; yellowish red (5YR 5/6) very gravelly sandy clay loam, yellowish red (5YR 4/6) moist; weak very fine and fine subangular blocky structure parting to weak very fine granular; hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; few medium irregular pores; few faint clay films bridging sand grains and coating rock fragments; 55 percent gravel; slightly effervescent; few fine masses and filaments of calcium carbonate; 3 percent calcium carbonate equivalent; slightly alkaline (pH 7.8); abrupt smooth boundary.

2Btk5—56 to 60 inches; reddish brown (2.5YR 5/4) clay loam, dark reddish brown (2.5YR 3/4) moist; moderate fine subangular blocky structure; hard, firm, slightly sticky and slight plastic; few very fine and fine roots; common fine irregular pores; common faint clay films on faces of peds and bridging sand grains; 5 percent gravel; strongly effervescent; common fine masses and filaments and few fine concretions of calcium carbonate; 6 percent calcium carbonate equivalent; slightly alkaline (pH 7.8); abrupt smooth boundary.

3BCk—60 to 80 inches; reddish brown (5YR 4/4) gravelly sandy loam, dark reddish brown (5YR 3/4) moist; weak very fine and fine granular structure; slightly hard, very friable, nonsticky and nonplastic; few very fine and fine roots; common medium pores; 25 percent gravel; slightly effervescent; few very fine and fine masses of calcium carbonate; 3 percent calcium carbonate equivalent; slightly alkaline (pH 7.8).

Range in Characteristics

Particle-size control section: 35 to 55 percent clay and greater than 30 percent sand
Depth to secondary calcium carbonate: 12 to 26 inches
Depth to calcic horizon: 15 to 35 inches and 6 to 37 inches thick

A horizon:
Hue: 5YR or 7.5YR
Value: 4 or 5 dry
Chroma: 3 or 4
Rock fragments: 10 to 40 percent total; 10 to 40 percent gravel; 0 to 1 percent cobbles. All fragments are siliceous, sandstone, and some petrified wood.
Reaction: neutral or slightly alkaline

Bt horizon:
Hue: 2.5YR, 5YR, or 7.5YR
Chroma: 3 or 4 dry
Texture: clay or sandy clay
Rock fragments: 0 to 5 percent siliceous gravel
Reaction: neutral or slightly alkaline

Btk horizon:
Hue: 2.5YR, 5YR, or 7.5YR
Value: 4 to 7 dry, 3 to 6 moist
Chroma: 3 to 6
Texture: clay loam, clay, sandy clay, or sandy clay loam
Rock fragments: 0 to 60 percent siliceous gravel
Calcium carbonate equivalent: 3 to 40 percent, with the calcic horizon ranging from 15 to 40 percent
Reaction: slightly or moderately alkaline

BCk horizon (when present):
Hue: 2.5YR, 5YR, or 7.5YR
Value: 4 to 6 dry, 3 to 5 moist
Chroma: 3 or 4
Texture: sandy loam or fine sandy loam
Rock fragments: 5 to 30 percent gravel and 0 to 1 percent cobbles. All fragments are siliceous.
Calcium carbonate equivalent: 0 to 5 percent
Reaction: moderately alkaline

Rehobeth Series

Taxonomic class: Fine, mixed, superactive, mesic Chromic Gypsitorrerts
Depth class: Very Deep
Drainage class: Well drained

Permeability: Slow
Geomorphic position: Valley floors
Parent material: Stream alluvium from gypsiferous shale
Slope range: 0 to 1 percent
Elevation: 6,600 to 6,800 feet
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 100 to 135 days

Typical Pedon

Rehobeth silty clay loam in an area of mapping unit 212, Rehobeth silty clay loam, 0 to 1 percent slopes; McKinley County, New Mexico; Church Rock Quadrangle; T. 15 N., R. 16 W.; latitude 35 degrees, 30 minutes, 12 seconds and longitude 108 degrees, 32 minutes, 11 seconds.

A—0 to 2 inches; reddish brown (2.5YR 4/3) silty clay loam, reddish brown (2.5YR 4/3) moist; moderate very fine granular structure; soft, very friable, sticky and plastic; few very fine roots; few vertical cracks 0.4 inch wide; gypsum >5.0 percent; SAR of 4.3; EC of 0.4 mmhos/cm; strongly effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.

Bw—2 to 5 inches; reddish brown (2.5YR 4/3) silty clay loam, reddish brown (2.5YR 4/3) moist; strong very fine granular structure; hard, very firm, moderately sticky and moderately plastic; few very fine roots; common very fine irregular pores; few vertical cracks 0.5 inch wide; gypsum >5.0 percent; SAR of 3.1; EC of 0.4 mmhos/cm; slightly effervescent; moderately alkaline (pH 8.4); abrupt wavy boundary.

Bss—5 to 12 inches: reddish brown (2.5YR 4/3) clay, reddish brown (2.5YR 4/3) moist; strong medium and coarse wedge-shaped aggregates; extremely hard, extremely firm, very sticky and very plastic; common very fine and few fine roots; few common very fine and fine irregular pores; many pressure faces; many intersecting slickensides; few vertical cracks 0.5 inch wide; gypsum >5.0 percent; SAR of 4.09; EC of 0.5 mmhos/cm; slightly effervescent; moderately alkaline (pH 8.2); abrupt irregular boundary.

Bssny1—12 to 18 inches; reddish brown (2.5YR 4/3) clay, dark reddish brown (2.5YR 3/3) moist; strong medium and coarse wedge-shaped aggregates; extremely hard, extremely firm, very sticky and very plastic; common very fine and few fine roots; few very fine irregular pores; many intersecting slickensides; few vertical cracks; few very fine masses and crystals of gypsum and sodium sulfate; gypsum >5.0 percent; SAR of 11.3; EC of 0.5 mmhos/cm; slightly effervescent; moderately alkaline (pH 8.2); abrupt irregular boundary.

Bssny2—18 to 32 inches; reddish brown (2.5YR 5/4) clay, reddish brown (2.5YR 4/4) moist; strong medium and coarse wedge-shaped aggregates; very hard, very firm; very sticky and very plastic; few very fine, fine, and medium roots; few very fine irregular pores; common intersecting slickensides; few vertical cracks; many fine and medium masses and crystals of gypsum and sodium sulfate; gypsum >5.0 percent; SAR of 12.8; EC of 1.6 mmhos/cm; slightly effervescent; moderately alkaline (pH 8.2); clear wavy boundary.

Bssny3—32 to 80 inches; reddish brown (2.5YR 5/4) clay, reddish brown (2.5YR 4/4) moist; strong coarse wedge-shaped aggregates; very hard, very firm, very sticky and very plastic; few very fine roots; few very fine irregular pores; common intersecting slickensides; many masses and crystals of gypsum and sodium sulfate; gypsum 1.3 percent; SAR of 14; EC of 6.6 mmhos/cm; slightly effervescent; moderately alkaline (pH 8.2).

Range in Characteristics

Particle-size control section: 40 to 55 percent clay
Depth to the gypsic horizon (with sodium sulfate accumulations): 12 to 80 inches with 5 to 10 percent gypsum, gypsum content decreases in the underlying horizon
Calcium carbonate equivalent: 1 to 5 percent
Vertic properties: slight gilgai microrelief ranges up to 2 inches; cracks 0.5 to 1 inches in width range from 2 to 30 inches vertically; few to many pressure faces and intersecting slickensides below 2 inches.
Rock fragments: 0 to 1 percent sandstone and siliceous gravel
Reaction: Moderately alkaline throughout

A horizon:
Hue: 2.5YR
Value: 4 dry or moist
Chroma: 3 dry or moist
Salinity: EC of 0 to 2 mmhos/cm
Sodicity: SAR of 2 to 5

Bw horizon:
Hue: 2.5YR
Value: 4 dry or moist
Chroma: 3 dry or moist
Salinity: EC of 0 to 2 mmhos/cm
Sodicity: SAR of 2 to 5

Bss horizon:
Hue: 2.5YR
Value: 5 dry, 4 moist

Chroma: 2 dry or moist
Calcium carbonate equivalent: 1 to 10 percent
Gypsum and sodium sulfate: Few to common clusters of crystals
Percent gypsum: 5 to 10 percent
Salinity: 0-2 mmhos/cm
Sodicity: 2-5 SAR

Bssny horizon:
Hue: 2.5YR
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 4 dry or moist
Calcium carbonate equivalent: 1 to 10 percent
Percent gypsum: 5 to 10 percent
Salinity: EC of 2 to 8 mmhos/cm
Sodicity: SAR of 5 to 14

Rionutria Series

Taxonomic class: Clayey-skeletal, mixed, superactive, frigid Typic Argiustolls
Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately slow
Geomorphic position: Cuestas
Parent material: Slope alluvium and colluvium over residuum derived from sandstone, shale, and limestone
Slope range: 5 to 20 percent
Elevation: 7,000 to 7,600 feet
Mean annual air temperature: 40 to 45 degrees F
Mean annual precipitation: 16 to 20 inches
Frost-free period: 90 to 110 days

Typical Pedon

Rionutria very gravelly loam, in an area of mapping unit 412, Rock outcrop-Rionutria-Zaster association, 15 to 80 percent slopes; McKinley County, New Mexico; Upper Nutria Quadrangle; about 1,050 feet east and 900 feet north of the southwest corner of sec. 34, T. 13 N., R. 16 W.; latitude 108 degrees, 31 minutes, 30 seconds and longitude 35 degrees, 18 minutes, 30 seconds.

The surface is covered by about 25 percent gravel, 10 percent cobbles, 5 percent stones, and 3 percent cobbles.

A—0 to 3 inches; reddish gray (5YR 5/2) very gravelly loam, dark reddish brown (5YR 3/2) moist; weak very fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; 25 percent gravel, 10 percent cobbles, 5 percent stones, and 3 percent boulders; slightly alkaline (pH 7.6); abrupt smooth boundary.

Btk1—3 to 12 inches; reddish brown (5YR 5/3) very cobbly clay loam, dark reddish brown (5YR 3/3) moist; weak medium subangular blocky structure; slightly hard, firm, sticky and plastic; many very fine, fine, and few medium roots; few very fine irregular pores; few distinct clay films on faces of peds; 20 percent gravel, 25 percent cobbles, 5 percent stones; very slightly effervescent; few very fine concretions of calcium carbonate; slightly alkaline (pH 7.8); clear smooth boundary.

Btk2—12 to 24 inches; light reddish brown (5YR 6/3) very cobbly clay loam, reddish brown (5YR 4/3) moist; moderate medium subangular blocky structure; very hard, very firm, sticky and plastic; few very fine, fine, and medium roots; few very fine irregular pores; common distinct clay films on faces of peds; 10 percent gravel, 30 percent cobbles, 5 percent stones; slightly effervescent; common very fine concretions of calcium carbonate; moderately alkaline (pH 8.0); abrupt wavy boundary.

R—24 inches; San Andreas limestone.

Range in Characteristics

Particle-size control section: 33 to 40 percent clay and 35 to 50 percent rock fragments
Depth to a lithic contact: 20 to 40 inches
Calcium carbonate equivalent: 5 to 10 percent
Reaction: Slightly to moderately alkaline

A horizon:
Rock fragments: 20 to 45 percent total; 20 to 25 percent gravel, 5 to 10 percent cobbles, 5 to 10 percent stones. All fragments are limestone.

Btk horizons:
Chroma: 3 or 4
Textures: clay loam or clay
Rock fragments: 35 to 50 percent total; 20 percent gravel, 10 to 25 percent cobbles, 5 to 10 percent stones. All fragments are limestone.

Rizno Series

Taxonomic class: Loamy, mixed superactive, calcareous, mesic Lithic Ustic Torriorthents
Depth class: Very shallow and shallow
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Geomorphic position: Mesas, cuestas, and ridges
Parent material: Eolian material over residuum derived from sandstone
Slope range: 2 to 20 percent
Elevation: 6,200 to 6,700 feet

Mean annual air temperature: 49 to 54 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 120 to 140 days

Typical Pedon

Rizno fine sandy loam, in an area of mapping unit 355, Rizno-Tekapo-Rock outcrop complex, 2 to 45 percent slopes; McKinley County, New Mexico; Ojo Caliente Reservoir Quadrangle; 1,800 feet north and 900 feet east of the southwest corner of sec. 33, T. 9 N., R. 20 W.; latitude 34 degrees, 57 minutes, 53 seconds and longitude 108 degrees, 57 minutes, 29 seconds.

A—0 to 3 inches; reddish brown (5YR 4/4) fine sandy loam, dark reddish brown (5YR 3/4) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; few medium, fine and very fine roots; few very fine irregular pores; 5 percent channers; slightly effervescent; slightly alkaline (pH 7.4); abrupt smooth boundary.
C—3 to 8 inches; reddish brown (2.5YR 4/4) sandy loam, dark reddish brown (2.5YR 3/4) moist; massive; soft, very friable, nonsticky and nonplastic; few coarse and medium and common fine and very fine roots; few very fine irregular pores; 10 percent channers; strongly effervescent; slightly alkaline (pH 7.6); abrupt smooth boundary.
2R—8 inches; red sandstone.

Range in Characteristics

Particle-size control section: 10 to 18 percent clay
Depth to lithic contact: 5 to 20 inches to sandstone
Calcium carbonate equivalent: 5 to 10 percent

A horizon:
Hue: 2.5YR or 5YR
Value: 4 or 5 dry; 3 or 4 moist
Chroma: 3 or 4 moist
Rock fragments: 0 to 20 percent gravel-sized sandstone channers

C horizon:
Hue: 2.5YR or 5YR
Value: 3 or 4 moist
Texture: sandy loam or fine sandy loam
Rock fragments: 0 to 15 percent gravel-sized sandstone channers

Some pedons have a thin Cr horizon of weathered sandstone above the lithic contact.

Robolata Series

Taxonomic class: Fine, mixed, superactive, frigid Pachic Argiustolls
Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
Geomorphic position: Valley floors
Parent material: Stream alluvium derived from sandstone, shale, and granite
Slope range: 1 to 5 percent
Elevation: 7,700 to 8,000 feet
Mean annual air temperature: 40 to 45 degrees F
Mean annual precipitation: 16 to 20 inches
Frost-free period: 90 to 110 days

Typical Pedon

Robolata loam, in an area of mapping unit 411, Ligocki-Robolata complex, 1 to 5 percent slopes; McKinley County, New Mexico; Page Quadrangle; 2,050 feet south and 100 feet west of the northeast corner of sec. 32, T. 13 N., R. 15 W.; latitude 35 degrees, 18 minutes, 56 seconds and longitude 108 degrees, 26 minutes, 28 seconds.

A—0 to 6 inches; reddish brown (5YR 4/3) loam, dark reddish brown (5YR 3/3) moist; moderate thin platy structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; slightly alkaline (pH 7.6); abrupt smooth boundary.
Bt1—6 to 12 inches; reddish brown (5YR 4/3) loam, dark reddish brown (5YR 3/3) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; many very fine, fine, and few medium roots; common very fine and few fine irregular pores; few wormcasts; common distinct clay films on faces of peds; slightly alkaline (pH 7.6); abrupt wavy boundary.
Bt2—12 to 20 inches; dark reddish brown (5YR 3/3) clay, dark reddish brown (5YR 3/2) moist; strong medium angular blocky structure; very hard, very firm, sticky and plastic; common very fine, fine, and few medium roots; common very fine and few fine irregular pores; many prominent clay films on faces of peds; 1 percent gravel; slightly alkaline (pH 7.6); abrupt wavy boundary.
2Bt3—20 to 30 inches; dark red (2.5YR 3/6) clay loam, dark reddish brown (2.5YR 3/4) moist; strong medium angular blocky structure; very hard, very firm, sticky and plastic; common very fine and fine roots; few very fine irregular pores; many prominent clay films on faces of peds; 1 percent gravel; slightly alkaline (pH 7.8); clear wavy boundary.
2Btk—30 to 50 inches; red (2.5YR 5/6) sandy clay loam, red (2.5YR 4/6) moist; weak fine subangular blocky structure; hard, firm, slightly sticky and nonplastic; few very fine roots; few very fine irregular pores; few faint clay films on faces of

peds and bridging sand grains; 12 percent gravel; slightly effervescent; few very fine masses of calcium carbonate; 6 percent calcium carbonate equivalent; slightly alkaline (pH 7.8); clear wavy boundary.

2BC—50 to 70 inches; red (2.5YR 5/6) very gravelly sandy loam, red (2.5YR 4/6) moist; weak very fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine roots; 55 percent gravel; slightly effervescent; slightly alkaline (pH 7.8).

Range in Characteristics

Particle-size control section: 35 to 50 percent clay
Thickness of the mollic epipedon: 16 to 26 inches
Depth to secondary carbonates: 20 to 40 inches

A horizon:
Hue: 5YR or 7.5YR
Value: 4 dry, 3 moist
Chroma: 2 or 3
Reaction: slightly alkaline

Bt horizon:
Hues: 2.5YR or 5YR
Value: 3 or 4 dry, 3 moist
Chroma: 2 to 6
Textures: loam, clay loam, or clay
Rock fragments: 0 to 5 percent sandstone gravel
Reaction: slightly alkaline

Btk horizon:
Hues: 2.5YR or 5YR
Value: 5 dry, 3 or 4 moist
Chroma: 4 or 6
Textures: sandy clay loam, clay loam, or clay
Rock fragments: 0 to 25 percent sandstone gravel
Reaction: slightly to moderately alkaline

BCk horizon:
Hue: 2.5YR or 5YR
Value: 5 dry, 3 or 4 moist
Chroma: 4 or 6
Textures: fine sandy loam or loam
Rock fragments: 0 to 55 percent sandstone gravel
Reaction: slightly to moderately alkaline

Royosa Series

Taxonomic class: Mixed, mesic Aridic Ustipsamments
Depth class: Very deep
Drainage class: Excessively drained
Permeability: Rapid
Geomorphic position: Dunes
Parent material: Eolian material derived from sandstone
Slope range: 1 to 15 percent
Elevation: 6,400 to 7,000 feet
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 13 to 16 inches
Frost-free period: 100 to 135 days

Typical Pedon

Royosa loamy fine sand, in an area of mapping unit 316, Royosa loamy fine sand, 1 to 15 percent slopes; McKinley County, New Mexico; High Lonesome Well Quadrangle; 1,000 feet south and 1,200 feet west of the northeast corner of sec 12, T. 10 N., R. 21 W.; latitude 35 degrees 06 minutes 52 seconds and longitude 109 degrees 00 minutes 05 seconds.

A1—0 to 2 inches; pale brown (10YR 6/3) loamy fine sand, brown (10YR 4/3) moist; single grain; loose, very friable, nonsticky and nonplastic; common fine and many very fine roots; many very fine irregular pores; neutral (pH 7.2); abrupt smooth boundary.

A2—2 to 6 inches; dark grayish brown (10YR 4/4) loamy fine sand, dark yellowish brown (10YR 3/4) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few medium and many fine and very fine roots; many very fine irregular pores; slightly alkaline (pH 7.4); clear smooth boundary.

C—6 to 65 inches; brown (7.5YR 4/4) loamy fine sand, brown (7.5YR 4/4) moist; massive; soft, very friable, nonsticky and nonplastic; few medium and fine and common very fine roots; many very fine irregular pores; slightly alkaline (pH 7.4).

Range in Characteristics

Particle-size control section: 3 to 10 percent clay
Reaction: neutral or slightly alkaline

A horizon:
Hue: 7.5YR or 10YR
Value: 6 or 7 dry; 3 to 5 moist
Chroma: 3 or 4 dry; 3 to 6 moist

C horizons:
Hue: 7.5YR or 10YR
Value: 3 to 6 moist
Chroma: 4 to 6 moist
Texture: loamy fine sand, loamy sand, or fine sand

San Mateo Series

Taxonomic class: Fine-loamy, mixed, superactive, calcareous, mesic Ustic Torrifluvents
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow

Geomorphic position: Valley sides and valley floors
Parent material: Fan and stream alluvium derived from sandstone and shale
Slope range: 0 to 3 percent
Elevation: 6,300 to 6,900 feet
Mean annual air temperature: 49 to 54 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 120 to 140 days

Typical Pedon

San Mateo clay loam, in an area of mapping unit 230, Sparank-San Mateo-Zia complex, 0 to 3 percent slopes; McKinley County, New Mexico; Mesa de los Toros Quadrangle; 10,500 feet west and 800 feet south of the northeast corner of sec. 1, T. 15 N., R. 9 W.; latitude 35 degrees, 33 minutes, 27 seconds and longitude 107 degrees, 47 minutes, 02 seconds.

A—0 to 2 inches; grayish brown (10YR 5/2) clay loam, dark grayish brown (10YR 4/2) moist; strong very fine granular structure; soft, friable, sticky and plastic; few fine and very fine roots; many very fine irregular pores; slightly effervescent; slightly alkaline (pH 7.8); abrupt smooth boundary.
C1—2 to 15 inches; grayish brown (10YR 5/2) clay loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, firm, sticky and plastic; few fine and very fine roots; few very fine irregular pores; slightly effervescent; moderately alkaline (pH 8.0); gradual smooth boundary.
C2—15 to 30 inches; brown (10YR 5/3) sandy clay loam, brown (10YR 4/3) moist; massive; soft, friable, slightly sticky and nonplastic; few fine and very fine roots; common fine irregular pores; strongly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.
C3—30 to 39 inches; brown (10YR 5/3) clay loam, dark grayish brown (10YR 4/2) moist; massive; soft, friable, slightly sticky and slightly plastic; few very fine roots; common fine irregular pores; strongly effervescent; slightly alkaline (pH 7.6); clear smooth boundary.
C4—39 to 45 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; many fine irregular pores; strongly effervescent; slightly alkaline (pH 7.6); clear smooth boundary.
C5—45 to 65 inches; light brownish gray (10YR 6/2) clay loam, dark grayish brown (10YR 4/2) moist; massive; soft, friable, slightly sticky and slightly plastic; few very fine roots; common fine irregular pores; strongly effervescent; slightly alkaline (pH 7.8).

Range in Characteristics

Particle-size control section: 20 to 34 percent clay
Calcium carbonate equivalent: 1 to 5 percent

A horizon:
Hue: 10YR or 2.5Y
Value: 5 or 6 dry; 3 or 4 moist
Chroma: 2 or 3 dry; 2 to 4 moist
Salinity: EC of 1 to 2 mmhos/cm
Reaction: slightly or moderately alkaline

C horizon:
Hue: 10YR or 2.5Y
Value: 5 or 6 dry; 3 or 4 moist
Chroma: 2 to 4
Texture: clay loam, sandy clay loam, silty clay loam, or sandy loam
Salinity: EC of 2 to 4 mmhos/cm
Sodicity: SAR 5 to 10
Reaction: slightly to strongly alkaline

Sanfeco Series

Taxonomic class: Fine, mixed, superactive, mesic Typic Haplargids
Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
Geomorphic position: Valley floors
Parent material: Stream alluvium derived from sandstone and shale
Slope range: 0 to 2 percent
Elevation: 6,400 to 6,800 feet
Mean annual air temperature: 50 to 55 degrees F
Mean annual precipitation: 7 to 9 inches
Frost-free period: 130 to 150 days

Typical Pedon

Sanfeco fine sandy loam, in an area of mapping unit 125, Sanfeco fine sandy loam, 0 to 2 percent slopes; McKinley County, New Mexico; El Dado Quadrangle; 400 feet south and 600 feet west of the northeast corner of sec. 19, T. 15 N., R. 7 W.; latitude 35 degrees, 31 minutes, 16 seconds and longitude 107 degrees, 36 minutes, 45 seconds (fig. 19).

A—0 to 2 inches; yellowish brown (10YR 5/4) fine sandy loam, dark yellowish brown (10YR 3/4) moist; moderate thin and medium platy structure parting to moderate fine granular; soft, very friable, slightly sticky and slightly plastic; many very fine and few fine roots; few fine vesicular and irregular pores; slightly effervescent; moderately alkaline (pH 7.4); abrupt smooth boundary.

Bt—2 to 10 inches; brown (10YR 5/3) clay loam, brown (10YR 4/3) moist; moderate very thin and thin platy structure parting to moderate medium subangular blocky; slightly hard, firm, sticky and plastic; many very fine and fine roots; common fine irregular pores; common prominent clay films on faces of peds; strongly effervescent; moderately alkaline (pH 7.8); clear wavy boundary.

Btk1—10 to 27 inches; brown (10YR 5/3) clay, dark brown (10YR 3/3) moist; strong fine and medium prismatic structure; hard, very firm, sticky and very plastic; many very fine and fine roots; common fine irregular pores; many prominent clay films on faces of peds; common fine filaments and masses of calcium carbonate; strongly effervescent; moderately alkaline (pH 7.8); clear wavy boundary.

2Btk2—27 to 35 inches; dark yellowish brown (10YR 4/4) sandy clay, dark yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure; very hard, very firm, sticky and plastic; common very fine and fine roots; common fine irregular pores; common prominent clay films on faces of peds and bridging sand grains; violently effervescent; common fine filaments and masses of calcium carbonate; moderately alkaline (pH 8.0); clear wavy boundary.

2Btk3—35 to 39 inches; dark yellowish brown (10YR 4/4) sandy clay loam, dark yellowish brown (10YR 3/4) moist; weak fine and medium subangular blocky structure; hard, firm, sticky and plastic; common very fine and fine roots; few fine irregular pores; common distinct clay films bridging sand grains; violently effervescent; common fine filaments and masses of calcium carbonate; moderately alkaline (pH 8.0); clear wavy boundary.

3Bk1—39 to 50 inches; yellowish brown (10YR 5/4) loamy coarse sand, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, friable, nonsticky and nonplastic; few very fine and fine roots; few fine irregular pores; strongly effervescent; common fine masses of calcium carbonate; moderately alkaline (pH 8.0); clear wavy boundary.

3Bk2—50 to 65 inches; yellowish brown (10YR 5/4) loamy sand, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, friable, nonsticky and nonplastic; few very fine and fine roots; few fine irregular pores; 1 percent gravel and 1 percent cobbles; slightly effervescent; calcium carbonate coats rock fragments; moderately alkaline (pH 8.0).

Range in Characteristics

Particle-size control section: 35 to 50 percent clay and greater than 25 percent sand
Depth to secondary calcium carbonate: 5 to 25 inches
Calcium carbonate equivalent: 3 to 5 percent in the surface and 5 to 15 percent in the subsoil
Salinity: EC of 0 to 4 mmhos/cm
Sodicity: SAR of 0 to 2 in the surface and 2 to 5 in the subsoil
Reaction: moderately alkaline throughout

A horizon:
Value: 5 or 6 dry; 3 or 4 moist
Chroma: 3 or 4

Bt or Btk horizons:
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 3 or 4
Texture: clay loam, clay, sandy clay, or sandy clay loam

Bk horizon:
Hue: 10YR or 2.5Y
Value: 5 or 6 dry
Texture: loamy coarse sand, loamy sand, sandy loam, or clay loam
Rock fragments: 0 to 5 percent total; 0 to 3 percent gravel; 0 to 2 percent cobbles. All fragments are sandstone.

Some pedons have a C horizon below the Btk horizons.

Seco Series

Taxonomic class: Very fine, mixed, superactive, frigid Vertic Argiustolls
Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Very slow
Geomorphic position: Valley floors
Parent material: Slope alluvium derived from basalt
Slope range: 1 to 5 percent
Elevation: 8,000 to 8,400 feet
Mean annual air temperature: 40 to 45 degrees F
Mean annual precipitation: 16 to 20 inches
Frost-free period: 90 to 110 days

Typical Pedon

Seco clay loam, in an area of mapping unit 420, Seco clay loam, 1 to 5 percent slopes; McKinley County, New Mexico; Marquez Quadrangle; latitude 35

degrees, 22 minutes, 27 seconds and longitude 107 degrees, 20 minutes, 23 seconds.

A—0 to 3 inches; grayish brown (10YR 5/2) clay loam, very dark grayish brown (10YR 3/2) moist; moderate medium and thick platy structure; slightly hard, friable, sticky and plastic; common very fine and fine roots; common fine irregular pores; slightly acid (pH 6.4); clear smooth boundary.

Bt—3 to 11 inches; dark grayish brown (10YR 4/2) clay, very dark brown (10YR 2/2) moist; strong very fine and fine subangular blocky structure; very hard, very firm, very sticky and very plastic; many prominent clay films on faces of peds; neutral (pH 7.2); abrupt wavy boundary.

Btss—11 to 23 inches; brown (7.5YR 4/2) clay, dark brown (7.5YR 3/2) moist; moderate fine and medium prismatic structure parting to strong fine angular blocky; extremely hard, extremely firm, very sticky and very plastic; common very fine and fine roots; few fine tubular pores; many prominent clay films on faces of peds; common slickensides and pressure faces; vertical cracks less than 1/4 inch wide extend from 11 to 28 inches; slightly alkaline (pH 7.4); gradual irregular boundary.

Btkss—23 to 58 inches; brown (7.5YR 4/4) clay, dark brown (7.5YR 3/4) moist; common fine and medium distinct dark grayish brown (10YR 4/2) and very dark grayish brown (10YR 3/2) moist redox depletions; moderate medium angular blocky structure; extremely hard, extremely firm, very sticky and very plastic; few very fine and fine roots; few fine tubular pores; many prominent clay films on faces of peds; common slickensides and pressure faces; strongly effervescent; few fine masses of calcium carbonate and coating soft weathered basalt gravel; slightly alkaline (pH 7.8); clear wavy boundary.

2BCg—58 to 70 inches; light yellowish brown (2.5Y 6/3) clay, light olive brown (2.5Y 5/3) moist; common fine and medium prominent brown (7.5YR 5/4) and brown (7.5YR 4/4) moist redox concentrations; massive; extremely hard, extremely firm, very sticky and very plastic; very few very fine roots; very few very fine irregular pores; few fine soft white noneffervescent masses; slightly alkaline (pH 7.4).

Range in Characteristics

Particle-size control section: 60 to 80 percent clay
Mollic epipedon: 15 to 30 inches thick
Depth to secondary calcium carbonate (when present): 20 to 50 inches.
Vertic features: depth to cracks, slickensides, and pressure faces: 8 to 22 inches
Redoximorphic features:
Depth: 20 to 50 inches
Size: fine or medium
Contrast: distinct or prominent
Hue: 7.5YR or 10YR
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 2 to 4 dry or moist

A horizon:
Hue: 7.5YR or 10YR
Value: 4 or 5 dry
Chroma: 2 or 3 dry
Reaction: slightly acid or neutral

Bt horizon:
Hue: 5YR, 7.5YR, or 10YR
Value: 4 or 5 dry, 2 or 3 moist
Chroma: 2 to 4 dry, 0 to 4 moist
Texture: clay or silty clay
Reaction: neutral to moderately alkaline

Btss horizon:
Hue: 5YR, 7.5YR, or 10YR
Value: 4 or 5 dry, 2 or 3 moist
Chroma: 2 to 4 dry, 0 to 4 moist
Texture: clay or silty clay
Salinity: EC of 0 to 2 mmhos/cm
Reaction: neutral to moderately alkaline

Btk horizon (may be absent):
Hue: 7.5YR or 10YR
Value: 4 or 5 dry, 3 or 4 moist
Calcium carbonate equivalent: 1 to 5 percent
Salinity: EC of 0 to 2 mmhos/cm
Reaction: slightly or moderately alkaline

2BC horizon (may be absent):
Value: 4 to 6 dry, 4 or 5 moist
Chroma: 2 or 3 moist
Salinity: EC of 0 to 2 mmhos/cm
Reaction: slightly alkaline

Shadilto Series

Taxonomic class: Loamy, carbonatic, mesic Lithic Calciustepts
Depth class: Very shallow and shallow
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Geomorphic position: Cuestas
Parent material: Eolian material and slope alluvium derived from sandstone and limestone
Slope range: 2 to 8 percent
Elevation: 7,000 to 7,700 feet
Mean annual air temperature: 49 to 53 degrees F

Mean annual precipitation: 13 to 16 inches
Frost-free period: 115 to 135 days

Typical Pedon

Shadilto very gravelly sandy loam, in an area of mapping unit 375, Todest-Shadilto complex, 2 to 8 percent slopes; McKinley County, New Mexico; Thoreau Quadrangle; 600 feet west and 1,200 feet south of the northeast corner of sec. 23, T. 14 N., R. 13 W.; latitude 35 degrees, 26 minutes, 01 seconds and longitude 108 degrees, 10 minutes, 38 seconds.

The surface is covered by about 50 percent gravel and 5 percent cobbles.

A—0 to 1 inch; brown (7.5YR 5/4) very gravelly sandy loam, brown (7.5YR 4/4) moist; weak thin platy structure; soft, very friable, nonsticky and nonplastic; many fine and common medium roots; many fine vesicular pores; 50 percent gravel and 5 percent cobbles; strongly effervescent; few fine masses of calcium carbonate; 25 percent calcium carbonate equivalent; moderately alkaline (pH 8.0); clear smooth boundary.

Bk1—1 to 9 inches; brown (7.5YR 5/4) sandy loam, brown (7.5YR 4/4) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many fine and few medium roots; common fine irregular pores; 10 percent gravel; violently effervescent; many very fine masses and common fine and medium concretions of calcium carbonate and coating rock fragments; 70 percent calcium carbonate equivalent; moderately alkaline (pH 8.2); clear smooth boundary.

Bk2—9 to 13 inches; pinkish gray (7.5YR 6/2) sandy loam, brown (7.5YR 5/3) moist; weak fine and medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common fine and few medium and coarse roots; common fine irregular pores; 5 percent gravel and 5 percent cobbles; violently effervescent; many fine masses and concretions of calcium carbonate and coating rock fragments; 75 percent calcium carbonate equivalent; moderately alkaline (pH 8.2); clear smooth boundary.

Bk3—13 to 15 inches; pinkish white (7.5YR 8/2) sandy loam, pink (7.5YR 7/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few fine and medium roots; few fine irregular pores; 5 percent gravel and 2 percent cobbles; violently effervescent; many fine masses and concretions of calcium carbonate and coating rock fragments; 80 percent calcium carbonate equivalent; moderately alkaline (pH 8.2); abrupt smooth boundary.

R—15 inches; limestone.

Range in Characteristics

Particle-size control section: 8 to 18 percent clay and more than 55 percent sand
Depth to calcic horizon: 1 to 3 inches
Depth to lithic contact: 6 to 20 inches to limestone

A horizon:
Hue: 5YR, 7.5YR, or 10YR
Value: 3 or 4 moist
Chroma: 3 or 4 moist
Rock fragments: 35 to 60 percent total; 35 to 60 percent gravel; 0 to 10 percent cobbles. Most fragments are limestone with some sandstone.
Calcium carbonate equivalent: 10 to 40 percent

Bk horizon:
Hue: 7.5YR or 10YR
Value: 5 to 8 dry, 3 to 7 moist
Chroma: 2 to 4 dry, 3 or 4 moist
Rock fragments: 5 to 35 percent total; 5 to 20 percent gravel; 0 to 30 percent cobbles. All fragments are limestone.
Calcium carbonate equivalent: 40 to 80 percent

Shiprock Series

Taxonomic class: Coarse-loamy, mixed, superactive, mesic Typic Haplargids
Depth class: Very deep
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Geomorphic position: Mesas, cuestas, and valley sides
Parent material: Eolian material and slope alluvium derived from sandstone
Slope range: 2 to 8 percent
Elevation: 5,800 to 6,800 feet
Mean annual air temperature: 50 to 55 degrees F
Mean annual precipitation: 7 to 9 inches
Frost-free period: 130 to 150 days

Typical Pedon

Shiprock fine sandy loam, in an area of mapping unit 115, Razito-Shiprock complex, 3 to 8 percent slopes; McKinley County, New Mexico; Seven Lakes NW Quadrangle; 1,600 feet east and 1,400 feet north of the southwest corner of sec. 8, T. 20 N., R. 10 W.; latitude 35 degrees, 58 minutes, 36 seconds and longitude 107 degrees, 55 minutes, 54 seconds.

A—0 to 3 inches; light yellowish brown (10YR 6/4) fine sandy loam, yellowish brown (10YR 5/4) moist; moderate fine granular structure; soft, very friable,

nonsticky and nonplastic; few very fine roots; many very fine irregular pores; neutral (pH 6.8); abrupt smooth boundary.
Bt—3 to 15 inches; strong brown (7.5YR 5/6) fine sandy loam, dark yellowish brown (7.5YR 4/6) moist; moderate medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common fine and very fine roots; common very fine tubular pores; common distinct clay films on faces of peds and lining pores; slightly alkaline (pH 7.4); abrupt smooth boundary.
Bk1—15 to 37 inches; light brown (7.5YR 6/4) fine sandy loam, brown (7.5YR 5/4) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few fine and common very fine roots; few very fine tubular pores; strongly effervescent; slightly alkaline (pH 7.6); clear smooth boundary.
Bk2—37 to 60 inches; very pale brown (10YR 7/4) fine sandy loam, light yellowish brown (10YR 6/4) moist; massive; soft very friable, nonsticky and nonplastic; few very fine roots; common very fine irregular pores; violently effervescent; moderately alkaline (pH 8.4).

Range in Characteristics

Particle-size control section: 10 to 18 percent clay

A horizon:
Hue: 7.5YR or 10YR
Value: 5 or 6 dry; 4 to 6 moist
Chroma: 4 to 6 moist
Texture: fine sandy loam or loamy fine sand
Reaction: neutral or slightly alkaline

Bt horizon:
Hue: 7.5YR or 10YR
Value: 3 to 5 moist
Chroma: 4 to 6 moist
Reaction: neutral to moderately alkaline

Bk horizon:
Hue: 7.5YR or 10YR
Value: 6 or 7 dry; 4 to 6 moist
Chroma: 4 to 6 moist
Texture: fine sandy loam
Calcium carbonate equivalent: 1 to 10 percent
Reaction: moderately alkaline

Shoemaker Series

Taxonomic class: Fine-loamy, mixed, superactive, frigid Typic Haplustalfs
Depth class: Moderately deep
Drainage class: Moderately well drained
Permeability: Moderate
Geomorphic position: Mesas and cuestas
Parent material: Eolian and slope alluvium derived from sandstone and shale
Slope range: 2 to 8 percent
Elevation: 7,000 to 7,600 feet
Mean annual air temperature: 40 to 45 degrees F
Mean annual precipitation: 16 to 20 inches
Frost-free period: 90 to 110 days

Typical Pedon

Shoemaker loamy fine sand, in an area of mapping unit 400, Shoemaker-Stozuni complex, 2 to 8 percent slopes; McKinley County, New Mexico; Shoemaker Canyon Quadrangle; 1,200 feet south and 2,600 feet west of the northeast corner of sec. 36, T. 9 N., R. 17 W.; latitude 34 degrees, 58 minutes, 13 seconds and longitude 108 degrees, 34 minutes, 58 seconds.

A—0 to 2 inches; brown (7.5YR 5/4) loamy fine sand, brown (7.5YR 4/4) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine, and few medium roots; many very fine irregular pores; neutral (pH 6.6); abrupt smooth boundary.
Bt1—2 to 7 inches; brown (7.5YR 4/4) fine sandy loam, dark brown (7.5YR 3/4) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine, and few medium roots; common fine tubular pores; few faint clay films bridging sand grains; neutral (pH 6.6); abrupt smooth boundary.
Bt2—7 to 20 inches; strong brown (7.5YR 4/6) sandy clay loam, brown (7.5YR 4/4) moist; few fine faint mottles; moderate medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common very fine and fine, and few medium roots; few fine irregular pores; common prominent clay films bridging sand grains; slightly acid (pH 6.4); clear smooth boundary.
Bt3—20 to 28 inches; strong brown (7.5YR 5/6) sandy clay loam, strong brown (7.5YR 4/6) moist; common medium, distinct, reddish yellow (7.5YR 6/8) mottles; moderate medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few very fine and medium roots; few fine irregular pores; common prominent clay films bridging sand grains; slightly acid (pH 6.4); abrupt smooth boundary.
2R—28 inches; sandstone.

Range in Characteristics

Particle-size control section: 20 to 35 percent clay
Depth to bedrock: 20 to 40 inches to sandstone
Redoximorphic concentrations: few to common, fine or

common, faint or distinct, 5YR or 7.5YR redox concentrations at a depth of 7 to 26 inches
Reaction: neutral in the surface and slightly alkaline in the subsoil

A horizon:
Hue: 7.5YR or 10YR
Value: 4 to 6 dry, 3 or 4 moist
Chroma: 2 to 4 moist
Rock fragments: 0 to 10 percent gravel; 0 to 5 percent cobbles. All fragments are sandstone.

Bt horizon:
Hue: 5YR or 7.5YR
Value: 4 to 6 dry, 3 to 5 moist
Texture: sandy clay loam or fine sandy loam
Rock fragments: 0 to 10 percent gravel; 0 to 5 percent cobbles. All fragments are sandstone.

Silcat Series

Taxonomic class: Fine, mixed, superactive, mesic Aridic Haplusterts
Depth class: Very deep
Drainage class: Well drained
Permeability: Very slow
Geomorphic position: Valley floors, valley sides, and hills
Parent material: Slope alluvium derived from shale
Slope range: 1 to 10 percent
Elevation: 6,800 to 7,500 feet
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 13 to 16 inches
Frost-free period: 100 to 135 days

Typical Pedon

Silcat clay loam, in an area of mapping unit 525, Silcat clay loam, 1 to 10 percent slopes; McKinley County, New Mexico; Upper Galestina Canyon Quadrangle; 800 feet south and 750 feet west of the northeast corner of sec. 19, T. 9 N., R. 17 W.; latitude 35 degrees, 00 minutes, 02 seconds and longitude 108 degrees, 39 minutes, 54 seconds.

A—0 to 2 inches; light olive brown (2.5Y 5/6) clay loam, brown (10YR 4/3) moist; strong medium granular structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine irregular pores; slightly alkaline (pH 7.5); abrupt smooth boundary.
2BC—2 to 7 inches; light olive brown (2.5Y 5/4) clay, olive brown (2.5Y 4/4) moist; moderate medium subangular blocky structure; hard, firm, sticky and plastic; many very fine and fine roots; few fine irregular pores; common pressure faces; vertical cracks 0.75 inches wide extend from 2 inches to 38 inches depth, upper part of some cracks are filled with surface material; strongly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.
2BCss1—7 to 18 inches; light olive brown (2.5Y 5/4) clay, olive brown (2.5Y 4/4) moist; strong medium prismatic structure; extremely hard, extremely firm, very sticky and very plastic; common very fine and fine roots; few fine tubular pores; many pressure faces and few slickensides; vertical cracks 0.75 inches wide; strongly effervescent; moderately alkaline (pH 8.1); clear smooth boundary.
2BCss2—18 to 38 inches; light olive brown (2.5Y 5/4) clay, olive brown (2.5Y 4/4) moist; massive; extremely hard, extremely firm, very sticky and very plastic; common very fine and fine roots; few fine tubular pores; many slickensides up to 3 inches in diameter are tilted 40 degrees from the horizontal; vertical cracks 0.75 inches wide; strongly effervescent; moderately alkaline (pH 8.2); gradual smooth boundary.
2Bk—38 to 65 inches; light olive brown (2.5Y 5/4) clay, olive brown (2.5Y 4/4) moist; massive; extremely hard, extremely firm, very sticky and very plastic; few very fine and fine roots; few fine tubular pores; strongly effervescent; few very fine irregular filaments and masses of calcium carbonate; moderately alkaline (pH 7.9).

Range in Characteristics

Particle-size control section: 45 to 55 percent clay
Vertic features: Vertical cracks extend from the surface but most extend from 2 to 40 inches. Slickensides and pressure faces occur from 5 to 40 inches.
Reaction: Slightly alkaline in the surface and moderately alkaline in the subsoil

A horizon:
Hue: 2.5Y or 10YR
Chroma: 4 or 6 dry, 2 or 3 moist
Rock fragments: 0 to 5 percent sandstone gravel or channers

2BCss horizons:
Value: 4 or 5 dry, 2 or 4 moist
Chroma: 2 to 4 moist

2Bk horizon:
Value: 4 or 5 dry
Chroma: 2 to 4 dry or moist

Simitarq Series

Taxonomic class: Loamy, mixed, superactive, mesic Lithic Haplustalfs
Depth class: Very shallow and shallow
Drainage class: Well drained
Permeability: Moderately slow
Geomorphic position: Mesas and cuestas
Parent material: Eolian material and slope alluvium over residuum derived from sandstone
Slope range: 2 to 8 percent
Elevation: 7,200 to 8,100 feet
Mean annual air temperature: 49 to 53 degrees F
Mean annual precipitation: 13 to 16 inches
Frost-free period: 115 to 135 days

Typical Pedon

Simitarq sandy loam, in an area of mapping unit 368, Simitarq-Celavar sandy loams, 2 to 8 percent slopes; McKinley County, New Mexico; Continental Divide Quadrangle; 500 feet south and 800 feet west of the northeast corner of sec. 29, T. 14 N., R. 14 W.; latitude 35 degrees, 25 minutes, 16 seconds and longitude 108 degrees, 20 minutes, 13 seconds.

A—0 to 1 inch; brown (10YR 5/3) sandy loam, dark brown (10YR 3/3) moist; strong thick platy structure; soft, very friable, slightly sticky and nonplastic; many very fine and fine roots; many fine vesicular pores; 10 percent channers and gravel; neutral (pH 7.2); abrupt smooth boundary.
Bt1—1 to 6 inches; reddish brown (5YR 4/4) sandy clay loam, dark reddish brown (5YR 3/4) moist; moderate medium subangular blocky structure; slightly hard, firm, sticky and plastic; common very fine and fine and few medium roots; common fine irregular pores; many distinct clay films coating faces of peds and bridging sand grains; 5 percent channers and 1 percent cobbles; neutral (pH 7.2); clear wavy boundary.
Bt2—6 to 14 inches; reddish brown (5YR 5/4) sandy clay, dark reddish brown (5YR 3/4) moist; strong medium subangular blocky structure; very hard, very firm, very sticky and very plastic; common very fine and fine and few medium roots; common fine tubular pores; many prominent clay films on faces of peds and bridging sand grains; 2 percent channers; slightly alkaline (pH 7.4); clear wavy boundary.
R—14 inches; sandstone; the top 1 inch is weathered with Bt2 material in the cracks.

Range in Characteristics

Depth to lithic contact: 5 to 20 inches to sandstone
Particle-size control section: 20 to 35 percent clay and greater than 35 percent sand. The lower argillic horizons contain more than 35 percent clay but are not thick enough or have a high enough clay content to make the pscs clayey.
Reaction: neutral or slightly alkaline throughout

A horizon:
Hue: 5YR, 7.5YR, or 10YR
Value: 4 to 6 dry, 3 or 4 moist
Chroma: 3 or 4 dry, 2 to 4 moist
Rock fragments: 5 to 30 percent total; 5 to 25 percent gravel; 0 to 5 percent cobbles. All fragments are siliceous and sandstone.

Bt1 horizon:
Hue: 2.5YR, 5YR, or 7.5YR
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 3 or 4
Texture: sandy clay loam or clay loam with less than 35 percent clay
Rock fragments: 5 to 15 percent total; 5 to 15 percent gravel; 0 to 5 percent cobbles

Bt2 horizon:
Hue: 2.5YR or 5YR
Value: 3 to 5 dry, 2.5 to 4 moist
Chroma: 3 or 4
Texture: sandy clay, clay, or clay loam with greater than 35 percent clay
Rock fragments: 0 to 35 percent total; 0 to 30 percent gravel; 0 to 20 percent cobbles. All fragments are sandstone.

Some pedons have a Btk horizon with less than 5 percent calcium carbonate equivalent.

Skyvillage Series

Taxonomic class: Loamy, mixed, superactive, calcareous, mesic Lithic Ustic Torriorthents
Depth class: Very shallow and shallow
Drainage class: Well drained
Permeability: Moderate to moderately rapid
Geomorphic position: Mesas, cuestas, breaks, hills, and ridges
Parent material: Eolian material and slope alluvium derived from sandstone
Slope range: 2 to 20 percent
Elevation: 6,400 to 7,800 feet
Mean annual air temperature: 49 to 54 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 120 to 140 days

Typical Pedon

Skyvillage very channery sandy loam, in an area of mapping unit 250 Hospah-Skyvillage-Rock outcrop

complex, 2 to 35 percent slopes; McKinley County, New Mexico; Kin Nahzin Ruins Quadrangle; 800 feet west and 200 feet south of the northeast corner of sec. 26, T. 18N, R. 9W. latitude 35 degrees, 46 minutes, 03 seconds and longitude 107 degrees, 45 minutes, 18 seconds.

The surface is covered by about 10 percent cobbles, 30 percent channers, and 5 percent stones.

A—0 to 1 inch; yellowish brown (10YR 5/4) very channery sandy loam, dark yellowish brown (10YR 4/4) moist; weak medium and coarse platy structure; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine irregular and few fine vesicular pores; 10 percent cobbles, 30 percent channers, and 5 percent stones; strongly effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.

Bw—1 to 5 inches; brown (7.5YR 5/4) sandy loam, dark brown (7.5YR 3/4) moist; weak very fine and fine subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; common very fine and fine roots; common fine irregular pores; 5 percent channers; strongly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Ck—5 to 8 inches; light brown (7.5YR 6/4) channery sandy clay loam, dark brown (7.5YR 4/4) moist; weak very fine subangular blocky structure; soft, friable, slightly sticky and nonplastic; few very fine and fine and few medium roots; common fine irregular pores; 20 percent channers and gravel; common fine masses of calcium carbonate and coating coarse fragments; violently effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.

2R—8 inches; calcareous sandstone.

Range in Characteristics

Particle-size control section: 10 to 25 percent clay with more than 45 percent sand and 0 to 20 percent rock fragments
Depth to lithic contact: 6 to 20 inches to sandstone
Calcium carbonate equivalent: 0 to 15 percent
Reaction: slightly alkaline in the surface and moderately alkaline in the subsoil

A horizon:
Hue: 7.5YR, 10YR, or 2.5Y
Value: 5 or 6 dry; 4 or 5 moist
Chroma: 4 to 6 moist
Texture: sandy loam or fine sandy loam
Rock fragments: 5 to 45 percent total; 5 to 45 percent channers and gravel; 0 to 10 percent cobbles; 0 to 5 percent stones. All fragments are sandstone.

Bw (when present):
Hue: 7.5YR, 10YR, or 2.5Y
Value: 5 or 6 dry, 3 to 5 moist
Texture: sandy loam, fine sandy loam, or sandy clay loam
Rock fragments: 0 to 20 percent sandstone channers or gravel

C horizon (when present):
Hue: 7.5YR, 10YR, or 2.5Y
Value: 5 or 6 dry, 4 or 5 moist
Chroma: 4 or 6 moist
Textures: sandy loam
Rock fragments: 0 to 20 percent total; 0 to 20 percent channers or gravel; 0 to 5 percent cobbles. All fragments are sandstone.

Sparank Series

Taxonomic class: Fine, mixed, superactive, calcareous, mesic Ustic Torrifluvents
Depth class: Very deep
Drainage class: Well drained
Permeability: Very slow
Geomorphic position: Valley sides and valley floors
Parent material: Fan and stream alluvium derived from sandstone and shale
Slope range: 0 to 3 percent
Elevation: 6,300 to 6,900 feet
Mean annual air temperature: 49 to 54 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 120 to 140 days

Typical Pedon

Sparank silty clay loam, in an area of mapping unit 230, Sparank-San Mateo-Zia complex, 0 to 3 percent slopes; McKinley County, New Mexico; Ambrosia Lake Quadrangle; 5,000 feet north and 400 feet west of the northeast corner of sec. 35, T. 14 N., R. 10 W.; latitude 35 degrees, 25 minutes, 10 seconds and longitude 107 degrees, 51 minutes, 25 seconds.

A—0 to 2 inches; grayish brown (10YR 5/2) silty clay loam, dark grayish brown (10YR 4/2) moist; strong fine granular structure; soft, friable, sticky and plastic; few fine and very fine roots; many very fine irregular pores; slightly effervescent; slightly alkaline (pH 7.8); abrupt smooth boundary.

C1—2 to 25 inches; grayish brown (10YR 5/2) clay, brown (10YR 4/3) moist; massive; slightly hard, firm, sticky and plastic; few fine and very fine roots; few very fine irregular pores; strongly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.

C2—25 to 65 inches; brown (10YR 4/3) clay, dark

brown (10YR 3/3) moist; massive; hard, very firm, very sticky and very plastic; few very fine irregular pores; slightly effervescent; slightly alkaline (pH 7.6).

Range in Characteristics

Particle-size control section: 35 to 55 percent clay
Reaction: slightly to moderately alkaline
Calcium carbonate equivalent: 1 to 5 percent
Salinity: EC of 0 to 2 in the surface and 0 to 4 in the substratum
Sodicity: SAR of 0 to 2

A horizon:
Hue: 10YR or 2.5Y
Value: 5 or 6 dry; 3 or 4 moist
Chroma: 2 or 3 dry; 2 to 4 moist

C horizon:
Hue: 10YR or 2.5Y
Value: 4 or 5 dry; 3 or 4 moist
Chroma: 2 or 3 dry; 2 to 4 moist
Texture: clay, silty clay, or clay loam

Sparham Series

Taxonomic class: Fine, mixed, superactive, calcareous, mesic Aridic Ustifluvents
Depth class: Very deep
Drainage class: Well drained
Permeability: Very slow
Geomorphic position: Valley floors
Parent material: Stream alluvium derived from sandstone and shale
Slope range: 0 to 2 percent
Elevation: 6,600 to 6,800 feet
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 14 to 16 inches
Frost-free period: 100 to 135 days

Typical Pedon

Sparham clay loam, in an area of mapping unit 55, Sparham clay loam, 0 to 2 percent slopes; McKinley County, New Mexico; Upper Nutria Quadrangle; 400 feet north and 2,400 feet west of the southeast corner of sec. 13, T. 12 N., R. 17 W.; latitude 35 degrees, 16 minutes, 17 seconds and longitude 108 degrees, 34 minutes, 57 seconds.

A—0 to 2 inches; brown (10YR 5/3) clay loam, dark brown (10YR 4/3) moist; strong coarse platy structure parting to strong fine granular; slightly hard, firm, sticky and plastic; common very fine and fine roots; many very fine tubular pores; slightly effervescent; slightly alkaline (pH 7.6); abrupt smooth boundary.

C1—2 to 14 inches; brown (10YR 5/3) clay, dark brown (10YR 4/3) moist; massive, very hard, firm, very sticky and very plastic; common very fine and fine roots; common fine irregular pores; slightly effervescent; slightly alkaline (pH 7.6); clear smooth boundary.

C2—14 to 18 inches; yellowish brown (10YR 5/4) sandy clay loam, dark yellowish brown (10YR 4/6) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few fine roots; few fine irregular pores; slightly effervescent; slightly alkaline (pH 7.6); abrupt smooth boundary.

C3—18 to 27 inches; grayish brown (2.5Y 5/2) clay, dark yellowish brown (10YR 4/4) moist; massive; hard, firm, sticky and plastic; few very fine roots; few fine irregular pores; slightly effervescent; slightly alkaline (pH 7.6); clear smooth boundary.

C4—27 to 31 inches; yellowish brown (10YR 5/4) sandy clay loam, dark yellowish brown (10YR 4/6) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; few fine irregular pores; slightly effervescent; slightly alkaline (pH 7.6); abrupt smooth boundary.

Cz—31 to 65 inches; brown (10YR 5/3) clay, dark yellowish brown (10YR 4/4) moist; massive; hard, firm, sticky and plastic; few very fine roots; few fine irregular pores; many medium irregular clusters of salt crystals; strongly effervescent; moderately alkaline (pH 8.0).

Range in Characteristics

Particle-size control section: 40 to 55 percent clay
Depth to salt crystals (when present): 20 to 35 inches
Calcium carbonate equivalent: 1 to 5 percent
Salinity: EC of 0 to 2 in the surface and 2 to 4 mmhos/cm in the substratum
Sodicity: SAR of 1 to 5
Reaction: slightly to moderately alkaline

A horizon:
Hue: 10YR
Value: 3 or 4 moist
Chroma: 3 dry and moist

C horizon:
Hue: 10YR
Chroma: 2 to 4 dry; 3 to 6 moist
Texture: sandy clay loam, clay loam, clay, or silty clay

Starlake Series

Taxonomic class: Fine, mixed, superactive, mesic Ustic Natrargids
Depth class: Very deep

Drainage class: Well drained
Permeability: Very slow
Geomorphic position: Valley floors and valley sides
Parent material: Fan and stream alluvium derived from sandstone and shale
Slope range: 1 to 3 percent
Elevation: 6,300 to 6,700 feet
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 9 to 10 inches
Frost-free period: 100 to 135 days

Typical Pedon

Starlake clay, in an area of mapping unit 16, Starlake clay, 1 to 3 percent slopes; McKinley County, New Mexico; Starlake Quadrangle; 500 feet east and 2,250 feet north of the southwest corner of sec. 4, T. 19 N., R. 5 W.; latitude 35 degrees, 54 minutes, 20 seconds and longitude 107 degrees, 22 minutes, 37 seconds.

Btn1—0 to 3 inches; grayish brown (2.5Y 5/2) clay, dark grayish brown (2.5Y 4/2) moist; strong medium prismatic structure; very hard, very firm, sticky and plastic; common fine and very fine roots; common very fine tubular pores; many prominent clay films on faces of peds; 5 percent siderite gravel on the surface; strongly effervescent; very strongly alkaline; abrupt smooth boundary.

Btn2—3 to 9 inches; dark grayish brown (2.5Y 5/2) clay, grayish brown (2.5Y 4/2) moist; moderate coarse prismatic structure parting to fine and medium subangular blocky structure; extremely hard, extremely firm, sticky and plastic; many fine and very fine roots; few very fine tubular pores; many distinct clay films on faces of peds; strongly effervescent; very strongly alkaline; clear smooth boundary.

Btn3—9 to 12 inches; light brownish gray (2.5Y 6/2) clay, grayish brown (2.5Y 5/2) moist; moderate coarse prismatic structure parting to moderate fine and medium subangular blocky structure; extremely hard, extremely firm, sticky and plastic; common fine, very fine and few medium roots; few very fine tubular pores; many distinct clay films on faces of peds; strongly effervescent; strongly alkaline; clear smooth boundary.

Btknz1—12 to 20 inches; light yellowish brown (2.5Y 6/4) clay loam, olive brown (2.5Y 4/4) moist; moderate fine and medium subangular blocky structure; very hard, very firm, sticky and plastic; common very fine, fine and few medium roots; common very fine tubular pores; common distinct clay films on faces of peds; common filaments and masses of sodium sulfate; few very fine masses of calcium carbonate; strongly effervescent; moderately alkaline; clear smooth boundary.

Btknz2—20 to 40 inches; grayish brown (2.5Y 5/2) clay, dark grayish brown (2.5Y 4/2) moist; moderate fine and medium subangular blocky structure; very hard, very firm, sticky and plastic; few very fine and fine roots; common very fine tubular pores; common distinct clay films on faces of peds; few fine filaments and masses of sodium sulfate with few gypsum crystals; few very fine masses of calcium carbonate; strongly effervescent; moderately alkaline; clear smooth boundary

Btknz3—40 to 54 inches; grayish brown (2.5Y 5/2) clay, dark grayish brown (2.5Y 4/2) moist; moderate fine and medium subangular blocky structure; very hard, very firm, sticky and plastic; few very fine and fine roots; common very fine tubular pores; common distinct clay films on faces of peds; common medium filaments and masses of sodium sulfate with few gypsum crystals; few very fine masses of calcium carbonate; strongly effervescent; very strongly alkaline; clear smooth boundary

Btknz4—54 to 65 inches; light olive brown (2.5Y 5/4) clay loam, olive brown (2.5Y 4/4) moist; moderate fine and medium subangular blocky structure; very hard, very firm, sticky and plastic; few very fine and fine roots; common very fine tubular pores; common distinct clay films on faces of peds; few medium filaments and masses of sodium sulfate with few gypsum crystals; very few very fine masses of calcium carbonate; strongly effervescent; very strongly alkaline.

Range in Characteristics

Particle-size control section: 35 to 50 percent clay
Depth to sodium sulfate and calcium sulfate accumulation: 5 to 18 inches
Percent gypsum: 0 to 1 percent
Depth to secondary calcium carbonate: 5 to 15 inches.
Calcium carbonate equivalent: 5 to 15 percent
Sodicity: SAR of 13 to 30
Salinity: EC of 2 to 8 mmhos/cm
Reaction: strongly or very strongly alkaline

E horizon (when present):
Hue: 10YR
Value: 6 dry; 4 or 5 moist

Chroma: 2 or 4 dry; 3 or 4 moist
Texture: loam
Rock fragments: 0 to 10 percent siderite and sandstone gravel
Note: This horizon occurs in the less severely eroded areas.

Bt horizons:
Hue: 10YR or 2.5Y
Value: 4 to 6 dry; 3 to 5 moist
Chroma: 2 to 4
Texture: clay or clay loam
Rock fragments: 0 to 5 percent siderite and sandstone gravel

Some pedons have a By and C horizon occurring below 40 inches.

Stozuni Series

Taxonomic class: Loamy, mixed, superactive, nonacid, frigid Lithic Ustorthents
Depth class: Very shallow and shallow
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Geomorphic position: Mesas, cuestas, hills, and ridges
Parent material: Eolian material and slope alluvium derived from sandstone
Slope range: 2 to 20 percent
Elevation: 7,000 to 8,000 feet
Mean annual air temperature: 40 to 45 degrees F
Mean annual precipitation: 16 to 20 inches
Frost-free period: 90 to 110 days

Typical Pedon

Stozuni sandy loam, in an area of mapping unit 400, Shoemaker-Stozuni complex, 2 to 8 percent slopes; McKinley County, New Mexico; Horsehead Canyon NW Quadrangle; 2,400 feet east and 2,000 feet south of the northwest corner of sec. 36, T. 9 N., R. 17 W.; latitude 34 degrees, 58 minutes, 01 second and longitude 108 degrees, 35 minutes, 01 seconds.

A—0 to 2 inches; brown (7.5YR 5/4) sandy loam, dark brown (7.5YR 3/4) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; common fine and many very fine roots; many very fine irregular pores; neutral (pH 7.0); abrupt smooth boundary.
C1—2 to 10 inches; brown (7.5YR 5/4) fine sandy loam, dark brown (7.5YR 3/4) moist; massive; soft, very friable, nonsticky and nonplastic; few medium and many fine and very fine roots; many very fine irregular pores; neutral (pH 7.2); clear smooth boundary.
C2—10 to 15 inches; strong brown (7.5YR 4/6) fine sandy loam, brown (7.5YR 4/4) moist; soft, very friable, nonsticky and nonplastic; common fine and many very fine roots; many very fine irregular pores; neutral (pH 7.2); abrupt smooth boundary.
2R—15 inches; sandstone.

Range in Characteristics

Particle-size control section: 6 to 18 percent clay
Depth to lithic contact: 5 to 20 inches to sandstone
Reaction: neutral throughout

A horizon:
Hue: 7.5YR or 10YR
Value: 3 or 4 moist
Chroma: 2 to 4 moist
Rock fragments: 0 to 25 percent gravel; 0 to 10 percent cobbles. All fragments are sandstone.

C horizons:
Hue: 7.5YR or 10YR
Value: 4 or 5 dry; 3 or 4 moist
Chroma: 4 to 6 dry; 2 to 4 moist
Texture: sandy loam
Rock fragments: 0 to 20 percent gravel; 0 to 5 percent cobbles. All fragments are sandstone.

Suwanee Series

Taxonomic class: Fine-loamy, mixed, superactive, calcareous, mesic Ustic Torrifluvents
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow and slow
Geomorphic position: Valley floors
Parent material: Stream alluvium derived from sandstone, siltstone, and shale
Slope range: 0 to 2 percent
Elevation: 6,100 to 6,500 feet
Mean annual air temperature: 49 to 54 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 120 to 140 days

Typical Pedon

Suwanee clay loam, in an area of mapping unit 42, Suwanee clay loam, 0 to 2 percent slopes; McKinley County, New Mexico; Zuni Quadrangle; 1,200 feet south and 1,000 feet east of the northwest corner of sec. 21, T. 10 N., R. 19 W.; latitude 35 degrees, 05 minutes, 12 seconds and longitude 108 degrees, 51 minutes, 08 seconds.

Ap—0 to 4 inches; reddish brown (2.5YR 5/4) clay loam, reddish brown (2.5YR 4/4) moist; moderate fine granular structure; soft, very friable, nonsticky and slightly plastic; common very fine and few fine

roots, common fine irregular pores; violently effervescent; slightly alkaline (pH 7.6); abrupt smooth boundary.
C1—4 to 14 inches; reddish brown (2.5YR 5/4) clay loam, reddish brown (2.5YR 4/4) moist; massive; slightly hard, friable, nonsticky and slightly plastic; common very fine and few fine roots; few fine irregular pores; violently effervescent; slightly alkaline (pH 7.6); clear smooth boundary.
C2—14 to 22 inches; reddish brown (2.5YR 5/4) clay loam, reddish brown (2.5YR 4/4) moist; massive; slightly hard, friable, sticky and plastic; common very fine and few fine roots; few fine irregular pores; violently effervescent; slightly alkaline (pH 7.6); clear smooth boundary.
C3—22 to 34 inches; reddish brown (2.5YR 5/4) clay loam, reddish brown (2.5YR 4/4) moist; massive; slightly hard, friable, nonsticky and slightly plastic; few very fine roots; few fine irregular pores; violently effervescent; slightly alkaline (pH 7.6); clear smooth boundary.
C4—34 to 48 inches; reddish brown (2.5YR 5/4) silt loam, reddish brown (2.5YR 4/4) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; few fine irregular pores; violently effervescent; slightly alkaline (pH 7.8); clear smooth boundary.
C5—48 to 65 inches; reddish brown (2.5YR 5/4) clay loam, reddish brown (2.5YR 4/4) moist; massive; slightly hard, friable, sticky and plastic; few very fine roots; few fine irregular pores; violently effervescent; slightly alkaline (pH 7.8).

Range in Characteristics

Particle-size control section: 20 to 35 percent clay
Percent calcium carbonate equivalent: 5 to 10 percent
Reaction: slightly or moderately alkaline throughout

A horizon:
Hue: 2.5YR or 5YR
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 4 or 6
Texture: clay loam or clay

C horizon:
Hue: 2.5YR or 5YR
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 4 or 6
Texture: highly stratified layers of sandy clay loam, clay loam, silty clay loam, clay, or silt loam

Techado Series

Taxonomic class: Clayey, mixed, superactive, nonacid, frigid, shallow Typic Ustorthents
Depth class: Shallow
Drainage class: Well drained
Permeability: Slow
Geomorphic position: Mesas, cuestas, hills, and ridges
Parent material: Slope alluvium and colluvium over residuum derived from shale
Slope range: 5 to 40 percent
Elevation: 6,600 to 8,000 feet
Mean annual air temperature: 40 to 45 degrees F
Mean annual precipitation: 16 to 20 inches
Frost-free period: 90 to 110 days

Typical Pedon

Techado gravelly clay, in an area of mapping unit 403, Valnor-Techado complex, 2 to 25 percent slopes; McKinley County, New Mexico; Shoemaker Canyon Quadrangle; 1,000 feet south and 1,600 feet west of the northeast corner of sec. 25, T. 9 N., R. 17 W.; latitude 34 degrees, 58 minutes, 43 seconds and longitude 108 degrees, 34 minutes, 45 seconds.

The surface is covered by about 20 percent gravel and 5 percent cobbles.

A—0 to 3 inches; light olive brown (2.5Y 5/4) gravelly clay, olive brown (2.5Y 4/4) moist; moderate fine granular structure; slightly hard, firm, sticky and plastic; few medium and many fine and very fine roots; few very fine irregular pores; 20 percent gravel and 5 percent cobbles; neutral (pH 6.8); clear wavy boundary.
2C—3 to 13 inches; light olive brown (2.5Y 5/6) clay, light olive brown (2.5Y 5/4) moist; massive; very hard, very firm very sticky and very plastic; common medium and few fine roots; few very fine irregular pores; neutral (pH 6.8); abrupt wavy boundary.
2Cr—13 inches; variegated shale.

Range in Characteristics

Particle-size control section: 40 to 55 percent clay
Depth to a paralithic contact: 10 to 20 inches to shale
Reaction: neutral to slightly alkaline

A horizon:
Hue: 10YR or 2.5Y
Value: 4 or 5 dry; 3 to 5 moist

Chroma: 2 to 4 dry and moist
Texture: clay or clay loam
Rock fragments: 15 to 25 percent gravel or channers; 0 to 5 percent cobbles. All fragments are sandstone.

C horizon:
Hue: 10YR or 2.5Y
Value: 3 to 5 dry; 2 to 5 moist
Chroma: 3 to 6 dry; 3 to 4 moist

Teczuni Series

Taxonomic class: Fine, mixed, superactive, mesic Calcidic Haplustalfs
Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
Geomorphic position: Cuestas, valley sides, hills, and ridges
Parent material: Eolian material and slope alluvium derived from sandstone and shale
Slope range: 1 to 5 percent
Elevation: 6,800 to 7,200 feet
Mean annual air temperature: 49 to 53 degrees F
Mean annual precipitation: 13 to 14 inches
Frost-free period: 115 to 135 days

Typical Pedon

Teczuni loam, in an area of mapping unit 560, Flugle-Teczuni complex, 1 to 5 percent slopes; McKinley County, New Mexico; Shoemaker Canyon Quadrangle; 2,600 feet north and 2,200 feet east of the southwest corner of sec. 34, T. 9 N., R. 16 W.; latitude 34 degrees, 57 minutes, 58 seconds and longitude 108 degrees, 30 minutes, 52 seconds.

A—0 to 2 inches; brown (7.5YR 5/4) loam, brown (7.5YR 4/4) moist; moderate medium platy structure; soft; very friable, nonsticky and nonplastic; many very fine and fine roots; many medium and fine vesicular pores; neutral (pH 7.2); abrupt smooth boundary.

Bt1—2 to 6 inches; brown (7.5YR 5/4) clay loam, brown (7.5YR 4/4) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; common very fine irregular pores; common distinct clay films on faces of peds; neutral (pH 7.2); clear smooth boundary.

Bt2—6 to 16 inches; brown (7.5YR 5/4) clay loam, brown (7.5YR 4/4) moist; strong medium prismatic structure; hard, firm, sticky and plastic; few medium and common very fine and fine roots; few very fine tubular pores; many prominent clay films on faces of peds; neutral (pH 7.2); abrupt smooth boundary.

Btk—16 to 33 inches; strong brown (7.5YR 5/6) clay loam, brown (7.5YR 4/4) moist; strong medium prismatic structure; hard, firm, sticky and plastic; common very fine and fine roots; few very fine tubular pores; many prominent clay films on faces of peds; strongly effervescent; common fine and medium seams, filaments, and masses of calcium carbonate; slightly alkaline (pH 7.6); clear smooth boundary.

Bk1—33 to 47 inches; brown (7.5YR 5/4) clay, brown (7.5YR 4/4) moist; massive; very hard, very firm, very sticky and very plastic; few fine roots; few very fine irregular pores; violently effervescent; common coarse seams and masses of calcium carbonate; slightly alkaline (pH 7.6); clear smooth boundary.

Bk2—47 to 65 inches; light brown (7.5YR 6/4) clay, yellowish brown (10YR 5/4) moist; massive; very hard, very firm, very sticky and very plastic; few fine roots; few very fine irregular pores; violently effervescent; many medium masses, seams, and filaments of calcium carbonate; slightly alkaline (pH 7.8).

Range in Characteristics

Particle-size control section: 40 to 50 percent clay
Depth to calcic horizon: 20 to 45 inches

A horizon:
Value: 4 or 5 dry, 3 or 4 moist
Rock fragments: 0 to 5 percent sandstone gravel
Reaction: neutral or slightly alkaline

Bt horizon:
Hue: 5YR or 7.5YR
Chroma: 4 or 6
Texture: clay loam or clay
Reaction: neutral or slightly alkaline

Bk horizon:
Hue: 7.5YR or 10YR
Value: 5 or 6 dry, 4 or 5 moist
Texture: clay, clay loam, or sandy clay loam
Calcium carbonate equivalent: 15 to 30 percent
Reaction: slightly or moderately alkaline

Tekapo Series

Taxonomic class: Clayey, mixed, superactive, calcareous, mesic, shallow Ustic Torriorthents
Depth class: Very shallow and shallow
Drainage class: Well drained
Permeability: Slow

Geomorphic position: Mesas, cuestas, and ridges
Parent material: Slope alluvium and colluvium over residuum derived from shale and siltstone
Slope range: 10 to 45 percent
Elevation: 6,200 to 6,700 feet
Mean annual air temperature: 49 to 54 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 120 to 140 days

Typical Pedon

Tekapo channery silty clay loam, in an area of mapping unit 355, Rizno-Tekapo-Rock outcrop complex, 2 to 45 percent slopes; McKinley County, New Mexico; Ojo Caliente Reservoir Quadrangle; 800 feet north and 400 feet west of the southeast corner of sec. 32, T. 9 N., R. 20 W.; latitude 34 degrees, 57 minutes, 42 seconds and longitude 108 degrees, 57 minutes, 44 seconds.

The surface is covered by about 20 percent channers.

A—0 to 2 inches; reddish brown (2.5YR 4/4) channery silty clay loam, reddish brown (2.5YR 4/4) moist; strong fine granular structure; soft, friable, slightly sticky and slightly plastic; common fine and many very fine roots; many very fine irregular pores; 20 percent channers; slightly effervescent; slightly alkaline (7.6); abrupt smooth boundary.
C—2 to 10 inches; reddish brown (2.5YR 4/4) silty clay, dark red (2.5YR 3/6) moist; massive; hard, firm, sticky and plastic; few medium and coarse, many fine and common very fine roots; common very fine irregular pores; slightly effervescent; slightly alkaline (pH 7.8); abrupt smooth boundary.
2Cr—10 inches; red shale and siltstone.

Range in Characteristics

Particle-size control section: 35 to 50 percent clay, less than 35 percent sand
Depth to a paralithic contact: 6 to 20 inches to shale and siltstone
Calcium carbonate equivalent: 1 to 5 percent

A horizon:
Value: 4 or 5 dry; 3 or 4 moist
Chroma: 4 to 6
Rock fragments: 15 to 20 percent gravel and gravel-sized channers. All fragments are sandstone.

C horizon:
Value: 4 or 5 dry; 3 or 4 moist
Chroma: 4 or 6
Texture: silty clay loam or silty clay
Rock fragments: 0 to 15 percent gravel or gravel-sized channers. All fragments are sandstone.

Tinian Series

Taxonomic class: Fine, mixed, superactive, mesic Aridic Haplustalfs
Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately slow
Geomorphic position: Mesas and cuestas
Parent material: Slope alluvium derived from sandstone and shale
Slope range: 1 to 6 percent
Elevation: 6,800 to 7,500 feet
Mean annual air temperature: 46 to 49 inches F
Mean annual precipitation: 13 to 14 inches
Frost-free period: 100 to 135 days

Typical Pedon

Tinian very fine sandy loam, in an area of mapping unit 30, Orlie-Tinian complex, 1 to 6 percent slopes; McKinley County, New Mexico; Rincon Marquez Quadrangle; 2,000 feet west and 2,600 feet north of the southeast corner of sec. 2, T. 8 N., R. 6 W.; latitude 35 degrees, 49 minutes, 11 seconds and longitude 107 degrees, 26 minutes, 25 seconds (fig. 20).

A—0 to 3 inches; brown (10YR 5/3) very fine sandy loam, brown (10YR 4/3) moist; moderate thin and medium platy structure; soft, very friable, slightly sticky and nonplastic; common fine and many very fine roots; many very fine irregular and common fine vesicular pores; slightly alkaline (pH 7.6); clear smooth boundary.
Bt1—3 to 8 inches; brown (10YR 4/4) clay loam, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and very fine and few medium roots; common fine irregular pores; common distinct clay films on faces of peds and lining pores; slightly alkaline (pH 7.6); clear smooth boundary.
Bt2—8 to 19 inches; dark yellowish brown (10YR 3/4) clay, dark brown (10YR 3/3) moist; moderate medium prismatic structure parting to strong fine and medium angular blocky; hard, firm, sticky and plastic; common fine and very fine and few medium roots; few medium and common fine irregular pores; many prominent clay films on faces of peds and lining pores; slightly alkaline; abrupt smooth boundary.
Btk—19 to 24 inches; dark yellowish brown (10YR 4/4) clay loam, dark yellowish brown (10YR 4/4) moist; strong fine and medium angular blocky structure; hard, firm, sticky and plastic; few fine and very

fine roots; common fine irregular pores; common prominent clay films on faces of peds and lining pores; strongly effervescent; common fine irregular seams and filaments of calcium carbonate; moderately alkaline (pH 7.8); abrupt smooth boundary.
2R—24 inches; hard sandstone.

Range in Characteristics

Particle-size control section: 35 to 45 percent clay
Depth to lithic contact: 20 to 40 inches to hard sandstone

A horizon:
Hue: 10YR
Value: 5 or 6 dry, 4 or 5 moist
Chroma: 3 or 4 dry or moist
Reaction: neutral or slightly alkaline

Bt horizons:
Hue: 10YR
Value: 3 to 5 dry or moist
Chroma: 3 or 4 dry or moist
Texture: silty clay loam, clay loam, or clay
Calcium carbonate equivalent: 0 to 1 percent
Reaction: slightly alkaline

Btk or Bk horizons:
Hue: 10YR
Value: 3 to 5 dry or moist
Chroma: 3 or 4 dry or moist
Texture: silty clay loam, clay loam, or clay
Calcium carbonate equivalent: 1 to 5 percent
Reaction: slightly to moderately alkaline

Tintero Series

Taxonomic class: Coarse-loamy, mixed, superactive, mesic Ustic Haplargids
Depth class: Very deep
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Geomorphic position: Mesas, cuestas, and valley sides
Parent material: Eolian material and fan and slope alluvium derived from sandstone
Slope range: 1 to 10 percent
Elevation: 6,200 to 7,100 feet
Mean annual air temperature: 49 to 53 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 120 to 140 days

Typical Pedon

Tintero fine sandy loam, in an area of mapping unit 205, Penistaja-Tintero complex, 1 to 10 percent slopes; McKinley County, New Mexico; Bluewater Quadrangle; 1,200 feet north and 1,000 feet west of the southeast corner of sec. 33, T. 13 N., R. 10 W.; latitude 35 degrees, 18 minutes, 33 seconds and longitude 107 degrees, 53 minutes, 49 seconds.

A—0 to 4 inches; strong brown (7.5YR 4/6) fine sandy loam, strong brown (7.5YR 4/6) moist; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; few medium, common fine, and many very fine roots; common very fine irregular pores; neutral (pH 7.2); abrupt smooth boundary.
Bt—4 to 16 inches; yellowish red (5YR 4/6) fine sandy loam, yellowish red (5YR 4/6) moist; moderate medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few medium, fine, and very fine roots; common very fine irregular pores; common distinct clay films bridging sand grains; slightly alkaline (pH 7.4); abrupt smooth boundary.
Bk1—16 to 48 inches; light reddish brown (5YR 6/4) fine sandy loam, reddish brown (5YR 5/4) moist; massive; soft, very friable, nonsticky and nonplastic; few fine and very fine roots; common very fine irregular pores; violently effervescent; calcium carbonate occurs as few fine irregular seams; slightly alkaline (pH 7.8); clear smooth boundary.
Bk2—48 to 65 inches; reddish yellow (5YR 6/6) loamy fine sand, yellowish red (5YR 5/6) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; common very fine irregular pores; slightly effervescent; calcium carbonate is disseminated; slightly alkaline (pH 7.6).

Range in Characteristics

Particle-size control section: 10 to 18 percent clay and greater than 50 percent sand

A horizon:
Hue: 7.5YR or 10YR
Value: 4 or 5 moist
Chroma: 2 to 6 moist

Bt horizon:
Hue: 5YR to 10YR
Chroma: 4 or 6 moist
Textures: fine sandy loam or sandy loam
Calcium carbonate equivalent: 1 to 5 percent

Bk horizons:
Hue: 5YR to 10YR
Value: 4 to 6 dry, 4 or 5 moist
Chroma: 4 or 6 moist
Textures: fine sandy loam, sandy loam, or loamy fine sand

Reaction: slightly or moderately alkaline
Calcium carbonate equivalent: 5 to 10 percent

Todest Series

Taxonomic class: Fine-loamy, mixed, superactive, mesic Calcidic Haplustalfs
Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderate
Geomorphic position: Cuestas
Parent material: Eolian material and slope alluvium derived from limestone and sandstone
Slope range: 2 to 8 percent
Elevation: 7,000 to 7,700 feet
Average annual air temperature: 49 to 53 degrees F
Average annual precipitation: 13 to 16 inches
Frost-free period: 115 to 135 days

Typical Pedon

Todest fine sandy loam, in an area of mapping unit 375, Todest-Shadilto complex, 2 to 8 percent slopes; McKinley County, New Mexico; Thoreau Quadrangle; 300 feet south and 300 feet east of the northwest corner of sec. 24, T. 14 N., R. 13 W.; latitude 35 degrees, 26 minutes, 09 seconds and longitude 108 degrees, 10 minutes, 27 seconds.

A—0 to 1 inch; brown (7.5YR 5/4) fine sandy loam, dark brown (7.5YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; few fine irregular pores; very slightly effervescent, 6 percent calcium carbonate equivalent; slightly alkaline (pH 7.6); abrupt smooth boundary.
Bt—1 to 3 inches; brown (7.5YR 4/4) fine sandy loam, dark brown (7.5YR 3/4) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; few fine irregular pores; few faint clay films bridging sand grains; slightly alkaline (pH 7.6); abrupt smooth boundary.
Btk1—3 to 10 inches; brown (7.5YR 4/4) sandy clay loam, dark brown (7.5YR 3/4) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine and few medium roots; common fine irregular pores; many distinct clay films on ped faces and bridging sand grains; strongly effervescent; few very fine and fine masses of calcium carbonate, 5 percent calcium carbonate equivalent; slightly alkaline (pH 7.8); clear smooth boundary.
Btk2—10 to 18 inches; pinkish gray (7.5YR 7/2) sandy clay loam, brown (7.5YR 5/3) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine and few medium and coarse roots; common fine irregular pores; many distinct clay films on ped faces; violently effervescent; many fine masses and common fine concretions of calcium carbonate; 23 percent calcium carbonate equivalent; moderately alkaline (pH 8.0); clear smooth boundary.
Bk—18 to 25 inches; pinkish white (7.5YR 8/2) loam, light brown (7.5YR 6/3) moist; weak fine and medium subangular blocky structure; common very fine and fine and few medium and coarse roots; common fine irregular pores; 5 percent gravel; violently effervescent; many fine masses and common fine concretions of calcium carbonate and coating rock fragments; 48 percent calcium carbonate equivalent; moderately alkaline (pH 8.2); abrupt smooth boundary.
2R—25 inches; limestone.

Range in Characteristics

Depth to lithic contact: 20 to 40 inches to limestone
Depth to calcic horizon: 8 to 30 inches
Particle-size control section: 18 to 35 percent clay and greater than 30 percent sand
Reaction: slightly alkaline in the surface and moderately alkaline in the subsoil

A horizon:
Hue: 5YR or 7.5YR
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 3 or 4
Rock fragments: 0 to 10 percent gravel. Most fragments are limestone with some sandstone.
Percent calcium carbonate equivalent: 5 to 15 percent

Bt horizons:
Hue: 5YR or 7.5YR
Value: 4 to 7 dry, 3 to 6 moist
Chroma: 2 to 4 dry, 3 or 4 moist
Texture: fine sandy loam or sandy clay loam
Rock fragments: 0 to 30 percent limestone gravel
Calcium carbonate equivalent: 0 to 15 percent

Btk and Bk horizons:
Hue: 7.5YR or 10YR
Value: 5 to 8 dry, 4 to 6 moist
Chroma: 2 to 4 dry, 3 or 4 moist
Texture: loam or sandy clay loam
Rock fragments: 5 to 15 percent total; 0 to 15 percent gravel and 0 to 10 percent cobbles. All fragments are limestone.
Calcium carbonate equivalent: 5 to 40 percent but

ranging up to 50 percent in the lower parts of the Bk horizon.

Toldohn Series

Taxonomic class: Clayey, mixed, superactive, nonacid, mesic, shallow Aridic Ustorthents
Depth class: Very shallow and shallow
Drainage class: Well drained
Permeability: Slow
Geomorphic position: Hills, ridges, and breaks
Parent material: Slope alluvium over residuum derived from shale
Slope range: 8 to 35 percent
Elevation: 6,800 to 8,000 feet
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 13 to 16 inches
Frost-free period: 100 to 135 days

Typical Pedon

Toldohn gravelly clay loam, in an area of mapping unit 350, Toldohn-Vessilla-Rock outcrop complex, 8 to 35 percent slopes; McKinley County, New Mexico; Pescado Quadrangle; 400 feet west and 600 feet south of the northeast corner of sec. 14, T. 10 N., R. 17 W.; latitude 35 degrees, 06 minutes, 11 seconds and longitude 108 degrees, 35 minutes, 36 seconds.

A—0 to 1 inches; light olive brown (2.5Y 5/4) gravelly clay loam, olive brown (2.5Y 4/4) moist; weak fine granular structure; slightly hard, friable, sticky and plastic; many very fine and fine roots; about 25 percent by volume sandstone gravel and shale fragments; slightly effervescent; slightly alkaline (pH 7.4); clear smooth boundary.
2BC—4 to 11 inches; light yellowish brown (10YR 6/4) clay, yellowish brown (10YR 5/4) moist; weak fine subangular blocky structure; hard, firm, very sticky and very plastic; many very fine and fine and few medium roots; common fine shale fragments; slightly effervescent; slightly alkaline (pH 7.4); abrupt smooth boundary.
2Cr—11 inches; weakly consolidated shale.

Range in Characteristics

Particle-size control section: 40 to 60 percent clay
Depth to paralithic contact: 6 to 20 inches to shale
Reaction: neutral or slightly alkaline

A horizon:
Hue: 10YR or 2.5Y
Value: 3 or 4 moist
Chroma: 3 or 4 moist
Rock fragments: 0 to 35 percent total; 0 to 25 percent gravel; 0 to 5 percent cobbles; 0 to 5 percent stones. All fragments are sandstone.

C horizon:
Hue: 10YR or 2.5Y
Value: 3 to 5 moist
Rock fragments: 0 to 10 percent gravel. All fragments are sandstone.

Tsoodzil Series

Taxonomic class: Fine, smectitic, frigid Vertic Argiustolls
Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
Geomorphic position: Lava plateaus and cinder cones
Parent material: Eolian material and slope alluvium over residuum derived from basalt
Slope range: 5 to 55 percent
Elevation: 7,600 to 9,200 feet
Mean annual air temperature: 40 to 45 degrees F
Mean annual precipitation: 16 to 20 inches
Frost-free period: 90 to 110 days

Typical Pedon

Tsoodzil very gravelly silt loam in an area of mapping unit 410, Montillo-Tsoodzil complex, 5 to 35 percent slopes; McKinley County, New Mexico; Marquez Quadrangle; latitude 35 degrees, 20 minutes, 13 seconds and longitude 107 degrees, 20 minutes, 12 seconds.

The surface is covered by about 35 percent gravel, 10 percent cobbles, and 1 percent stones.

A—0 to 3 inches; brown (7.5YR 4/2) very gravelly silt loam, dark brown (7.5YR 3/2) moist; moderate fine granular structure; soft, very friable, nonsticky and slightly plastic; many very fine and fine roots; common fine irregular pores; 35 percent gravel, 10 percent cobbles, and 1 percent stones; neutral (pH 6.6); clear smooth boundary.
Bt—3 to 10 inches; dark reddish brown (5YR 3/2) silty clay loam, dark reddish brown (5YR 2.5/2) moist; hard, firm, sticky and plastic; many very fine and fine and few medium and coarse roots; common fine tubular pores; few vertical cracks 5 mm or more wide occur from 7 to 20 inches; common distinct clay films on faces of peds; 2 percent gravel and 3 percent cobbles; neutral (pH 6.6); clear wavy boundary.

Btss1—10 to 21 inches; dark reddish brown (5YR 3/3) clay, dark reddish brown (5YR 3/2) moist; moderate fine and medium prismatic structure parting to strong fine angular blocky; very hard, very firm, very sticky and very plastic; common very fine and fine and few medium roots; few fine tubular pores; many slickensides and pressure faces; few vertical cracks 5 mm or more wide occur from 7 to 20 inches; many prominent clay films on faces of peds and rock fragments; 2 percent gravel; neutral (pH 7.2); gradual irregular boundary.

Btss2—21 to 46 inches; reddish brown (5YR 4/4) clay, dark reddish brown (5YR 3/4) moist; moderate fine and medium angular blocky structure; very hard, very firm, very sticky and very plastic; common very fine and fine and few medium roots; few fine tubular pores; many slickensides and pressure faces; many prominent clay films on faces of peds and rock fragments; 3 percent gravel and 2 percent cobbles; slightly alkaline (pH 7.4); gradual wavy boundary.

Btss3—46 to 70 inches; reddish brown (5YR 4/3) gravelly clay, dark reddish brown (5YR 3/3) moist; moderate fine and medium angular blocky structure; very hard, very firm, very sticky and very plastic; few very fine and fine and few medium roots; common fine tubular pores; few slickensides and pressure faces; many prominent clay films on faces of peds and rock fragments; 10 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.4).

Range in Characteristics

Particle-size control section: 40 to 60 percent clay with 0 to 30 percent rock fragments
Mollic epipedon thickness: 21 to 40 inches
Depth to visible secondary carbonates (when present): 25 to 45 inches with 0 to 10 percent calcium carbonate equivalent
Vertic features: Depth to slickensides and pressure faces is 7 to 21 inches; subsurface vertical cracks occur from 5 to 25 inches.

A horizon:
Hue: 7.5YR or 10YR
Value: 3 to 5 dry, 2 or 3 moist
Chroma: 2 or 3 dry
Texture: silt loam or loam
Rock fragments: 35 to 50 percent total; 15 to 40 percent gravel; 5 to 35 percent cobbles; and 0 to 1 percent stones. All fragments are basalt.
Reaction: slightly acid or neutral

Bt and Btss horizons:
Hue: 5YR, 7.5YR, or 10YR
Value: 3 to 5 dry, 2.5 or 3 moist
Chroma: 2 to 4 dry or moist
Texture: clay, clay loam, or silty clay loam with greater than 35 percent clay
Rock fragments: 0 to 25 percent total; 0 to 15 percent gravel; 0 to 5 percent cobbles; and 0 to 1 percent stones. All fragments are basalt.
Reaction: neutral or slightly alkaline

Btk horizon (when present):
Hue: 5YR or 7.5YR
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 4 or 6 dry or moist
Texture: clay or clay loam
Rock fragments: 5 to 70 percent total; 5 to 50 percent gravel; 5 to 10 percent cobbles; and 0 to 5 percent stones. All fragments are basalt.

(Note: When a Btk horizon has greater than 35 percent rock fragments, it is either too thin or is below the particle size control section to affect the particle size class.)

Tsosie Series

Taxonomic class: Fine-loamy, mixed, superactive, calcareous, mesic Ustic Torriorthents
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Geomorphic position: Valley sides and valley floors
Parent material: Fan and stream alluvium derived from sandstone and shale
Slope range: 1 to 3 percent
Elevation: 6,400 to 6,800 feet
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 9 to 10 inches
Frost-free period: 100 to 135 days

Typical Pedon

Tsosie fine sandy loam, in an area of mapping unit 10, Tsosie-Councelor-Blancot fine sandy loams, 1 to 3 percent slopes; McKinley County, New Mexico; Ojo Encino Mesa Quadrangle; 2,000 feet east and 1,500 feet south of the northeast corner of sec. 9, T. 20 N., R. 5 W.; latitude 35 degrees, 58 minutes, 58 seconds and longitude 107 degrees, 22 minutes, 18 seconds.

A—0 to 2 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 4/3) moist; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; common fine and very fine roots;

common fine vesicular pores; neutral (pH 7.2); abrupt smooth boundary.
C1—2 to 7 inches; yellowish brown (10YR 5/4) fine sandy loam, dark brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; common medium, fine, and very fine roots; few very fine irregular pores; neutral (pH 7.2); abrupt smooth boundary.
C2—7 to 13 inches; brown (10YR 5/3) silt loam, dark brown (10YR 4/3) moist; massive; slightly hard, friable, slightly sticky and nonplastic; few medium and common fine and very fine roots; few fine irregular pores; strongly effervescent; slightly alkaline (pH 7.8); clear smooth boundary.
C3—13 to 35 inches; brown (10YR 5/3) sandy clay loam, dark brown (10YR 4/3) moist; massive; slightly hard, friable, slightly sticky and nonplastic; few medium and fine and common very fine roots; few very fine irregular pores; slightly alkaline (pH 7.8); clear smooth boundary.
C4—35 to 47 inches; yellowish brown (10YR 5/4) clay loam, dark brown (10YR 4/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; few fine irregular pores; slightly alkaline (pH 7.6); abrupt smooth boundary.
Ck—47 to 65 inches; brown (10YR 5/3) loam, dark brown (10YR 4/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; common fine irregular pores; very few very fine masses of calcium carbonate; slightly effervescent; slightly alkaline (pH 7.8).

Range in Characteristics

Particle-size control section: 18 to 35 percent clay
Calcium carbonate equivalent: 1 to 5 percent

A horizon:
Value: 4 or 5 moist
Sodicity: SAR of 0 to 5
Reaction: neutral or slightly alkaline

C horizon:
Value: 3 to 5 moist
Chroma: 3 or 4
Texture: fine sandy loam, silt loam, sandy clay loam, clay loam, silty clay loam, or loam
Sodicity: SAR of 10 to 20
Reaction: slightly to strongly alkaline

Tuces Series

Taxonomic class: Fine, mixed, superactive, mesic Aridic Haplustepts
Depth class: Moderately deep
Drainage class: Well drained
Permeability: Slow
Geomorphic position: Cuestas
Parent material: Slope alluvium and colluvium over residuum derived from shale and sandstone
Slope range: 20 to 40 percent
Elevation: 7,400 to 8,000 feet
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 13 to 16 inches
Frost-free period: 100 to 135 days

Typical Pedon

Tuces extremely gravelly clay loam in an area of mapping unit 345 Rock outcrop-Tuces complex, 20 to 70 percent slopes; McKinley County, New Mexico; Cottonwood Canyon Quadrangle; 2,600 feet east and 220 feet north of the southwest corner of sec. 19, T. 13 N., R. 13 W.; latitude 35 degrees, 20 minutes, 30 seconds and longitude 108 degrees, 15 minutes, 19 seconds.

The surface is covered by about 40 percent gravel, 20 percent cobbles, 5 percent stones, and 10 percent boulders.

A—0 to 1 inch; reddish brown (2.5YR 4/4) extremely gravelly clay loam, dark reddish brown (2.5YR 3/4) moist; moderate medium platy structure; slightly hard, firm, sticky and plastic; common fine and few medium roots; few fine vesicular pores; 40 percent gravel, 20 percent cobbles, 5 percent stones, and 10 percent boulders; strongly effervescent; 5 percent calcium carbonate equivalent; slightly alkaline (pH 7.8); abrupt wavy boundary.
Bk1—1 to 4 inches; reddish brown (2.5YR 4/4) clay, dark reddish brown (2.5YR 3/4) moist; moderate fine subangular blocky structure; very hard, very firm, very sticky and very plastic; common very fine and fine roots; few fine irregular pores; strongly effervescent; few very fine masses of calcium carbonate; 3 percent calcium carbonate equivalent; slightly alkaline (pH 7.8); clear wavy boundary.
Bk2—4 to 24 inches; about 95 percent of the matrix is weak red (10R 4/4) clay, dusky red (10R 3/4) moist with the other 5 percent light olive gray (5Y 6/2), olive gray (5Y 5/2) moist; weak medium and coarse subangular blocky structure; very hard, very firm, very sticky and very plastic; few very fine roots; common fine irregular pores; many angular soft shale fragments; strongly effervescent; few very fine masses of calcium carbonate; 5 percent calcium carbonate equivalent; moderately alkaline (pH 8.2); gradual wavy boundary.

Cr—24 inches; (95 percent) dark yellowish brown (10YR 3/6) and (5 percent) olive gray (5Y 5/2) shale; very slightly effervescent.

Range in Characteristics

Particle-size control section: 40 to 60 percent clay
Depth to paralithic contact: 20 to 40 inches to shale
Calcium carbonate equivalent: 2 to 10 percent
Reaction: slightly alkaline in the surface and moderately alkaline in the subsoil

A horizon:
Hue: 10R to 7.5YR
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 3 or 4
Rock fragments: 40 to 80 percent total; 20 to 60 percent gravel or channers; 5 to 25 percent cobbles; 2 to 10 percent stones; 0 to 10 percent boulders. All fragments are sandstone.

Bk or Bw horizons:
Hue: 10R, 2.5YR, or 5YR
Value: 4 or 5 dry, 2 to 4 moist
Chroma: 2 to 4
Rock fragments: 0 to 5 percent gravel; 0 to 5 percent cobbles. All fragments are sandstone.

Valnor Series

Taxonomic class: Fine, mixed, superactive, frigid Typic Haplustalfs
Depth class: Moderately deep
Drainage class: Well drained
Permeability: Slow
Geomorphic position: Hills and ridges
Parent material: Slope alluvium derived from shale
Slope range: 2 to 15 percent
Elevation: 7,100 to 7,800 feet
Mean annual air temperature: 40 to 45 degrees F
Mean annual precipitation: 16 to 20 inches
Frost-free period: 90 to 110 days

Typical Pedon

Valnor clay loam, in an area of mapping unit 403, Valnor-Techado complex, 2 to 25 percent slopes; McKinley County, New Mexico; Shoemaker Canyon Quadrangle; 500 feet south and 800 feet west of the northeast corner of sec. 25, T. 9 N., R. 17 W.; latitude 34 degrees, 59 minutes, 14 seconds and longitude 108 degrees, 34 minutes, 38 seconds.

A—0 to 2 inches; dark yellowish brown (10YR 4/4) clay loam, dark brown (10YR 4/3) moist; weak fine granular structure; soft, friable, slightly sticky and slightly plastic; few very fine and fine roots; few very fine irregular pores; 10 percent gravel; neutral (pH 6.8); abrupt smooth boundary.
Bw—2 to 4 inches; dark yellowish brown (10YR 4/4) clay loam, dark brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, friable, sticky and plastic; few very fine and fine roots; few very fine irregular pores; neutral (pH 7.2); abrupt smooth boundary.
Bt—4 to 20 inches; brown (7.5YR 5/4) clay, dark brown (7.5YR 4/4) moist; strong medium angular blocky structure; extremely hard, extremely firm, very sticky and very plastic; common very fine, fine, and medium, and few coarse roots; few very fine tubular and irregular pores; many prominent clay films on faces of peds; neutral (pH 7.2); abrupt smooth boundary.
2Ck—20 to 34 inches; light yellowish brown (10YR 6/4) clay, yellowish brown (10YR 5/4) moist; massive; extremely hard, extremely firm, very sticky and very plastic; few very fine and fine roots; few very fine irregular pores; strongly effervescent; few fine concretions and common medium masses and seams of calcium carbonate; slightly alkaline (pH 7.6); abrupt smooth boundary.
2Cr—34 inches; shale.

Range in Characteristics

Particle-size control section: 35 to 45 percent clay
Depth to a paralithic contact: 20 to 40 inches to shale
Reaction: Neutral or slightly alkaline

A horizon:
Hue: 10YR
Value: 4 or 5 dry, 3 to 5 moist
Chroma: 2 to 4 dry and moist
Rock fragments: 0 to 10 percent sandstone gravel

B horizons:
Hue: 7.5YR or 10YR
Value: 4 or 5 dry; 3 or 4 moist
Chroma: 3 or 4 moist

C horizon (when present):
Hue: 10YR or 2.5Y
Value: 4 to 6 moist
Chroma: 4 through 6 moist
Calcium carbonate equivalent: 1 to 5 percent

Most pedons do not have visible carbonates.

Venadito Series

Taxonomic class: Very-fine, smectitic, mesic Chromic Haplotorrerts

Depth class: Very deep
Drainage class: Well or moderately well drained
Permeability: Very slow
Geomorphic position: Valley sides and valley floors
Parent material: Fan and stream alluvium derived from shale
Slope range: 0 to 3 percent
Elevation: 6,100 to 7,100 feet
Mean annual air temperature: 49 to 53 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 120 to 140 days

Typical Pedon

Venadito clay, in an area of mapping unit 335, Venadito clay, 1 to 3 percent slopes; McKinley County, New Mexico; Thoreau NE Quadrangle; 1,400 feet west and 300 feet north of the southeast corner of sec. 6, T. 13 N., R. 11 W.; latitude 35 degrees, 22 minutes, 04 seconds and longitude 108 degrees, 02 minutes, 21 seconds.

A—0 to 3 inches; dark reddish brown (2.5YR 3/4) clay, dark reddish brown (2.5YR 3/4) moist; strong fine granular structure; slightly hard, very firm, very sticky and very plastic; few fine and very fine roots; common fine irregular pores; many 3-cm wide vertical cracks; strongly effervescent; moderately alkaline (pH 8.0), abrupt smooth boundary.
BCss1—3 to 30 inches; reddish brown (2.5YR 4/4) clay, dark reddish brown (2.5YR 3/4) moist; massive; very hard, very firm, very sticky and very plastic; few very fine and fine roots; few very fine irregular pores; common slickensides tilted 30 degrees from the horizontal and common pressure faces; many 2 cm-wide vertical cracks; strongly effervescent; moderately alkaline (pH 8.4), gradual smooth boundary.
BCss2—30 to 65 inches; reddish brown (2.5YR 4/4) clay, dark reddish brown (2.5YR 3/4) moist; massive; very hard, very firm, very sticky and very plastic; few very fine roots; few very fine irregular pores; few slickensides tilted 30 degrees from the horizontal and common pressure faces; strongly effervescent; moderately alkaline (pH 8.2).

Range in Characteristics

Particle-size control section: 60 to 80 percent clay
Vertic features: Gilgai microrelief ranges from less than 1 inch up to 6 inches and vertical cracks up to 1 inch wide extend from the surface to a depth of 40 inches or more.
Salinity: EC of 2 to 16 mmhos/cm
Sodicity: SAR of 0 to 10
Reaction: slightly or moderately alkaline

A horizon:
Hue: 2.5YR or 5YR
Value: 3 to 5 dry or 3 or 4 moist

BC horizons:
Hue: 2.5YR or 5YR
Value: 4 to 6 dry, 3 or 4 moist
Chroma: 3 or 4 moist
Texture: Mostly clay and silty clay with few pedons having sandy clay textures below 30 inches.
Calcium carbonate equivalent: 5 to 10 percent

Some pedons may have an intermittent water table below a depth of 40 inches during March through November.

Venzuni Series

Taxonomic class: Very-fine, smectitic, mesic Aridic Haplusterts
Depth class: Very deep
Drainage class: Well drained
Permeability: Very slow
Geomorphic position: Valley floors and valley sides
Parent material: Fan and stream alluvium derived from shale
Slope range: 1 to 6 percent
Elevation: 6,700 to 7,600 feet
Mean annual air temperature: 46 to 54 degrees F
Mean annual precipitation: 13 to 16 inches
Frost-free period: 100 to 135 days

Typical Pedon

Venzuni silty clay, in an area of mapping unit 325, Venzuni silty clay, 1 to 3 percent slopes; McKinley County, New Mexico; Burned Timber Quadrangle; 700 feet north and 1,200 feet east of the southwest corner of sec. 20, T12N, R.16W; latitude 35 degrees, 14 minutes, 58 seconds and longitude 108 degrees, 33 minutes, 06 seconds.

A—0 to 2 inches; reddish brown (2.5YR 4/4) silty clay, dark reddish brown (2.5YR 3/4) moist; moderate thin platy structure parting to moderate fine granular; soft, very friable, sticky and plastic; many very fine and fine roots; few fine irregular pores; strongly effervescent; slightly alkaline (pH 7.8); abrupt smooth boundary.
BC—2 to 12 inches; reddish brown (2.5YR 4/4) silty clay, dark reddish brown (2.5YR 3/4) moist; massive; very hard, very firm, very sticky and very

plastic; common very fine and fine roots; common fine irregular pores; common pressure faces; strongly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.
Bss1—12 to 19 inches; dark reddish brown (2.5YR 3/4) clay, dark reddish brown (5YR 3/3) moist; massive; very hard, very firm, very sticky and very plastic; few very fine and fine roots; common fine irregular pores; many pressure faces and few slickensides; strongly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.
Bss2—19 to 46 inches; reddish brown (2.5YR 4/4) clay, dark reddish brown (2.5YR 3/4) moist; massive; very hard, very firm, very sticky and very plastic; few very fine and fine roots; few fine irregular pores; many pressure faces and common slickensides; strongly effervescent; moderately alkaline (pH 8.0); gradual smooth boundary.
2Bss3—46 to 65 inches; dark yellowish brown (10YR 4/4) clay, dark yellowish brown (10YR 3/4) moist; massive; extremely hard, extremely firm; very sticky and very plastic; few very fine roots; few very fine irregular pores; common pressure faces and few slickensides; strongly effervescent; slightly alkaline (pH 7.8).

Range in Characteristics

Particle-size control section: 60 to 80 percent clay
Vertic features: slight gilgai microrelief on the surface, self-mulching surface, 0.5 inch-wide vertical cracks extend from the surface to 20 inches or more, pressure faces and slickensides are present below 2 inches.
Salinity: EC of 0 to 2 mmhos/cm
Sodicity: SAR of 0 to 5
Calcium carbonate equivalent: 5 to 10 percent
Rock fragments: 0 to 5 percent sandstone and siliceous gravel
Reaction: slightly or moderately alkaline

A horizon:
Hue: 2.5YR or 5YR
Value: 3 or 4 dry
Calcium carbonate equivalent: 5 to 10 percent
Salinity: EC of 2 to 4 mmhos/cm
Sodicity: SAR of 0 to 5

BC and Bss horizons:
Hue: 2.5YR or 5YR
Value: 3 or 4 dry
Chroma: 3 or 4 moist
Texture: clay or silty clay
Calcium carbonate equivalent: 5 to 10 percent
Salinity: EC of 2 to 4 mmhos/cm
Sodicity: SAR of 0 to 5

2Bss horizon:
Hue: 7.5YR or 10YR
Value: 3 or 4 dry
Chroma: 3 or 4 moist
Calcium carbonate equivalent: 5 to 10 percent
Salinity: EC of 2 to 4 mmhos/cm
Sodicity: SAR of 0 to 5

Vessilla Series

Taxonomic class: Loamy, mixed, active, calcareous, mesic Aridic Lithic Ustorthents
Depth class: Very shallow and shallow
Drainage class: Well drained
Permeability: Moderately rapid
Geomorphic position: Mesas, cuestas, hills, ridges, and breaks
Parent material: Eolian material and slope alluvium derived from sandstone
Slope range: 2 to 15 percent
Elevation: 6,500 to 8,000 feet
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 13 to 16 inches
Frost-free period: 100 to 135 days

Typical Pedon

Vessilla fine sandy loam, in an area of mapping unit 350, Toldohn-Vessilla-Rock outcrop complex, 8 to 35 percent slopes; McKinley County, New Mexico; Pescado Quadrangle; 1,200 feet south and 200 feet west of the northeast corner of sec. 14, T. 10 N., R. 17 W.; latitude 35 degrees, 06 minutes, 04 seconds and longitude 108 degrees, 35 minutes, 33 seconds.

A—0 to 2 inches; very pale brown (10YR 7/3) fine sandy loam, dark yellowish brown (10YR 4/4) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common fine vesicular and irregular pores; 10 percent gravel; slightly effervescent; neutral (pH 7.2); clear smooth boundary.
C—2 to 11 inches; brown (10YR 5/3) fine sandy loam, dark yellowish brown (10YR 4/4) moist; weak fine and medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; many very fine and fine roots; common fine irregular pores; 3 percent gravel; slightly effervescent; neutral (pH 7.2); abrupt smooth boundary.
2R—11 inches; sandstone bedrock.

Range in Characteristics

Particle-size control section: 12 to 20 percent clay
Rock fragments: 0 to 15 percent gravel; 0 to 10 percent cobbles
Depth to a lithic contact: 5 to 20 inches to sandstone
Calcium carbonate equivalent: 1 to 5 percent
Reaction: neutral in the surface and slightly to moderately alkaline in the substratum

A horizon:
Hue: 7.5YR or 10YR
Value: 5 to 7 dry, 4 or 5 moist
Chroma: 3 to 6 dry or moist

C horizon:
Hue: 7.5YR or 10YR
Value: 3 to 5 moist, 5 or 6 dry
Chroma: 4 to 6 moist, 3 or 4 dry

Viuda Series

Taxonomic class: Clayey, mixed, superactive, mesic Lithic Ustic Haplargids
Depth class: Shallow
Drainage class: Well drained
Permeability: Slow
Geomorphic position: Lava flows
Parent material: Eolian and alluvial material derived from basalt and sandstone
Slope range: 1 to 5 percent
Elevation: 6,700 to 7,000 feet
Mean annual air temperature: 49 to 54 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 120 to 140 days

Typical Pedon

Viuda very cobbly fine sandy loam, in an area of mapping unit 215, Viuda-Penistaja-Rock outcrop complex, 1 to 5 percent slopes; McKinley County, New Mexico; Bluewater Quadrangle; 1,000 feet west and 1,700 feet north of the southeast corner of sec. 35, T. 13 N., R. 11 W.; latitude 35 degrees, 18 minutes, 35 seconds and longitude 107 degrees, 58 minutes, 01 second.

The surface is covered by about 20 percent gravel, 20 percent cobbles, and 5 percent stones.

A—0 to 3 inches; brown (7.5YR 5/4) very cobbly fine sandy loam, dark brown (7.5YR 3/4) moist; moderate fine granular structure; soft, friable, nonsticky and nonplastic; many fine and very fine roots; common fine and very fine irregular pores; 20 percent gravel, 20 percent cobbles, and 5 percent stones; neutral (pH 7.2); abrupt smooth boundary.
Bt—3 to 15 inches dark brown (7.5YR 4/4) clay, strong brown (7.5YR 4/6) moist; strong fine angular blocky structure; hard, firm, sticky and plastic; common fine and many very fine roots; few very fine tubular pores; many distinct clay films on faces of peds and lining pores; 10 percent cobbles; slightly alkaline (pH 7.6); abrupt smooth boundary.
Bk—15 to 17 inches; reddish yellow (7.5YR 6/6) cobbly clay loam, brown (7.5YR 5/4) moist; massive; hard, firm, sticky and plastic; few fine and very fine roots; few very fine irregular pores; 5 percent gravel and 10 percent cobbles; violently effervescent; many medium irregular masses of calcium carbonate; moderately alkaline (pH 8.2); abrupt wavy boundary.
2R—17 inches; basalt.

Range in Characteristics

Particle-size control section: 35 to 50 percent clay
Depth to a lithic contact: 10 to 20 inches to basalt
Reaction: neutral in the surface and slightly to moderately alkaline in the subsoil

A horizon:
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 4 or 5
Rock fragments: 35 to 60 percent gravel and cobbles. All fragments are sandstone.

Bt horizon:
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 4 or 6
Rock fragments: 5 to 15 percent gravel and cobbles. All fragments are sandstone.

Bk horizon:
Value: 4 to 6
Chroma: 4 or 6
Rock fragments: 15 to 25 percent gravel and cobbles. All fragments are sandstone.
Calcium carbonate equivalent: 1 to 15 percent

Westmion Series

Taxonomic class: Clayey, mixed, superactive, calcareous, mesic, shallow Ustic Torriorthents
Depth class: Very shallow and shallow
Drainage class: Well drained
Permeability: Slow
Geomorphic position: Mesas and cuestas

Parent material: Slope alluvium and colluvium over residuum derived from shale
Slope range: 30 to 50 percent
Elevation: 6,400 to 8,100 feet
Mean annual air temperature: 49 to 54 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 120 to 140 days

Typical Pedon

Westmion gravelly clay loam, in an area of mapping unit 290, Rock outcrop-Westmion-Skyvillage complex, 30 to 80 percent slopes; McKinley County, New Mexico; Goat Mountain Quadrangle; 100 feet south and 100 feet west of the northeast corner of sec. 24, T. 14 N., R. 11 W.; latitude 35 degrees, 26 minutes, 08 seconds and longitude 107 degrees, 56 minutes, 39 seconds.

The surface is covered by about 20 percent gravel and 10 percent channers.

A—0 to 2 inches; light olive brown (2.5Y 5/4) gravelly clay loam, olive brown (2.5Y 4/4) moist; weak fine granular structure; soft, firm, sticky and plastic; few very fine and fine roots; few very fine irregular pores; 20 percent gravel and 10 percent channers; slightly effervescent; neutral (pH 7.2); abrupt smooth boundary.
C—2 to 14 inches; light olive brown (2.5Y 5/4) clay, olive brown (2.5Y 4/4) moist; massive; hard, firm, sticky and plastic; few very fine and fine roots; few very fine irregular pores; slightly effervescent; neutral (pH 7.2); gradual smooth boundary.
Cr—14 inches; shale.

Range in Characteristics

Particle-size control section: 35 to 60 percent clay
Depth to paralithic contact: 6 to 20 inches to shale
Calcium carbonate equivalent: 1 to 5 percent
Reaction: neutral to moderately alkaline

A horizon:
Hue: 10YR or 2.5Y
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 3 or 4 dry or moist
Rock fragments: 30 to 90 percent total; 20 to 80 percent gravel or channers; 0 to 10 percent cobbles; 0 to 5 percent stones. All fragments are sandstone.

C horizon:
Hue: 10YR or 2.5Y
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 3 or 4 dry or moist
Texture: clay or clay loam
Rock fragments: 0 to 10 percent total; 0 to 10 percent gravel; 0 to 5 percent cobbles

Yelives Series

Taxonomic class: Coarse-loamy, mixed, superactive, calcareous, mesic Typic Torrifluvents
Depth class: Very deep
Drainage class: Somewhat excessively drained
Permeability: Moderate to moderately rapid
Geomorphic position: Valley sides and valley floors
Parent material: Fan and stream alluvium derived from sandstone and shale
Slope range: 1 to 3 percent
Elevation: 5,400 to 6,100 feet
Mean annual air temperature: 50 to 55 degrees F
Mean annual precipitation: 7 to 9 inches
Frost-free period: 130 to 150 days

Typical Pedon

Yelives fine sandy loam in an area of mapping unit 111, Yelives fine sandy loam, 1 to 3 percent slopes; Navajo Reservation; San Juan County, New Mexico; The Pillar 3 NE Quadrangle; latitude 36 degrees, 08 minutes, 32 seconds and longitude 108 degrees 21 minutes, 15 seconds.

A—0 to 2 inches; light olive brown (2.5Y 5/4) fine sandy loam, olive brown (2.5Y 4/4) moist; weak very fine granular structure; loose, soft, nonsticky and nonplastic; few very fine roots; 2 percent gravel; very slightly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.
Ck1—2 to 12 inches; light olive brown (2.5Y 5/4) fine sandy loam, olive brown (2.5Y 4/4) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; few very fine irregular pores; pockets of very finely stratified silt; 2 percent gravel; very slightly effervescent; few very fine masses of calcium carbonate; moderately alkaline (pH 8.0); abrupt smooth boundary.
Ck2—12 to 30 inches; light olive brown (2.5Y 5/4) loam, olive brown (2.5Y 4/4) moist; massive; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots; few very fine irregular pores; 5 percent gravel; very slightly effervescent; few very fine masses of calcium carbonate; moderately alkaline (pH 8.0); abrupt smooth boundary.
C1—30 to 41 inches; light yellowish brown (2.5Y 6/4) loam, light olive brown (2.5Y 5/4) moist; massive;

loose, very friable, nonsticky and nonplastic; few very fine and fine roots; 1 percent gravel; very slightly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.

C2—41 to 56 inches; light yellowish brown (2.5Y 6/4) loamy fine sand, light olive brown (2.5Y 6/4) moist; single grain; loose, soft, nonsticky and nonplastic; few very fine roots; 10 percent gravel; very slightly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.

C3—56 to 80 inches; light yellowish brown (2.5Y 6/4) loamy fine sand, light olive brown (2.5Y 5/4) moist; single grain; loose, very friable, nonsticky and nonplastic; few very fine roots; fine stratification of silt and very fine sand; 1 percent gravel; very slightly effervescent; moderately alkaline (8.0).

Range in Characteristics

Particle-size control section: 8 to 20 percent clay
Rock fragment content: 0 to 10 percent sandstone and porcelanite gravel
Calcium carbonate equivalent: 0 to 5 percent
Salinity: EC of 0 to 2 mmhos/cm
Sodicity: SAR of 0 to 4
Reaction: Slightly to moderately alkaline

A horizon:
Hue: 2.5Y or 10YR
Value: 4 or 5, dry and moist
Chroma: 4 dry or moist
Textures: fine sandy loam or loamy fine sand

Ck and C horizons:
Hue: 2.5Y or 10YR
Value: 5 or 6, dry and moist
Chroma: 4 or 5, dry or moist
Texture: loam, fine sandy loam, or loamy fine sand

Zaster Series

Taxonomic class: Loamy-skeletal, mixed, superactive, mesic Typic Calciustolls
Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately rapid
Geomorphic position: Cuestas
Parent material: Slope alluvium and colluvium derived from sandstone and limestone
Slope range: 15 to 40 percent
Elevation: 7,000 to 7,600 feet
Mean annual air temperature: 45 to 47 degrees F
Mean annual precipitation: 16 to 20 inches
Frost-free period: 90 to 110 days

Typical Pedon

Zaster extremely gravelly loam, in an area of mapping unit 412, Rock outcrop-Rionutria-Zaster association, 15 to 80 percent slopes McKinley County, New Mexico; Upper Nutria Quadrangle; about 1,250 feet north and 1,000 feet east of the southwest corner of sec. 4, T. 12 N., R. 16 W.; latitude 35 degrees, 17 minutes, 44 seconds and longitude 108 degrees, 32 minutes, 06 seconds.

The surface is covered by about 50 percent gravel, 15 percent cobbles, and 10 percent stones.

A—0 to 3 inches; brown (7.5YR 4/3) extremely gravelly loam, dark brown (7.5YR 3/2) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine roots; 50 percent gravel, 15 percent cobbles, 10 percent stones; strongly effervescent; 4 percent calcium carbonate equivalent; moderately alkaline (pH 8.0); clear wavy boundary.

Bk1—3 to 11 inches; brown (7.5YR 4/3) gravelly loam, dark brown (7.5YR 3/3) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine, fine, and common medium roots; 15 percent gravel, 5 percent cobbles; strongly effervescent; many fine and medium masses and many fine concretions of calcium carbonate; 13 percent calcium carbonate equivalent; moderately alkaline; clear wavy boundary.

Bk2—11 to 27 inches; reddish brown (5YR 5/3) extremely gravelly loam, reddish brown (5YR 4/3) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine, medium, and few coarse roots; 40 percent gravel, 20 percent cobbles, 10 percent stones; violently effervescent; many fine, medium, and many fine concretions of calcium carbonate; 23 percent calcium carbonate equivalent; moderately alkaline; abrupt wavy boundary.

2Cr—27 to 37 inches; weathered sandstone and dolomitic limestone.

R—37 inches; San Andreas limestone.

Range in Characteristics

Particle-size control section: 10 to 20 percent clay and 35 to 70 percent rock fragment
Depth to lithic contact: 20 to 40 inches to dolomitic limestone
Depth to calcic horizon: 5 to 18 inches
Reaction: moderately alkaline

A horizon:
Chroma: 2 or 3
Rock fragments: 35 to 70 percent total; 20 to 50 percent gravel, 0 to 15 percent cobbles, 0 to 10 percent stones. All fragments are limestone.

Bk horizon:
Hue: 5YR or 7.5YR
Value: 4 or 5 dry, 3 or 4 moist
Rock fragments: 35 to 60 percent total: 15 to 25 percent gravel, 10 to 25 percent cobbles, 0 to 20 percent stones. All fragments are limestone.
Calcium carbonate equivalent: 10 to 25 percent

Zia Series

Taxonomic class: Coarse-loamy, mixed, superactive, calcareous, mesic Ustic Torriorthents
Depth class: Very deep
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Geomorphic position: Valley sides and valley floors
Parent material: Eolian material and fan and stream alluvium derived from sandstone
Slope range: 1 to 5 percent
Elevation: 6,000 to 6,900 feet
Mean annual air temperature: 49 to 54 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 120 to 140 days

Typical Pedon

Zia fine sandy loam, in an area of mapping unit 230, Sparank-San Mateo-Zia complex, 0 to 3 percent slopes; McKinley County, New Mexico; Goat Mountain Quadrangle; 1,000 feet west and 400 feet south of the northeast corner of sec. 14, T. 14 N., R. 11 W.; latitude 35 degrees, 26 minutes, 55 seconds and longitude 107 degrees, 58 minutes, 12 seconds.

A—0 to 3 inches; yellowish brown (10YR 5/4) fine sandy loam, dark yellowish brown (10YR 4/4) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine, and few medium roots; common fine vesicular and irregular pores; very slightly effervescent; slightly alkaline (pH 7.6); clear smooth boundary.
Bw—3 to 12 inches; yellowish brown (10YR 5/4) fine sandy loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and nonplastic; common very fine and fine roots; common fine irregular pores; calcium carbonate is disseminated; strongly effervescent; slightly alkaline (pH 7.6); clear wavy boundary.
2C1—12 to 20 inches; yellowish brown (10YR 5/4) fine sandy loam, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, slightly sticky and nonplastic; few very fine and fine roots; common fine irregular pores; calcium carbonate is disseminated; slightly to strongly effervescent; slightly alkaline (pH 7.8); clear smooth boundary.
2C2—20 to 28 inches; yellowish brown (10YR 5/4) sandy loam, dark yellowish brown (10YR 4/4) moist, massive; soft, very friable, slightly sticky and nonplastic; few very fine and fine roots; common fine irregular pores; calcium carbonate is disseminated; slightly effervescent; slightly alkaline (pH 7.8); clear smooth boundary.
2C3—28 to 70 inches; yellowish brown (10YR 5/4) fine sandy loam, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, slightly sticky and nonplastic; few very fine and fine roots; common fine irregular pores; calcium carbonate is disseminated; slightly to strongly effervescent; slightly alkaline (pH 7.8).

Range in Characteristics

Particle-size control section: 8 to 18 percent clay
Calcium carbonate equivalent: 1 to 5 percent

A horizon:
Hue: 5YR to 10YR
Value: 4 or 5 dry; 3 or 4 moist
Chroma: 2 to 6 dry; 2 to 4 moist

Bw horizon (when present):
Hue: 5YR to 10YR
Value: 3 or 4 moist
Chroma: 3 to 6 moist
Texture: fine sandy loam or very fine sandy loam

C horizons:
Hue: 5YR to 10YR
Value: 3 to 5 moist
Chroma: 2 to 6 moist
Texture: fine sandy loam, sandy loam, or loamy sand
Rock fragments: 0 to 5 percent sandstone gravel
Reaction: slightly or moderately alkaline

Zunalei Series

Taxonomic class: Fine-loamy, mixed, superactive, mesic Typic Haplustalfs
Depth class: Very deep
Drainage class: Well drained

Permeability: Moderate
Geomorphic position: Cuestas and valley sides
Parent material: Eolian material and fan alluvium derived from sandstone
Slope range: 2 to 10 percent
Elevation: 7,000 to 7,500 feet
Mean annual air temperature: 45 to 48 degrees F
Mean annual precipitation: 16 to 20 inches
Frost-free period: 90 to 110 days

Typical Pedon

Zunalei loamy fine sand, in an area of mapping unit 414, Zunalei-Corzuni loamy fine sands, 2 to 10 percent slopes; McKinley County, New Mexico; Ramah Quadrangle; about 1,800 feet south and 100 feet east of the northwest corner of sec. 13, T. 11 N., R. 16 W.; latitude 35 degrees, 11 minutes, 12 seconds and longitude 108 degrees, 29 minutes, 09 seconds.

A—0 to 1 inch; brown (7.5YR 5/4) loamy fine sand, brown (7.5YR 4/3) moist; single grain; soft, loose, nonsticky and nonplastic; few very fine roots; neutral (pH 7.0); abrupt smooth boundary.
AB—1 to 6 inches; brown (7.5YR 5/3) fine sandy loam, dark brown (7.5YR 3/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; few very fine irregular pores; neutral (pH 7.0); abrupt smooth boundary.
Bt1—6 to 20 inches; brown (7.5YR 5/4) sandy clay loam, brown (7.5YR 4/4) moist; strong fine and medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; common very fine and fine irregular pores; many distinct clay films on faces of peds; neutral (pH 7.0); clear smooth boundary.
Bt2—20 to 26 inches thick; strong brown (7.5YR 5/6) fine sandy loam, strong brown (7.5YR 4/6) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and nonplastic; common very fine and fine roots; few very fine irregular pores; common distinct clay films on faces of peds; slightly alkaline (pH 7.4); clear smooth boundary.
BCt—26 to 50 inches; strong brown (7.5YR 5/6) fine sandy loam, strong brown (7.5YR 4/6) moist; weak very fine and fine subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; few very fine and fine roots; few very fine irregular pores; few faint clay films bridging sand grains; slightly alkaline (pH 7.4); clear smooth boundary.
BCk—50 to 70 inches; strong brown (7.5YR 5/6) fine sandy loam, strong brown (7.5YR 4/6) moist; weak fine subangular blocky structure: slightly hard, very friable, nonsticky and nonplastic; few very fine roots; 1 percent gravel size sandstone fragments; very slightly effervescent; few very fine masses of calcium carbonate; slightly alkaline (pH 7.8).

Range in Characteristics

Particle-size control section: 18 to 35 percent clay
Depth to secondary calcium carbonates (when present): 28 to 54 inches and 0 to 5 percent calcium carbonate equivalent.

A and AB horizons:
Hue: 7.5YR or 10YR
Value: 5 dry, 3 or 4 moist
Chroma: 2 to 4
Reaction: neutral

Bt horizon:
Hue: 7.5YR or 10YR
Value: 5 or 6 dry, 4 moist
Chroma: 4 or 6
Textures: sandy clay loam or clay loam
Reaction: neutral to slightly alkaline

BC horizons:
Hue: 2.5YR to 7.5YR
Value: 5 dry, 3 or 4 moist
Chroma: 4
Textures: fine sandy loam, sandy clay loam, or clay loam
Reaction: slightly to moderately alkaline

Some pedons have a Btk horizon.

Zuni Series

Taxonomic class: Fine, mixed, superactive, frigid Typic Haplustalfs
Depth class: Moderately deep
Drainage class: Well drained
Permeability: Slow
Geomorphic position: Igneous domes in mountains
Parent material: Residuum derived from gneissic-granite
Slope range: 1 to 15 percent
Elevation: 7,800 to 8,200 feet
Mean annual air temperature: 40 to 45 degrees F
Mean annual precipitation: 16 to 20 inches
Frost-free period: 90 to 110 days

Typical Pedon

Zuni gravelly sandy loam, in an area of mapping unit 408, Mirabal-Zuni complex, 1 to 40 percent slopes; McKinley County, New Mexico; Upper Nutria

Quadrangle; 900 feet east and 300 feet south of the northwest corner of sec. 14, T. 13 N., R. 16 W.; latitude 35 degrees, 21 minutes, 49 seconds and longitude 108 degrees, 30 minutes, 28 seconds.

The surface is covered by 30 percent gravel and 1 percent cobbles.

Oi—0 to 1 inches: slightly decomposed pine needles.
A—1 to 3 inches; brown (7.5YR 5/2) gravelly sandy loam, dark brown (7.5YR 4/2) moist; weak very fine granular structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; few very fine irregular pores; 30 percent gravel and 1 percent cobbles; neutral (pH 6.8); abrupt wavy boundary.
Bt1—3 to 18 inches; red (2.5YR 5/6) gravelly sandy clay, red (2.5YR 4/6) moist; strong fine subangular blocky structure; very hard, very firm, sticky and plastic; common fine and few moderate and coarse roots; few very fine irregular pores; 30 percent gravel and 1 percent cobbles; neutral (pH 6.8); clear wavy boundary.
Bt2—18 to 27 inches; red (2.5YR 5/6) gravelly sandy clay, red (2.5YR 4/6) moist; strong very fine and fine subangular blocky structure; very hard, very firm, sticky and plastic; common very fine, fine, and few medium roots; few very fine irregular pores; common distinct clay films on faces of peds; 28 percent gravel; neutral (pH 7.2); abrupt wavy boundary.
R—27 inches; gneissic-granite.

Range in Characteristics

Particle-size control section: 35 to 50 percent clay and 25 to 35 percent rock fragments
Depth to a lithic contact: 20 to 40 inches
Reaction: slightly acid to neutral

A horizon:
Hue: 5YR to 10YR
Value: 5 or 6 dry, 3 or 4 moist
Chroma: 2
Textures: sandy loam or sandy clay loam
Rock fragments: 5 to 35 percent gravel and cobble size gneissic-granite fragments

Bt horizons:
Hue: 2.5YR to 7.5YR
Value: 4 to 6 dry, 4 moist
Chroma: 4 or 6
Textures: sandy clay or sandy clay loam
Rock fragments: 25 to 35 percent gravel size gneissic-granite fragments

Some pedons have an E horizon that ranges in thickness from 5 to 12 inches.

Zuniven Series

Taxonomic class: Fine-silty, mixed, superactive, calcareous, mesic Aridic Ustifluvents
Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderately slow
Geomorphic position: Valley floors
Parent material: Stream alluvium derived from sandstone and shale
Slope range: 0 to 2 percent
Elevation: 6,200 to 6,500 feet
Mean annual air temperature: 49 to 54 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 120 to 140 days

Typical Pedon

Zuniven loamy fine sand, in an area of mapping unit 52, Zuniven loamy fine sand, 0 to 2 percent slopes; McKinley County, New Mexico; Zuni Quadrangle; 2,900 feet south and 600 feet west of the northeast corner of sec. 18, T. 10 N., R. 18 W.; latitude 35 degrees, 05 minutes, 48 seconds and longitude 108 degrees, 46 minutes, 11 seconds.

A—0 to 6 inches; reddish yellow (7.5YR 6/6) loamy fine sand, strong brown (7.5YR 4/6) moist; single grain; loose, very friable, nonsticky and nonplastic; many very fine and common fine roots; common very fine irregular pores; slightly effervescent; slightly alkaline (pH 7.4); abrupt wavy boundary.
C1—6 to 12 inches; reddish yellow (7.5YR 6/6) loamy fine sand, strong brown (7.5YR 4/6) moist; single grain; loose, very friable, nonsticky and nonplastic; many very fine and common fine roots; common very fine irregular pores; slightly effervescent; slightly alkaline (pH 7.4); abrupt wavy boundary.
C2—12 to 17 inches; dark yellowish brown (10YR 4/4) silty clay loam, dark yellowish brown (10YR 3/4) moist; massive; soft, very friable, slightly sticky and slightly plastic; common very fine and fine and few coarse roots; common fine irregular and few fine tubular pores; strongly effervescent; slightly alkaline (pH 7.6); abrupt wavy boundary.
C3—17 to 22 inches; brown (7.5YR 5/4) silt loam, brown (7.5YR 4/4) moist; massive; soft, very friable, nonsticky and slightly plastic; common very fine and fine roots; common fine irregular and few fine tubular pores; slightly effervescent; slightly alkaline (pH 7.6); abrupt wavy boundary.
C4—22 to 33 inches; brown (10YR 5/3) silt loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and slightly plastic; common very fine and fine and few medium roots; common fine irregular and few fine tubular pores; slightly

effervescent; slightly alkaline (pH 7.6); abrupt wavy boundary.
C5—33 to 42 inches; brown (10YR5/3) silty clay loam, brown (10YR 4/3) moist; massive; soft, friable, slightly sticky and slightly plastic; few very fine and fine roots; common irregular and few fine tubular pores; slightly effervescent; slightly alkaline (pH 7.6); abrupt wavy boundary.
C6—42 to 65 inches; yellowish brown (10YR 5/4) loamy fine sand, dark yellowish brown (10YR 4/4) moist; single grain; loose, very friable, nonsticky and nonplastic; few very fine and fine roots; few fine irregular pores; slightly effervescent; slightly alkaline (pH 7.6).

Range in Characteristics

Particle-size control section: 20 to 35 percent clay, less that 15 percent coarser than very fine sand
Calcium carbonate equivalent: 0 to 5 percent
Reaction: slightly to moderately alkaline

A horizon:
Hue: 7.5YR or 10YR
Value: 3 to 6 dry, 3 to 5 moist
Chroma: 4 to 8

C horizon:
Hue: 7.5YR or 10YR
Value: 4 to 6 dry, 3 to 6 moist
Chroma: 3 to 6
Texture: Highly stratified loamy fine sand, silt loam, silty clay loam, or clay loam

An organic surface horizon may be present in some pedons.

Zyme Series

Taxonomic class: Clayey, smectitic, calcareous, mesic shallow Ustic Torriorthents
Depth class: Very shallow and shallow
Drainage class: Well drained
Permeability: Slow
Geomorphic position: Hills and ridges
Parent material: Residuum derived from shale
Slope range: 5 to 35 percent
Elevation: 6,500 to 7,200 feet
Mean annual air temperature: 46 to 49 degrees F
Mean annual precipitation: 10 to 13 inches
Frost-free period: 100 to 135 days

Typical Pedon

Zyme channery silty clay loam, in an area of mapping unit 338, Zyme-Lockerby association, 5 to 35 percent slopes; McKinley County, New Mexico; Pinedale Quadrangle; 2,400 feet west and 225 feet north of the southeast corner of sec. 22, T. 16 N., R. 15 W.; latitude 35 degrees, 35 minutes, 47 seconds and longitude 108 degrees, 24 minutes, 20 seconds.

A—0 to 3 inches; light olive brown (2.5Y 5/4) channery silty clay loam, olive brown (2.5Y 4/4) moist; moderate thin platy parting to moderate very fine granular structure; soft, very friable, sticky and plastic; common very fine and fine roots; 16 percent channers; very slightly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.
Cky1—3 to 8 inches; light olive brown (2.5Y 5/4) silty clay, olive brown (2.5Y 4/4) and (10YR 4/6) moist; massive; very hard, very firm, very sticky and very plastic; many very fine and fine roots; few very fine irregular pores; 5 percent channers and 20 to 30 percent soft shale fragments; slightly effervescent; few very fine masses of calcium carbonate and gypsum; moderately alkaline (pH 8.0); gradual wavy boundary.
Cky2-8 to 15 inches; light olive brown (2.5Y 5/4) and (2.5Y 2/0) channery clay, olive brown (2.5Y 4/4) and (2.5Y 4/0) moist; massive; very hard, very firm, very sticky and very plastic; common very fine and fine roots; few very fine irregular pores; 30 percent sandstone channers and up to 80 percent soft shale fragments; strongly effervescent; common medium masses of calcium carbonate and gypsum; moderately alkaline (pH 8.0); clear wavy boundary.
Cr—15 inches; gray fractured gypsiferous shale.

Range in Characteristics

Particle-size control section: 35 to 45 percent clay
Depth to paralithic contact: 6 to 20 inches to shale
Calcium carbonate equivalent: 0 than 5 percent
Percent gypsum: 1 to 5 percent

A horizon:
Hue: 10YR or 2.5Y
Value: 4 or 5 dry and moist
Chroma: 3 to 6 dry and moist
Rock fragments: 0 to 30 percent channers; all fragments are sandstone.

Salinity: EC of 0 to 4 mmhos/cm
Sodicity: SAR 0 to 2
Reaction: slightly or moderately alkaline

Cky horizon:
Hue: 2.5Y
Value: 4 or 5 dry, 3 or 4 moist
Chroma: 3 or 4 dry and moist
Texture: silty clay, clay, or clay loam
Rock fragments: 0 to 10 percent sandstone gravel
Salinity: EC of 0 to 4 mmhos/cm
Sodicity: SAR 0 to 4
Reaction: moderately alkaline
Other features: 30 to 80 percent soft shale fragments

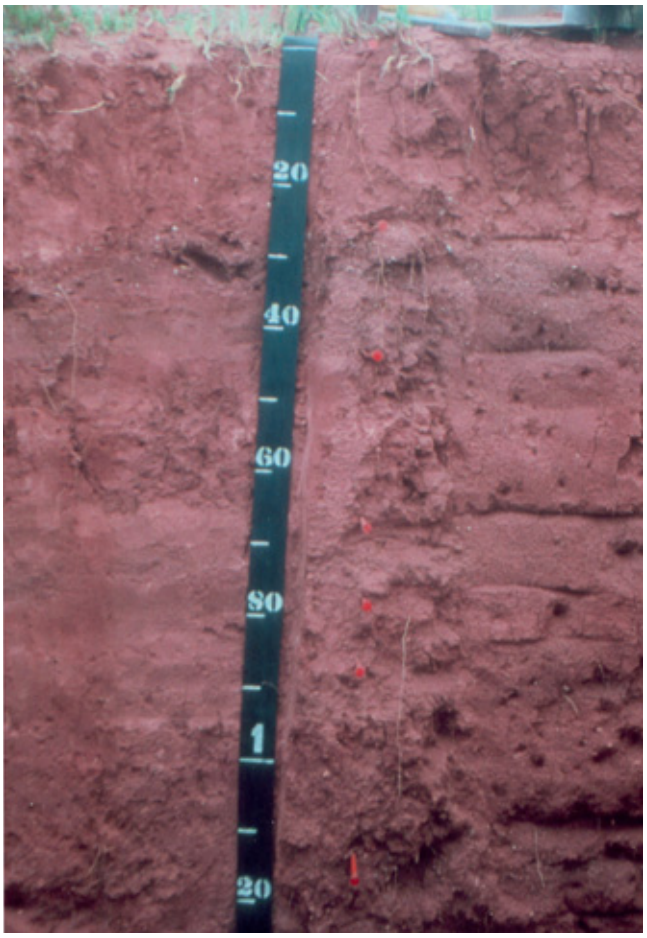

Figure 14.—Profile of Aquima silt loam in an area of Aquima-Hawaikuh silt loams, 1 to 5 percent slopes.

Figure 15.—Profile of Berryhill clay in an area of Berryhill-Casamero clays, 2 to 10 percent slopes.

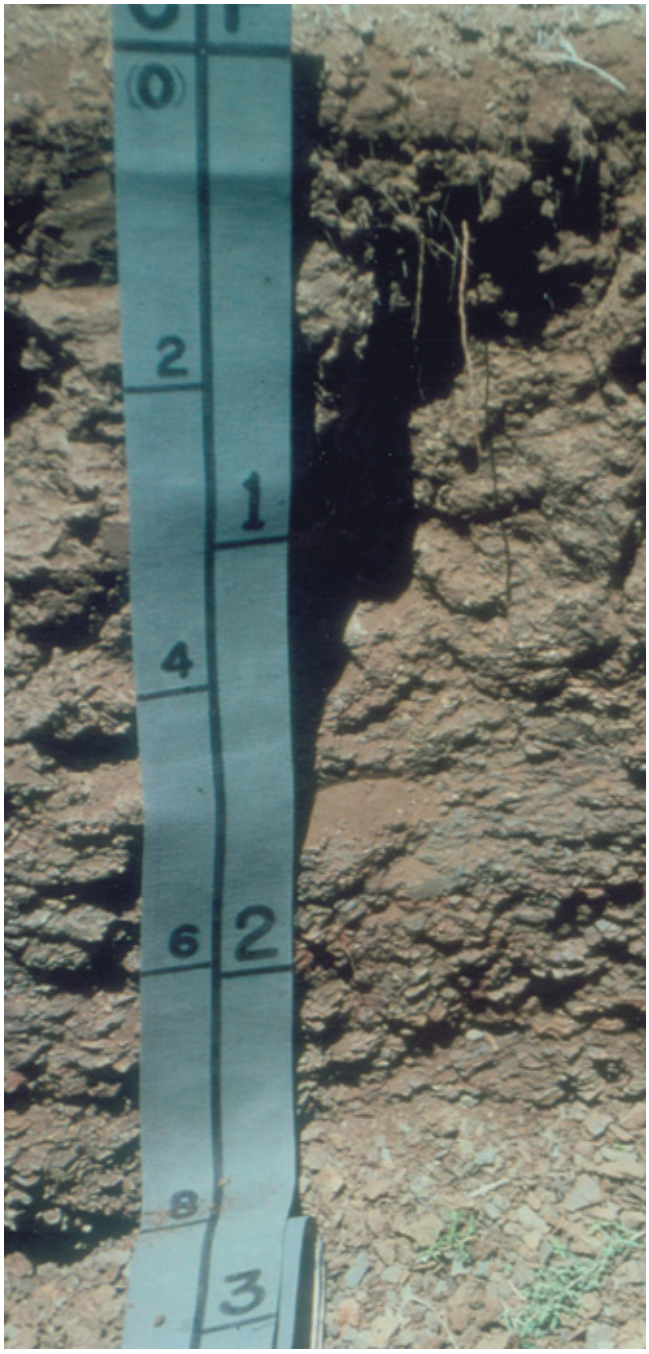

Figure 16.—Profile of Casamero clay in an area of Berryhill-Casamero clays, 2 to 10 percent slopes.

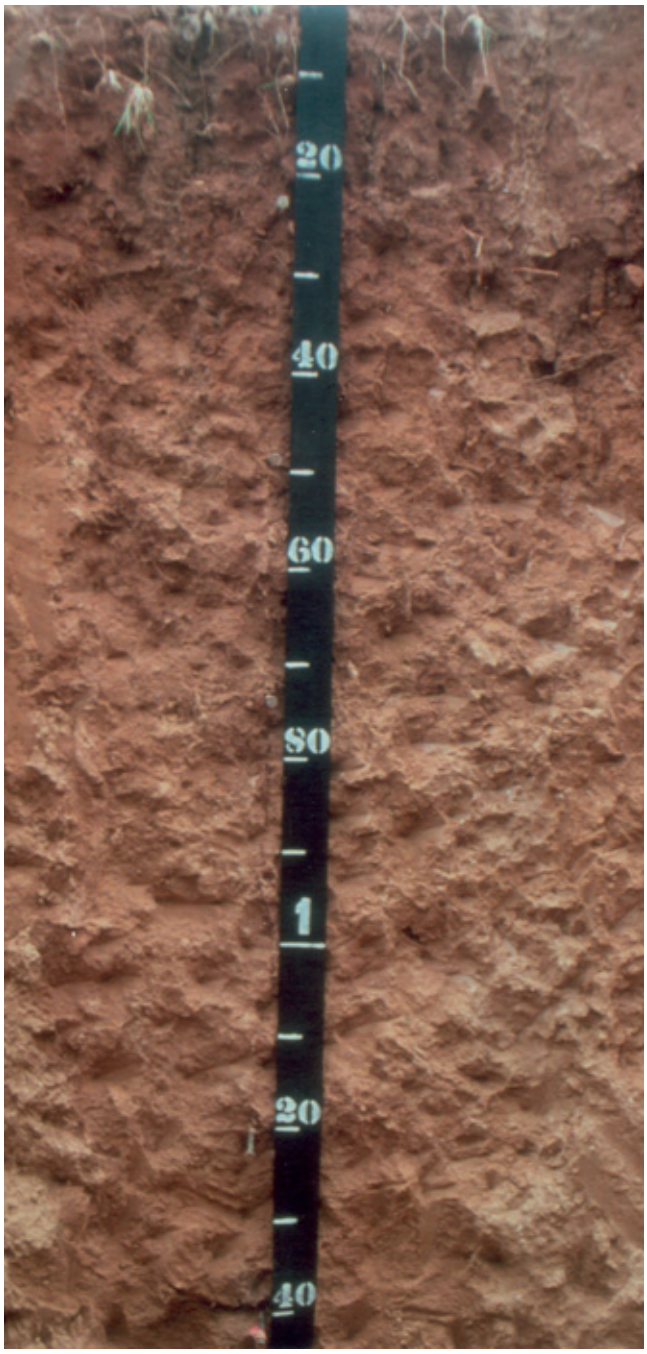

Figure 17.—Profile of Doakum fine sandy loan in an area of Doakum-Betonnie complex, 1 to 8 percent slopes.

Figure 18.—Profile of Eldado gravelly fine sandy loam in an area of Eldado gravelly fine sandy loam, 1 to 5 percent slopes.

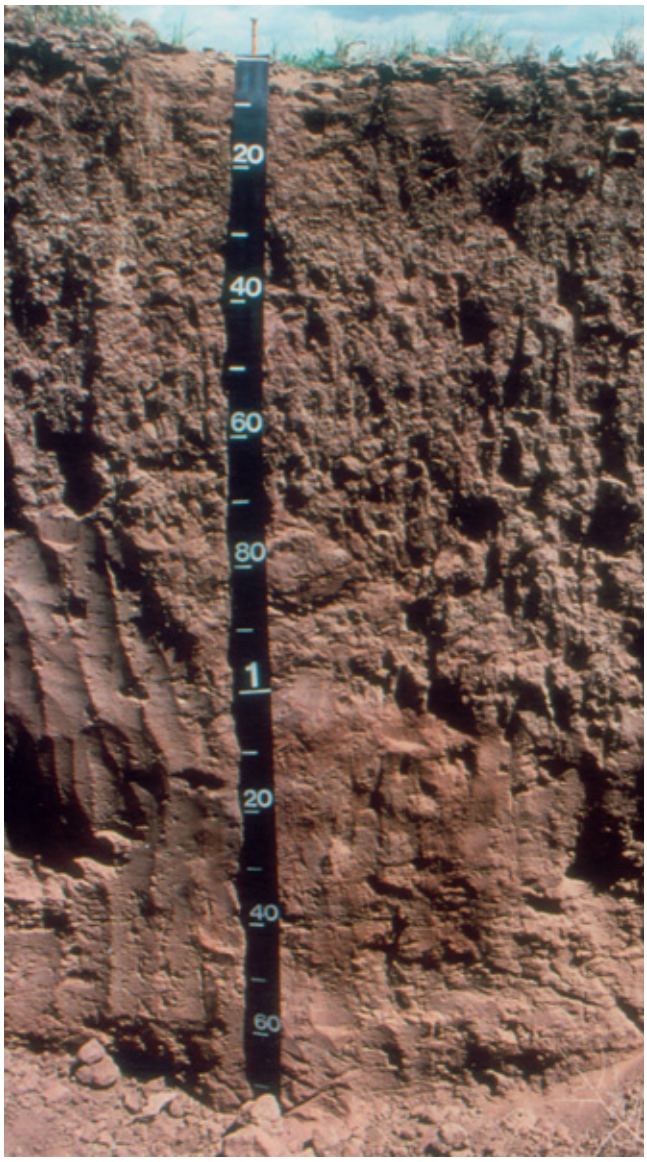

Figure 19.—Profile of Sanfeco fine sandy loam, 0 to 2 percent slopes.

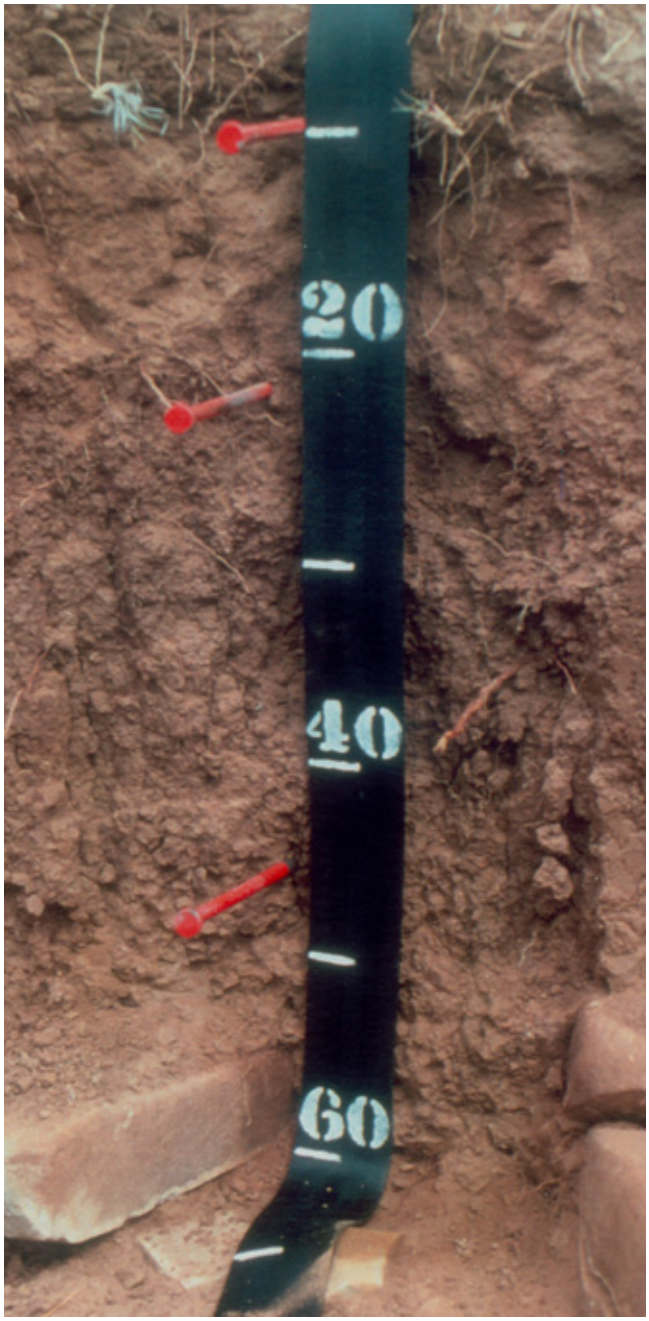

Figure 20.—Profile of Tinian very fine sandy loam in an area of Orlie-Tinian complex, 1 to 6 percent slopes.

Formation of the Soils

Soil is a natural, three-dimensional body on the surface of the earth that supports plants. Although the soil mantle on the earth's surface varies widely in many places, all soils have some things in common. They all consist of minerals, organic matter, living organisms, water, and air that occur in varying amounts in different soils.

Soil results from the action of soil-forming processes on materials deposited or accumulated by geological processes. The characteristics of the soil at any given point are determined by five factors: (1) the physical and mineralogical composition of the parent material, (2) the climate under which the soil material accumulated and has existed since accumulation, (3) the plant and animal life on and in the soil, (4) the topography, or lay of the land, and (5) the length of time that the forces of soil formation have acted on the parent material (Jenny, 1980). These factors of soil formation are independent, and few generalizations can be made regarding any one factor unless the effects of the others are known (Gile, 1965).

Factors of Soil Formation

Parent Material

Parent material is the unconsolidated material in which the soil forms. It may have weathered in place from rock, or it may have been transported by water, wind, or ice. The parent material of the soils in the survey area was derived from several sources and types of bedrock. Parent material can be put into six general groups: residuum, colluvium, slope alluvium, fan alluvium, stream alluvium, and eolian sand. Soils can form from a single parent material or a combination of parent materials.

Residuum is unconsolidated, weathered, or partly weathered mineral material that accumulated by the disintegration of bedrock in place. An example of a soil with this type of parent material is the Rauster series.

Colluvium is unconsolidated earth materials deposited on and at the base of moderately steep and steep slopes by mass wasting (direct gravitational action) and local runoff. An example of a soil that has this type of parent material is the Alesna series.

Alluvium is unconsolidated material deposited by running water, including gravel, sand, silt, clay, and various mixtures of these. Slope alluvium is moved from steep slopes to more gentle slopes. An example of a soil with this type of parent material is the Toldohn series. Fan alluvium is moved along alluvial fans. Examples of soils that have this type of parent material are the Aquima and Gish series. Stream alluvium is deposited by streams. Examples of soils having this type of parent material are the San Mateo and Escawetter series. Alluvial parent material can come from more than one source.

Eolian parent material pertains to material transported and deposited by the wind. It results in dune formations. The Razito series is an example of eolian sand parent material.

Climate

Climate is a major factor of soil formation. Temperature, precipitation, humidity, and wind affect vegetation (biological activity), parent material, and soil drainage. These factors affect the accumulation of organic matter, leaching of salts, the type and rate of weathering of the soil mineral constituents, and the development of diagnostic soil features.

The climate in the survey area is highly varied because of the wide range in elevation and the uneven topography. Elevation ranges from 5,800 feet near the Chaco river to over 8,000 feet in the Zuni Mountains. The average annual temperature ranges from about 40 to 55 degrees F, and the average annual precipitation ranges from about 8 to 20 inches. About 50 percent of the precipitation falls during brief, generally heavy thunderstorms in the period July through September. The survey area encompasses five temperature and moisture regimes.

Some soils formed under a climate that is quite different from the present-day climate. For example, the Eldado and Sanfeco soils have properties that indicate they formed under a climate that was much moister and cooler than the present day climate.

Plant and Animal Life

The effects of plants, animals, and humans are important in soil formation. Where the temperature is suitable to growth, plants begin to grow as soon as they receive appropriate amounts of water and nutrients. Plants, including fungi, influence soil formation by returning residues to the soil and aiding in decomposition. Plants influence the temperature of the soil by providing shade during warm periods and by helping to reduce evaporation from the soil surface. Vegetation also affects the transfer of minerals within the soil, the soil pH, and, in conjunction with climate and topography, the movement of material by leaching.

Bacteria, nematodes, and other forms of animal life aid in the weathering of minerals and the decomposition of organic matter. The larger animals, such as ants, earthworms, gophers, skunks, and reptiles, turn and mix the soil during burrowing activities, altering the soil.

Humans can have a strong influence on soil formation. Tillage and overgrazing may accelerate erosion. Changes in drainage conditions or topography induced by land shaping also influence the soil. Modifications in natural fertility by fertilizers, incorporation of organic residues, or cropping practices can also alter the soil-forming process.

As a rule, humans, plants, animals, insects, bacteria, and fungi affect the formation of soils by increasing the content of organic matter, producing gains or losses in plant nutrients, mixing soil layers, and changing structure and porosity.

Topography

Topography and runoff influence the formation of soils by affecting drainage, erosion, soil temperature, and plant cover. The thickness and the kind of soil horizons depend on the amount of water that percolates through the parent material. Normally, more water enters a soil that is nearly level or gently sloping than one that is strongly sloping or steep. The topography of the survey area is very diverse, ranging from very steep slopes (50 percent or more) to nearly flat concave basin floors and valleys.

The amount of runoff depends on the slope. Steeper slopes have a higher amount of runoff than do gentle slopes. Coarse-textured soils take in water more rapidly than do fine-textured soils, so less water is lost through runoff on slopes that have coarse-textured soils than on those having fine-textured soils.

Aspect affects soil formation in the moderate to high elevations. Soils are slightly deeper on the north- and east-facing slopes because rainfall is more effective, temperatures are cooler, and plants are more numerous.

Time

The soils of the area range from very old to very young. The kind of horizons and the degree of soil formation depend in part on how long the soil has remained stable.

In this survey area, the youngest soils that show the least development are on flood plains and stream terraces. The parent material of these soils have been in place only a short period. Examples of these soils are the San Mateo, Notal, and Escawetter series.

Soils on alluvial fans and fan remnants show greater development. Deposition of parent material still occurs on alluvial fans. Fan remnants are relict alluvial fans that have been dissected and no longer have active deposition of parent material. Argillic horizons have developed and calcium carbonate is accumulating. The younger soils in this group include the Aquima and Zia series. The older soils in this group are generally higher in clay and of a redder color. These would include the Penistaja and Parkelei series.

The survey also has some very old soils found on rolling hills and high fan remnants. These soils exhibit very well-developed argillic horzons and thick calcic horizons. Examples of these soils are the Teczuni and Bryway series.

Landforms of the Survey Area

The survey area is part of the Colorado Plateau physiographic province, generally characterized by rough, broken terrain, including small, steep mountainous areas, plateaus, cuestas, and mesas intermingled with steep canyon walls, escarpments, and valleys (figs. 21, 22, 23, 24).

The following are landforms recognized in the survey area and some of the soils associated with them. Landforms are not static; they are continually being created and eroded.

Alluvial Fans

An alluvial fan is formed by Holocene-age and present-day alluvium originating from mountains, hills, and other upslope landscapes. Sediment loads are deposited when slope gradients change from upland positions to less sloping landforms. An inherent feature of fan development is the continuously changing pattern of channels and loci of deposition (Cooke, 1973). Over a long period of time, these changes ensure the maintenance of fans formed by distributing

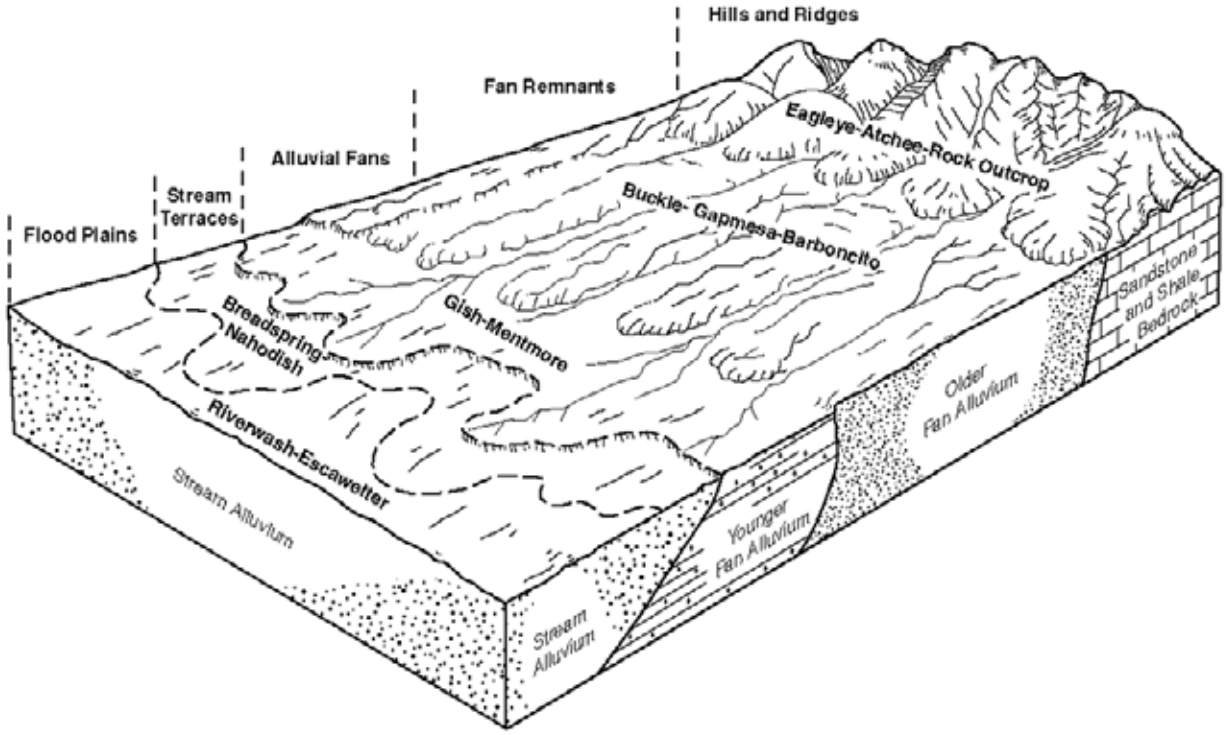

Figure 21.—Generalized relationships of some soils in the survey area.

material widely over the surface. The soils on this landscape position are generally very deep, and their soil textures are highly variable, depending on the local geology from which they formed. Soil series found on alluvial fan positions are the Gish and Zia series.

Drainageways

A drainageway is a course or channel along which water moves as it drains an area formed by Holocene-age and present-day alluvium that originated from upslope positions in a watershed. Periodically, drainageways can move concentrated water and might or might not exhibit a defined low-order channel. These relatively narrow areas that have slopes greater than 2 percent drain into larger valley systems. The soils on this landscape position generally are very deep, with soil textures that are highly variable, depending on the local geology. Soil series found in drainageways are the Concho and Parkelei series.

Dunes

This landform has developed from Holocene-age and present-day eolian sands. These relatively small transverse dunes formed perpendicular to the prevailing winds. Most dunes in this area are stable because established vegetation restricts their activity. Dunes can be found as a component on most of the other landforms portrayed in this section. These soils can be very deep and located in large dune fields or as a shallow mantle over bedrock-controlled surfaces. The Razito series is found on dunes.

Escarpments

Escarpments are a familiar feature in the survey area. They are relatively steep slopes or cliffs produced by erosion and faulting. Because of the steep slopes, the soils formed on this landform are generally shallow. Examples of soil series on escarpments are the Skyvillage and Vessilla series.

Fan Remnants

This landform developed from the Pleistocene to early Holocene eras. On this position, soils exhibit different degrees of pedogenic (soil) development. The degree of development depends upon the amounts of translocated calcium carbonate and/or silicified clays, which are related to the age of the soil.

Fan remnants have been dissected or downcut to the point at which flooding rarely occurs. This landform has two important components. One is the summit,

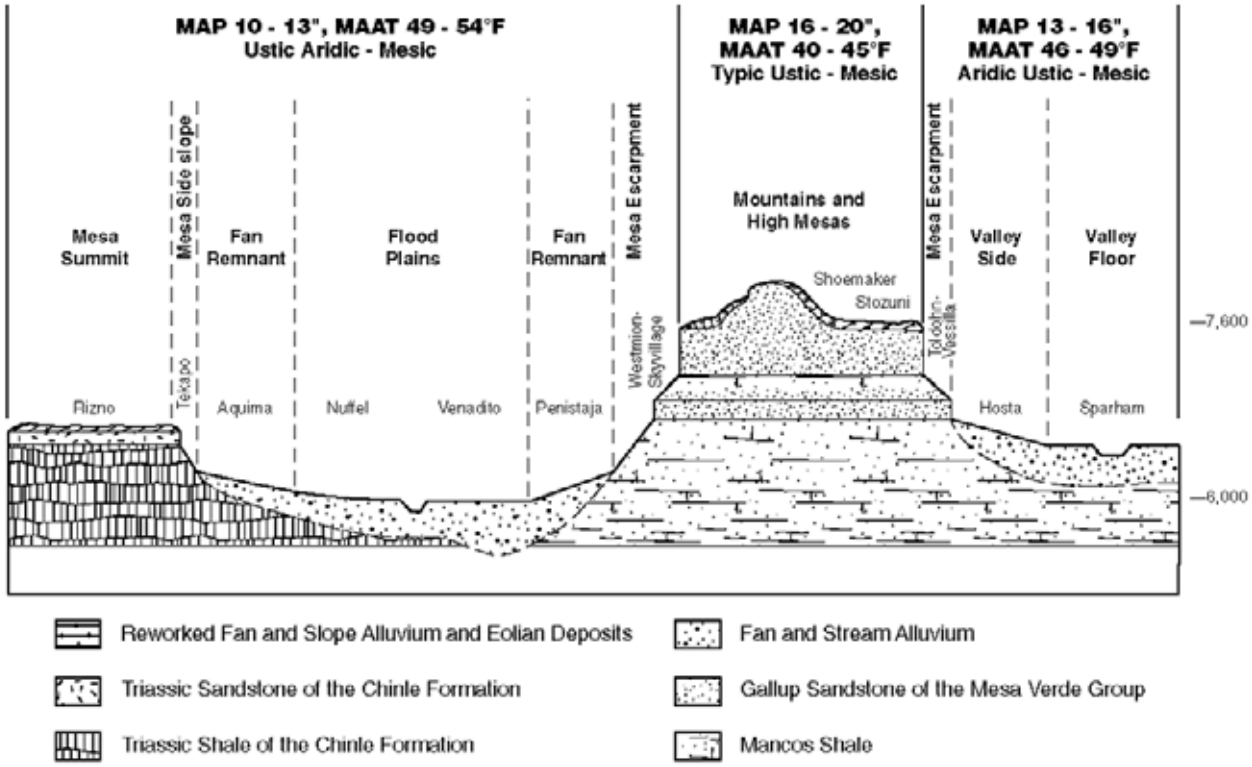

Figure 22.—Idealized cross-section illustrating soil-geomorphic-geologic relationships of soils on the Zuni Indian Reservation.

where erosional activity is relatively low. This area will show the different degrees of soil development and age. Second is the sideslope, where erosional activity is cutting uphill into the more stable summit. In most areas in the survey, the surface has a thick eolian mantle that is being eroded.

Soils on fan remnants vary greatly in their makeup. The Mentmore series can be found on the younger fan remnants. The Gapmesa and Barboncito series are soils that can be found on summits of older fan remnants.

Flood Plains

This landform is formed by early Holocene-age to present-day stream alluvium. In this survey area, floodwaters flow at low to very low gradients along valley floors and tend to be elongated in nature. The soils on these flood plains receive periodic depositions of fresh alluvium, causing an irregular decrease in organic carbon and weak to no soil development. Soils on this landform are predominantly very deep with soil textures that are highly variable, depending on the local geology from which they formed. The Escawetter and San Mateo soils are formed in flood plains.

Hills and Mountains

The mountain slopes have no particular age connotation and, therefore, are not considered a geomorphic surface (Balster and Parsons, 1968). Soil development on these landforms is highly dependent on the characteristics of the bedrock, such as its chemical composition, grain size, and hardness. The most influential soil-forming factors in determining how soil developed on hills and mountains are time and the slope gradient of the bedrock.

Soils on this landform vary greatly in horizon development, from soils with no development to soils that have well-developed argillic horizons. Soils that have little or no horizon development are usually found on the steeper slopes where erosional activity is greatest. Soils that have well-developed horizons are generally on gently sloping to moderately steep slopes, where erosion is slight to moderate. The Fortwingate series formed in shale and sandstone on somewhat

more stable surfaces that allow argillic horizons to form. The Westmion series is usually on the steeper slopes and more active erosional surfaces. The constant erosion of the soil does not allow time for an argillic horizon to develop, as clays do not have time to translocate and accumulate.

Hogbacks

Hogbacks are highly tilted (greater than 45 percent) rock layers that form a sharp, crested ridge. A good example is on the east end of Gallup where Interstate 40 bisects it. Because of the steep slopes and resistant rocks, the soils are generally shallow. The Vessilla and Toldohn soils are found on this landform.

Lava Plateaus

Mesa Chivato in southeastern McKinley County is an example of a Lava Plateau. It is a broad, elevated tableland underlain by a thick succession of basaltic lava flows. The survey area contains about 60 square miles of a total of approximately 400 square miles of Mesa Chivato. Some soils series found on this landform are the Amcec and the Montillo series.

Mesas and Cuestas

These landforms have two important components. The first is the mesa summit and the cuesta dipslope. They are both nearly level to gently sloping, bedrock-controlled surfaces that are generally stable. The Arabrab and Evpark series are found on these surfaces. The soils are characterized by well-developed argillic horizons.

The second component is the escarpment, where erosional activity is cutting back into the more stable summit. Soils on this component have little or no horizon development because of their steep slopes, where erosional activity is greatest. Typical soils representing this escarpment component are the Toldohn and Vessilla series.

Mesas differ from cuestas in that an escarpment on all sides terminates the mesa summit, whereas a cuesta generally has one or more sides that grade into the surrounding terrain, following gentle slopes.

Plateaus

These landforms are comparatively flat areas of great extent and elevation that are commonly bordered

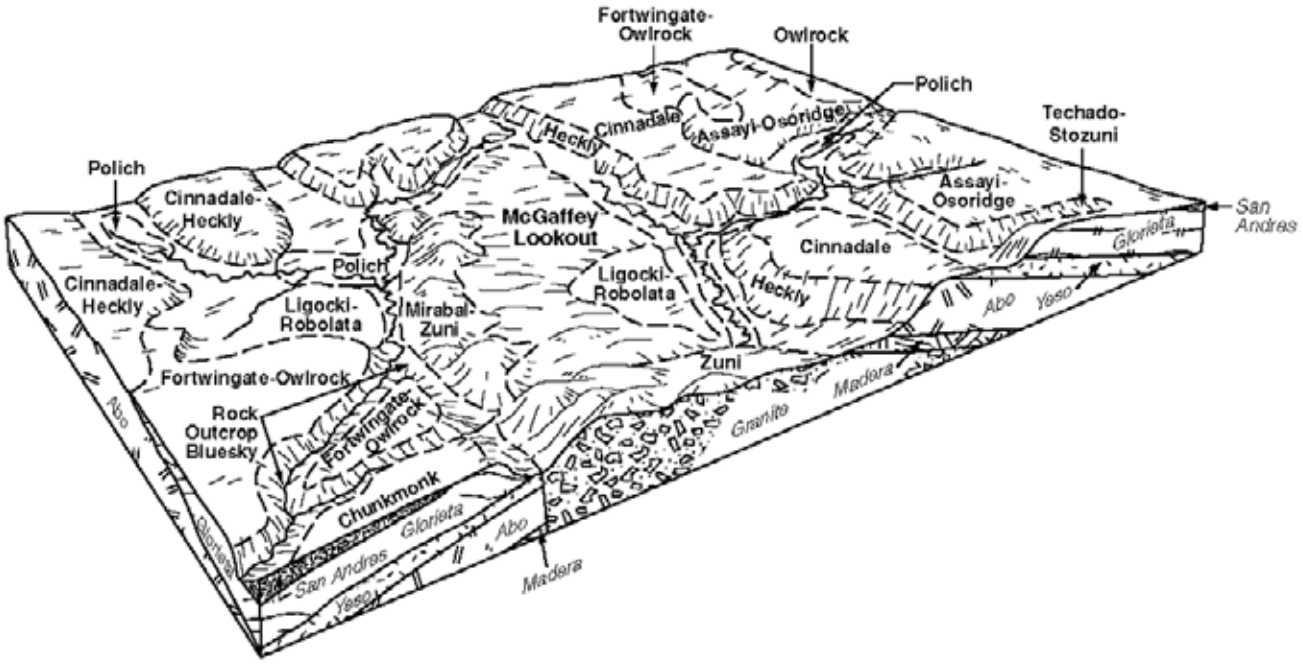

Figure 23.—Generalized cross-section of soils in the northern part of the Zuni Mountains, near McGaffey.

on at least one side by an escarpment or abrupt descent. The landscape of a plateau summit can be complex, comprised of many subsidiary geomorphic features. Because of this, soils formed on plateaus are highly variable. In the survey area, Mesa Chivato and the highlands south of Gallup qualify as plateaus. The Parkelei and Fraguni are common soils found on the plateau south of Gallup.

Ridges

Ridges are long, narrow elevations of the land surface, usually sharp-crested with steep sides, that form extended uplands between valleys. Soils found on the summits, if wide enough, are mostly shallow, whereas soils on the sides are generally shallow but sometimes deeper. The Plumasano series can be found on the sideslopes of ridges, while the Atchee soils are on the summits.

Stream Terraces

This position is the erosional remnant of the active flood plains that existed during the late Pleistocene to Holocene ages. The slopes are in the same general direction as the current flood plain. The soils in this position are underlain by stratified sand, gravel, loamy, silty, or clayey sediments and, in some cases, buried paleosols.

The soils on stream terraces have been stable for a sufficient time period to form cambic horizons. Formation of soil structure and accumulations of calcium carbonate and sometimes gypsum characterize a cambic horizon. This position is still subject to some flooding during major events. These rare flooding occurrences and the thin alluvial deposits from the floodwaters do not inhibit soil development. Typical soils that represent stream terraces are the Breadsprings and Nahodish series.

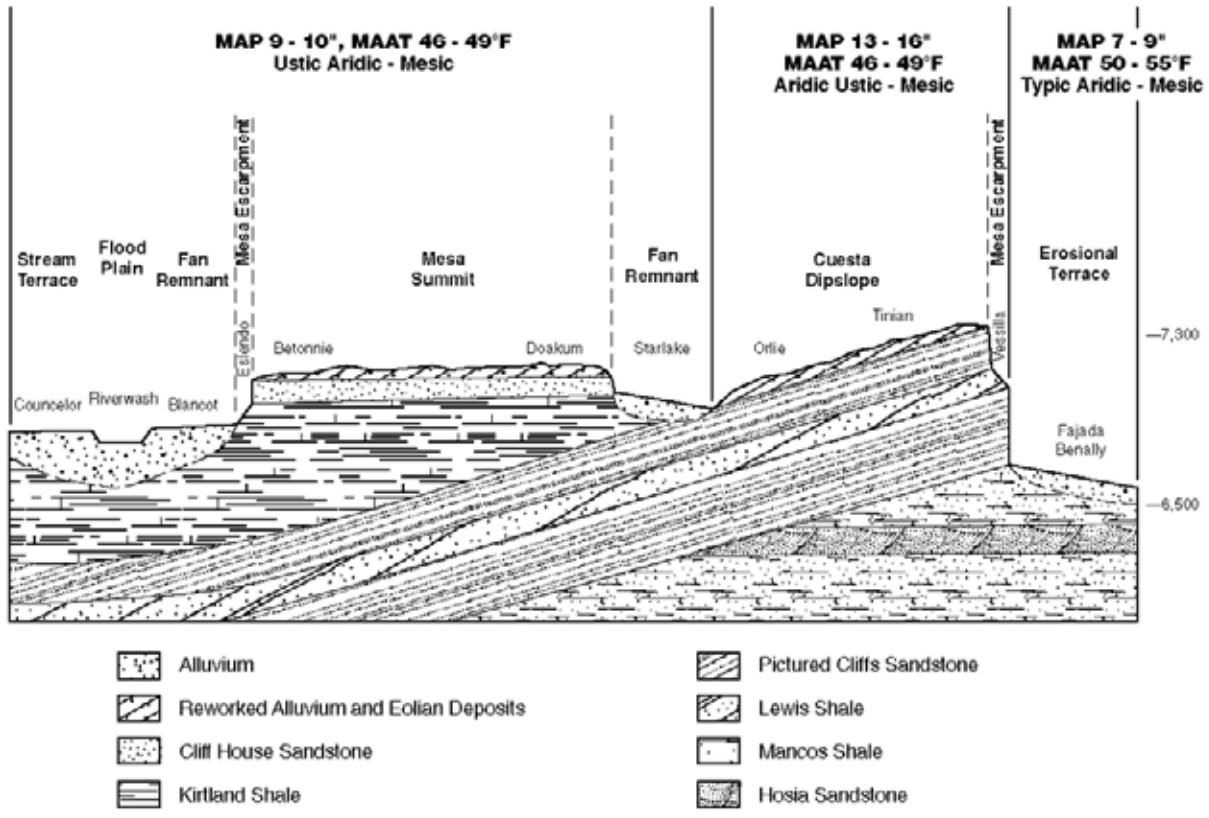

Figure 24.—Idealized cross-section illustrating soil-geomorphic-geologic relationships of soils on the Chaco slope of the San Juan Basin.

Valley floors

A general term for the nearly level to gently sloping, lowest surface of a valley system. Landforms include stream channels, stream terraces, and flood plains. In the survey area, this landscape position along with the valley side positions, is generally the most productive and manipulated by humans. The Concho and Redpen series have formed on these positions.

Valley sides

These are sloping surfaces between the valley floor and the summits of adjacent uplands. Fan remnants and alluvial fans are landforms found on this broad landscape position. Soil series found on these surfaces are the Mentmore and the Zia soils.

Volcanic Cones

A volcanic cone is a conical hill of lava or cinders that is built up around a volcanic vent. Volcanic cones are observable on Mesa Chivato. These soils range from very deep to shallow and are generally clayey textured if weathered from basalt. Soils that have formed on this landscape feature are the Alesna and Montillo series.

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Glossary

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

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.

Alluvial fan. The fanlike deposit of a stream where it issues from a gorge upon a plain or of a tributary stream near or at its junction with its main stream.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Alpha,alpha-dipyridyl. A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

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.

Arroyo. The flat-floored channel of an ephemeral stream, commonly with very steep to vertical banks cut in alluvium.

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	more 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.

Badland. Steep or very steep, commonly nonstony, barren land dissected by many intermittent drainage channels. Badland is most common in semiarid and arid regions where streams are entrenched in soft geologic material. Local relief generally ranges from 25 to 500 feet. Runoff potential is very high, and geologic erosion is active.

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.

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.

Bottom land. The normal flood plain of a stream, subject to flooding.

Breaks. The steep and very steep broken land at the border of an upland summit that is dissected by ravines.

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.

Canopy. The leafy crown of trees or shrubs. (See Crown.)

Canyon. A long, deep, narrow, very steep sided valley with high, precipitous walls in an area of high local relief.

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.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

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.

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.”

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.

Cuesta. A hill or ridge that has a gentle slope on one side and a steep slope on the other; specifically, an asymmetric, homoclinal ridge capped by resistant rock layers of slight or moderate dip.

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.

Dip slope. A slope of the land surface, roughly determined by and approximately conforming to the dip of the underlying bedrock.

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."

Duff. A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

Ecological site. An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.

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.

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.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

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.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

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.

Forest type. A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

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.

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.

Ground water. Water filling all the unblocked pores of the material below the water table.

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.

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.

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.

Igneous rock. Rock formed by solidification from a molten or partially molten state. Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net

irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

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.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:
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.

K_{sat}. Saturated hydraulic conductivity. (See Permeability.)

Lacustrine deposit. Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Leaching. The removal of soluble material from soil or other material by percolating water.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Low strength. The soil is not strong enough to support loads.

Major Land Resource Area. These are geographically associated land resource units. Identification of these large areas is important in statewide agricultural planning and has value in interstate, regional, and national planning.

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.

Mesa. A broad, nearly flat topped and commonly isolated upland mass characterized by summit widths that are more than the heights of bounding erosional scarps.

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.

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).

Mountain. A natural elevation of the land surface, rising more than 1,000 feet above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides. A mountain can occur as a single, isolated mass or in a group forming a chain or range.

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.)

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Paleosols. A soil that formed on a landscape in the past with distinctive morphological features resulting from a soil-forming environment that no longer exists at the site.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

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	more 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.)

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.

Plateau. An extensive upland mass with relatively flat summit area that is considerably elevated (more than 100 meters) above adjacent lowlands and separated from them on one or more sides by escarpments.

Playa. The generally dry and nearly level lake plain that occupies the lowest parts of closed depressional areas, such as those on intermontane basin floors. Temporary flooding occurs primarily in response to precipitation and runoff.

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.

Porcelanite. Fused shales and clay that occur in roof and floor of burned coal seams.

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	9.1 and higher

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.

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.

Risers. The vertical element of a steplike natural landform.

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.

Salinity. The degree to which a soil is affected by soluble salts. Salinity is expressed as a electrical conductivity (EC) of a saturation extract. The solution resistance is measured in mmhos/cm. The degrees of salinity and their respective ratios are:

Non-saline	0-2
Very slightly saline	2-4
Slightly saline	4-8
Moderately saline	8-16
Strongly saline	>16

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.

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.

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.

Shrink-Swell. Soil volume changes due to increases or decreases in moisture content. 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. The shrink-swell classes are defined as follows:

Class	LEP
Low	<3
Moderate	3-6
High	6-9
Very High	>9

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slickensides. 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.

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	more than 30:1

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.

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).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Tread. The flat part of a step-like natural land form.

Upland. Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Valley fill. In glaciated regions, material deposited in stream valleys by glacial meltwater. In nonglaciated regions, alluvium deposited by heavily loaded 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.

Windthrow. The uprooting and tipping over of trees by the wind.

Tables

Table 1.--Temperature and Precipitation

(Recorded in the period 1971-2000 at McGaffey 5 SE, NM560)

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average	Maximum temperature higher than--	Minimum temperature lower than--	Average number of growing degree days*	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January	39.4	8.3	23.8	57	-18	0	1.90	0.56	2.98	4	9.5
February	42.4	12.1	27.3	59	-12	0	1.61	0.63	2.54	4	9.4
March	48.0	18.3	33.1	65	-5	0	2.04	0.76	3.22	5	9.1
April	55.7	23.8	39.8	73	4	5	1.19	0.44	1.88	3	3.8
May	65.6	31.3	48.4	80	15	48	1.04	0.37	1.87	3	0.4
June	76.8	39.0	57.9	89	24	238	0.68	0.21	1.42	2	0.0
July	80.0	46.0	63.0	91	35	389	2.31	1.12	3.33	6	0.0
August	77.1	45.5	61.3	88	35	342	2.74	1.45	3.88	7	0.0
September	72.0	38.4	55.2	83	22	166	1.78	0.94	2.53	4	0.1
October	62.2	27.5	44.9	78	8	22	1.65	0.81	2.70	3	2.6
November	48.8	16.5	32.6	68	-8	0	1.92	0.94	2.89	4	6.7
December	41.0	9.7	25.4	59	-16	0	1.48	0.35	2.46	3	8.0
Yearly:											
Average	59.1	26.4	42.7	---	---	---	---	---	---	---	---
Extreme	94	-32	---	91	-21	---	---	---	---	---	---
Total	---	---	---	---	---	1,210	20.33	16.28	23.88	48	49.6

Table 1.--Temperature and Precipitation--Continued

Recorded in the period 1971-2000 at Thoreau 5 ENE, NM830

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average	Maximum temperature higher than--	Minimum temperature lower than--	Average number of growing degree days*	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January	43.1	18.7	30.9	61	-5	0	0.74	0.22	1.15	2	9.6
February	48.3	22.4	35.3	67	1	0	0.59	0.20	0.91	2	5.1
March	55.1	26.9	41.0	73	10	10	0.67	0.26	1.08	2	4.0
April	64.3	32.6	48.4	80	15	62	0.41	0.11	0.72	1	0.8
May	72.6	40.6	56.6	87	26	222	0.69	0.17	1.10	2	0.5
June	83.7	50.1	66.9	95	34	514	0.54	0.17	0.93	1	0.0
July	85.6	55.5	70.6	96	46	641	1.54	0.88	2.13	5	0.0
August	82.5	53.7	68.1	93	44	563	2.07	1.37	2.70	5	0.0
September	76.8	47.4	62.1	89	32	365	1.41	0.54	2.14	3	0.0
October	66.3	37.2	51.8	82	19	121	1.01	0.38	1.54	2	1.3
November	52.8	25.9	39.4	71	4	6	0.74	0.26	1.14	2	3.7
December	44.9	20.0	32.5	64	-4	0	0.64	0.17	1.01	2	7.4
Yearly:											
Average	64.7	35.9	50.3	---	---	---	---	---	---	---	---
Extreme	99	-20	---	97	-9	---	---	---	---	---	---
Total	---	---	---	---	---	2,506	11.05	8.87	12.79	29	32.4

Table 1.--Temperature and Precipitation--Continued

Recorded in the period 1971-2000 at Zuni, NM897

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average	Maximum temperature higher than--	Minimum temperature lower than--	Average number of growing degree days*	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January	47.1	16.5	31.8	65	-10	0	0.91	0.21	1.52	3	2.9
February	52.1	20.6	36.3	69	0	0	0.75	0.21	1.19	2	1.4
March	58.1	25.1	41.6	76	5	6	0.99	0.35	1.73	3	0.6
April	66.3	29.7	48.0	82	12	49	0.62	0.12	1.12	1	0.2
May	75.1	37.1	56.1	89	21	194	0.58	0.17	1.07	1	0.0
June	85.5	45.3	65.4	97	31	451	0.43	0.19	0.99	1	0.0
July	88.7	53.2	71.0	100	41	635	1.95	0.67	3.00	4	0.0
August	85.5	53.2	69.4	96	42	585	2.40	1.16	3.47	5	0.0
September	80.0	45.6	62.8	91	30	367	1.29	0.35	2.04	3	0.0
October	69.6	34.3	51.9	86	16	117	1.26	0.45	2.10	3	0.2
November	56.3	23.8	40.0	74	4	4	0.89	0.37	1.46	2	0.9
December	48.4	17.5	32.9	65	-6	1	0.82	0.23	1.40	2	2.8
Yearly:											
Average	67.7	33.5	50.6	---	---	---	---	---	---	---	---
Extreme	105	-26	---	100	-11	---	---	---	---	---	---
Total	---	---	---	---	---	2,410	12.88	9.03	15.44	30	9.0

Table 2.--Freeze Dates in Spring and Fall

(Recorded in the period 1971-2000 at McGaffey 5 SE, NM5560)

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--	June 4	June 21	June 29
2 years in 10 later than--	May 29	June 15	June 24
5 years in 10 later than--	May 18	June 3	June 15
First freezing temperature in fall:			
1 year in 10 earlier than--	September 20	September 15	September 8
2 years in 10 earlier than--	September 25	September 18	September 12
5 years in 10 earlier than--	October 5	September 26	September 19

Table 2.--Freeze Dates in Spring and Fall--Continued

(Recorded in the period 1971-2000 at Thoreau 5 ENE, NM8830)

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--	April 30	May 20	May 30
2 years in 10 later than--	April 24	May 13	May 24
5 years in 10 later than--	April 13	April 30	May 14
First freezing temperature in fall:			
1 year in 10 earlier than--	October 14	October 3	September 19
2 years in 10 earlier than--	October 19	October 9	September 26
5 years in 10 earlier than--	October 28	October 20	October 9

Table 2.--Freeze Dates in Spring and Fall--Continued

Recorded in the period 1971-2000 at Zuni, 9897)

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--	May 15	June 2	June 8
2 years in 10 later than--	May 8	May 27	June 2
5 years in 10 later than--	April 25	May 16	May 24
First freezing temperature in fall:			
1 year in 10 earlier than--	October 6	October 4	September 19
2 years in 10 earlier than--	October 11	October 8	September 24
5 years in 10 earlier than--	October 20	October 16	October 5

Table 3.--Growing Season

(Recorded in the period 1971-2000 at McGaffey 5 SE, NM5560)

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	113	92	76
8 years in 10	122	100	83
5 years in 10	139	115	96
2 years in 10	155	130	109
1 year in 10	164	138	115

(Recorded in the period 1971-2000 at Thoreau 5 ENE, NM8830)

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	174	148	123
8 years in 10	183	156	131
5 years in 10	198	172	148
2 years in 10	214	188	165
1 year in 10	222	197	173

Table 3.--Growing Season--Continued

(Recorded in the period 1971-2000 at Zuni, NM9897)

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	152	134	109
8 years in 10	161	141	118
5 years in 10	177	154	134
2 years in 10	194	167	150
1 year in 10	202	173	158

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Cibola County	McKinley County	San Juan County	Total	
					Area	Extent
		Acres	Acres	Acres	Acres	Pct
8	Water	52	1,474	---	1,526	*
10	Tsosie-Councelor-Blancot fine sandy loams, 1 to 3 percent slopes	---	18,890	---	18,890	0.7
11	Doakum-Betonnie complex, 1 to 8 percent slopes	---	40,109	---	40,109	1.4
12	Calladito-Elias association, 1 to 6 percent slopes	---	18,569	---	18,569	0.7
13	Councelor-Calladito complex, 1 to 8 percent slopes	---	7,954	---	7,954	0.3
14	Councelor-Eslendo-Calladito complex, 2 to 25 percent slopes	---	7,064	---	7,064	0.2
16	Starlake clay, 1 to 3 percent slopes	---	12,367	---	12,367	0.4
22	Querencia-Lavodnas association, 2 to 15 percent slopes	---	26,047	---	26,047	0.9
30	Orlie-Tinian complex, 1 to 6 percent slopes	---	28,445	---	28,445	1.0
40	Nuffel silt loam, 0 to 2 percent slopes	---	633	---	633	*
42	Suwanee clay loam, 0 to 2 percent slopes	---	2,435	---	2,435	*
44	Suwanee clay, 0 to 1 percent slopes	---	540	---	540	*
45	Nutreeah clay loam, 0 to 2 percent slopes	---	998	---	998	*
47	Conchovar clay loam, 0 to 1 percent slopes	---	195	---	195	*
49	Concho clay loam, 0 to 2 percent slopes	---	871	---	871	*
51	Kwakina loamy fine sand, 0 to 2 percent slopes	291	2,057	---	2,348	*
52	Zuniven loamy fine sand, 0 to 2 percent slopes	---	549	---	549	*
53	Hawaikuh clay loam, 0 to 2 percent slopes	314	2,067	---	2,381	*
54	Venadito clay, saline, 0 to 2 percent slopes	243	---	---	243	*
55	Sparham clay loam, 0 to 2 percent slopes	---	512	---	512	*
60	Redpen sandy clay loam, 0 to 2 percent slopes	61	2,164	---	2,225	*
100	Norkiki-Kimnoli complex, 1 to 8 percent slopes	---	116,746	4,197	120,943	4.3
110	Benally-Fruitland association, 1 to 5 percent slopes	---	20,089	5,295	25,384	0.9
111	Yelives fine sandy loam, 1 to 3 percent slopes	---	132	3,725	3,857	0.1
115	Razito-Shiprock complex, 3 to 8 percent slopes	---	77,896	1,434	79,330	2.8
116	Fajada-Huerfano-Benally complex, 1 to 5 percent slopes	---	97,452	16,766	114,218	4.0
118	Farb-Chipeta-Rock outcrop complex, 2 to 30 percent slopes	---	54,918	6,794	61,712	2.2
120	Doak-Shiprock complex, 1 to 8 percent slopes	---	91,417	387	91,804	3.2
121	Badland	---	4,378	535	4,913	0.2
122	Rock outcrop-Farb complex, 2 to 8 percent slopes	---	2,751	90	2,841	0.1
125	Sanfeco fine sandy loam, 0 to 2 percent slopes	---	6,598	98	6,696	0.2
130	Chipeta-Badland-Moncisco complex, 2 to 45 percent slopes	---	---	11,749	11,749	0.4
150	Riverwash-Escawetter association, 0 to 1 percent slopes	---	1,857	---	1,857	*
160	Escawetter-Riverwash-Razito association, 0 to 5 percent slopes	---	---	1,064	1,064	*
205	Penistaja-Tintero complex, 1 to 10 percent slopes	3,396	126,944	---	130,340	4.6

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Cibola County	McKinley County	San Juan County	Total	
					Area	Extent
		Acres	Acres	Acres	Acres	Pct
208	Marianolake fine sandy loam, 1 to 8 percent slopes	---	5,565	---	5,565	0.2
210	Marianolake-Skyvillage complex, 1 to 8 percent slopes	---	72,901	---	72,901	2.6
212	Rehobeth silty clay loam, 0 to 1 percent slopes	---	5,671	---	5,671	0.2
215	Viuda-Penistaja-Rock outcrop complex, 1 to 5 percent slopes	---	6,983	---	6,983	0.2
220	Hagerwest-Bond fine sandy loams, 1 to 8 percent slopes	---	67,706	---	67,706	2.4
225	Aquima-Hawaikuh silt loams, 1 to 5 percent slopes	4,306	24,136	---	28,442	1.0
230	Sparank-San Mateo-Zia complex, 0 to 3 percent slopes	439	90,299	---	90,738	3.2
235	Notal-Hamburn complex, 0 to 2 percent slopes	---	96,387	6,131	102,518	3.6
240	Breadsprings and Nahodish soils, 0 to 2 percent slopes	---	41,845	---	41,845	1.5
241	Mentmore loam, 1 to 8 percent slopes	---	44,725	---	44,725	1.6
242	Gish-Mentmore complex, 1 to 8 percent slopes	---	14,309	---	14,309	0.5
244	Buckle fine sandy loam, 1 to 8 percent slopes	---	17,938	---	17,938	0.6
245	Buckle-Gapmesa-Barboncito complex, 1 to 6 percent slopes	---	37,477	---	37,477	1.3
250	Hospah-Skyvillage-Rock outcrop complex, 2 to 35 percent slopes	---	94,605	---	94,605	3.3
255	Farview-Rock outcrop complex, 2 to 15 percent slopes	---	2,406	---	2,406	*
258	Eagleye-Atchee-Rock outcrop complex, 2 to 35 percent slopes	---	84,414	---	84,414	3.0
260	Quarries and pits	---	1,298	---	1,298	*
261	Coal mine lands	---	13,243	---	13,243	0.5
265	Uranium mined lands	---	3,934	---	3,934	0.1
270	Alesna-Rock outcrop complex, 15 to 55 percent slopes	---	22,717	---	22,717	0.8
275	Eldado gravelly fine sandy loam, 1 to 5 percent slopes	---	2,137	---	2,137	*
280	Azabache extremely gravelly clay loam, 2 to 8 percent slopes	---	2,236	---	2,236	*
290	Rock outcrop-Westmion-Skyvillage complex, 30 to 80 percent slopes	---	79,242	---	79,242	2.8
291	Rock outcrop-Eagleye-Atchee complex, 35 to 70 percent slopes	---	35,334	---	35,334	1.2
300	Regracic gravelly sandy clay loam, 2 to 6 percent slopes	---	3,631	---	3,631	0.1
305	Celavar-Atarque complex, 1 to 8 percent slopes	536	45,307	---	45,843	1.6
308	Fikel-Venzuni complex, 1 to 6 percent slopes	---	14,508	---	14,508	0.5
310	Parkelei sandy loam, 1 to 8 percent slopes	---	24,830	---	24,830	0.9
312	Bluewater loam, 0 to 1 percent slopes	---	1,061	---	1,061	*
315	Flugle-Fragua complex, 1 to 10 percent slopes	10,292	66,861	---	77,153	2.7
316	Royosa loamy fine sand, 1 to 15 percent slopes	106	22,943	---	23,049	0.8
317	Highdye-Evpark-Bryway complex, 2 to 20 percent slopes	647	12,725	---	13,372	0.5
320	Parkelei-Fraguni complex, 1 to 8 percent slopes	---	70,263	---	70,263	2.5
325	Venzuni silty clay, 1 to 3 percent slopes	---	1,729	---	1,729	*
332	Evpark-Arabrab complex, 2 to 6 percent slopes	---	55,963	---	55,963	2.0

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Cibola County	McKinley County	San Juan County	Total	
					Area	Extent
		Acres	Acres	Acres	Acres	Pct
335	Venadito clay, 1 to 3 percent slopes	---	4,668	---	4,668	0.2
336	Nuffel-Venadito complex, 1 to 3 percent slopes	4,308	5,888	---	10,196	0.4
338	Zyme-Lockerby association, 5 to 35 percent slopes	---	13,892	---	13,892	0.5
345	Rock outcrop-Tuces complex, 20 to 70 percent slopes	---	28,437	---	28,437	1.0
350	Toldohn-Vessilla-Rock outcrop complex, 8 to 35 percent slopes	4,588	151,620	---	156,208	5.5
351	Rock outcrop-Vessilla complex, 35 to 70 percent slopes	885	37,707	---	38,592	1.4
352	Zia sandy loam, 1 to 5 percent slopes	1,239	33,885	---	35,124	1.2
353	Mido loamy fine sand, 1 to 6 percent slopes	493	11,644	---	12,137	0.4
354	Knifehill loam, 1 to 5 percent slopes	560	3,761	---	4,321	0.2
355	Rizno-Tekapo-Rock outcrop complex, 2 to 45 percent slopes	4,525	29,993	---	34,518	1.2
357	Heshotauthla clay, 0 to 1 percent slopes	---	1,327	---	1,327	*
360	Hosta-Concho association, 0 to 5 percent slopes	617	35,231	---	35,848	1.3
361	Monpark silty clay, 2 to 8 percent slopes	1,618	1,734	---	3,352	0.1
365	Vessilla-Rock outcrop complex, 2 to 15 percent slopes	---	60,187	---	60,187	2.1
366	Bosonoak loam, 1 to 5 percent slopes	333	2,654	---	2,987	0.1
367	Chunkmonk very gravelly fine sandy loam, 2 to 10 percent slopes	---	2,270	---	2,270	*
368	Simitarq-Celavar sandy loams, 2 to 8 percent slopes	---	25,686	---	25,686	0.9
375	Todest-Shadilto complex, 2 to 8 percent slopes	---	7,001	---	7,001	0.2
376	Todest fine sandy loam, 2 to 8 percent slopes	---	3,688	---	3,688	0.1
380	Berryhill-Casamero clays, 2 to 10 percent slopes	---	5,364	---	5,364	0.2
385	Mcorreon-Rock outcrop complex, 10 to 40 percent slopes	---	7,936	---	7,936	0.3
390	Banquito very fine sandy loam, 1 to 3 percent slopes	---	1,933	---	1,933	*
395	Cabezon-Mcorreon complex, 2 to 8 percent slopes	---	2,445	---	2,445	*
400	Shoemaker-Stozuni complex, 2 to 8 percent slopes	3,178	8,442	---	11,620	0.4
403	Valnor-Techado complex, 2 to 25 percent slopes	1,285	4,329	---	5,614	0.2
404	Rock outcrop-Techado-Stozuni complex, 5 to 60 percent slopes	2,453	20,154	---	22,607	0.8
405	Fortwingate-Owlrock complex, 2 to 8 percent slopes	---	11,209	---	11,209	0.4
406	Polich silt loam, 0 to 3 percent slopes	---	392	---	392	*
407	Cinnadale-Heckly association, 5 to 40 percent slopes	---	2,112	---	2,112	*
408	Mirabal-Zuni complex, 1 to 40 percent slopes	---	3,419	---	3,419	0.1
409	Rauster-Rock outcrop complex, 5 to 35 percent slopes	---	1,497	---	1,497	*
410	Montillo-Tsoodzil complex, 5 to 35 percent slopes	116	4,823	---	4,939	0.2
411	Ligocki-Robolata complex, 1 to 5 percent slopes	---	2,911	---	2,911	0.1

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Cibola County	McKinley County	San Juan County	Total	
					Area	Extent
		Acres	Acres	Acres	Acres	Pct
412	Rock outcrop-Rionutria-Zaster association, 15 to 80 percent slopes	---	1,310	---	1,310	*
413	Morclay silty clay, 1 to 5 percent slopes	---	685	---	685	*
414	Zunalei-Corzuni loamy fine sands, 2 to 10 percent slopes	1,250	5,369	---	6,619	0.2
415	Tsoodzil-Rubble land complex, 10 to 55 percent slopes	---	4,673	---	4,673	0.2
416	Rock outcrop-Bluesky complex, 5 to 80 percent slopes	---	1,155	---	1,155	*
418	Asaayi-Osoridge complex, 2 to 15 percent slopes	---	3,795	---	3,795	0.1
419	Fortwingate-Cinnadale-Rock outcrop complex, 5 to 45 percent slopes	---	1,768	---	1,768	*
420	Seco clay loam, 1 to 5 percent slopes	---	1,132	---	1,132	*
425	Montillo-Canoneros complex, 2 to 6 percent slopes	198	13,430	---	13,628	0.5
430	Montillo gravelly loam, 2 to 6 percent slopes	330	15,067	---	15,397	0.5
435	Tsoodzil-Amcec association, 5 to 50 percent slopes	126	10,975	---	11,101	0.4
440	Chivato clay, 0 to 1 percent slopes	---	1,131	---	1,131	*
525	Silcat clay loam, 1 to 10 percent slopes	3,065	5,100	---	8,165	0.3
550	Bryway-Galzuni loams, 1 to 8 percent slopes	7,803	32,118	---	39,921	1.4
555	Parkelei-Evpark fine sandy loams, 2 to 8 percent slopes	4,593	58,325	---	62,918	2.2
560	Flugle-Teczuni complex, 1 to 5 percent slopes	1,787	4,329	---	6,116	0.2
561	Flugle-Plumasano association, 2 to 8 percent slopes	9,000	11,459	---	20,459	0.7
565	Plumasano-Rock outcrop complex, 15 to 40 percent slopes	4,635	21,047	---	25,682	0.9
566	Bamac extremely gravelly sandy loam, 5 to 50 percent slopes	---	4,524	---	4,524	0.2
575	Ramah-Pescado association, 1 to 8 percent slopes	---	1,528	---	1,528	*
	Total	79,668	2,699,606	58,265	2,837,539	100.0

* Less than 0.1 percent.

Table 5.--Land Capability for Irrigated Land and Yields Per Acre of Crops and Pasture

(Yields are those that can be expected under a high level of management. They are for irrigated areas. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil.)

Map symbol and soil name	Land capability	Alfalfa hay	Corn	Pasture	Wheat
		Tons	Bu	AUM	Bu
40:					
Nuffel	4w	3.00	25.00	5.00	20.00
42:					
Suwanee	4w	3.00	30.00	4.00	25.00
44:					
Suwanee	4w	3.00	40.00	5.00	25.00
45:					
Nutreeah	3s	3.00	40.00	5.00	25.00
47:					
Conchovar	3s	4.00	30.00	5.00	30.00
49:					
Concho	3c	4.00	30.00	4.00	30.00
51:					
Kwakina	4e	4.00	30.00	4.00	20.00
52:					
Zuniven	4w	---	30.00	3.00	20.00
53:					
Hawaikuh	2s	---	30.00	4.00	20.00
54:					
Venadito	4w	3.00	20.00	5.00	20.00
55:					
Sparham	4w	3.00	20.00	5.00	20.00
60:					
Redpen	2c	4.00	30.00	4.00	20.00
225:					
Aquima	3e	3.00	30.00	4.00	20.00
Hawaikuh	3e	3.00	30.00	4.00	20.00
310:					
Parkelei	4e	4.00	30.00	5.00	30.00
312:					
Bluewater	3s	---	---	4.00	---
325:					
Venzuni	3s	2.00	30.00	4.00	30.00
335:					
Venadito	4w	2.00	15.00	5.00	20.00

Table 5.--Land Capability for Irrigated Land and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Alfalfa hay	Corn	Pasture	Wheat
		Tons	Bu	AUM	Bu
336:					
Nuffel	4w	3.00	60.00	5.00	30.00
Venadito	4w	3.00	60.00	8.00	30.00
352:					
Zia	3e	4.00	30.00	4.00	20.00
353:					
Mido	3e	3.00	15.00	5.00	20.00
354:					
Knifehill	3c	3.00	15.00	5.00	30.00
357:					
Heshotauthla	4w	3.00	15.00	5.00	30.00
525:					
Silcat	4e	3.00	15.00	5.00	30.00
550:					
Bryway	4e	3.00	15.00	5.00	30.00
Galzuni	4e	3.00	15.00	5.00	30.00
575:					
Ramah	3c	4.00	30.00	4.00	30.00

Table 6.--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			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		
10:						
Tsosie	Salt Flats	700	500	300	alkali sacaton	25
					galleta	15
					fourwing saltbush	10
					big sagebrush	5
					blue grama	5
					greasewood	5
					mound saltbush	5
					other annual forbs	5
					miscellaneous perennial forbs	5
					western wheatgrass	5
Councelor	Sandy	900	600	300	Indian ricegrass	20
					blue grama	10
					big sagebrush	5
					bottlebrush squirreltail	5
					needle and thread	5
					sand dropseed	5
					spike dropseed	5
					winterfat	5
					mesa dropseed	3
					Mormon tea	3
					other annual forbs	3
					miscellaneous perennial forbs	3
					giant dropseed	2
Blancot	Loamy	800	500	300	big sagebrush	15
					blue grama	15
					Indian ricegrass	10
					galleta	10
					alkali sacaton	5
					bottlebrush squirreltail	5
					fourwing saltbush	5
					needle and thread	5
					other annual forbs	5
					miscellaneous perennial forbs	5
					perennial forbs	5
					sand dropseed	5
					western wheatgrass	5
					rabbitbrush	3
					winterfat	3
					Mormon tea	2

Table 6.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
11:						
Doakum	Loamy	800	500	300	western wheatgrass	20
					big sagebrush	15
					blue grama	15
					Indian ricegrass	10
					galleta	10
					alkali sacaton	5
					bottlebrush squirreltail	5
					fourwing saltbush	5
					galleta	5
					needle and thread	5
					oneseed juniper	5
					other annual forbs	5
					miscellaneous perennial forbs	5
					perennial forbs	5
					sand dropseed	5
					western wheatgrass	5
					winterfat	5
					muttongrass	3
					miscellaneous perennial forbs	3
					rabbitbrush	3
					winterfat	3
					Mormon tea	2
					spineless horsebrush	2
					twoneedle pinyon	2
Betonnie	Sandy	900	600	300	Indian ricegrass	20
					blue grama	10
					big sagebrush	5
					bottlebrush squirreltail	5
					needle and thread	5
					sand dropseed	5
					spike dropseed	5
					winterfat	5
					mesa dropseed	3
					Mormon tea	3
					other annual forbs	3
					miscellaneous perennial forbs	3
					giant dropseed	2
12:						
Calladito	Deep Sand	1,100	800	500	Indian ricegrass	30
					fourwing saltbush	10
					galleta	10
					sand dropseed	10
					blue grama	5
					sand sagebrush	5
					spike dropseed	5
					broom snakeweed	3
					mesa dropseed	3
					sandhill muhly	3
					giant dropseed	2
					Mormon tea	2
					needle and thread	2

Table 6.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
12:						
Elias	Sodic Slopes	500	350	200	alkali sacaton	30
					galleta	20
					blue grama	5
					fourwing saltbush	5
					greasewood	5
					mound saltbush	5
					western wheatgrass	5
					big sagebrush	3
					other annual forbs	3
					miscellaneous perennial forbs	3
					shadscale saltbush	3
					threeawn	3
13:						
Councelor	Sandy	900	600	300	Indian ricegrass	20
					blue grama	10
					big sagebrush	5
					bottlebrush squirreltail	5
					needle and thread	5
					sand dropseed	5
					spike dropseed	5
					winterfat	5
					mesa dropseed	3
					Mormon tea	3
					other annual forbs	3
					miscellaneous perennial forbs	3
					giant dropseed	2
Calladito	Deep Sand	1,100	800	500	Indian ricegrass	30
					fourwing saltbush	10
					galleta	10
					sand dropseed	10
					blue grama	5
					sand sagebrush	5
					spike dropseed	5
					broom snakeweed	3
					mesa dropseed	3
					sandhill muhly	3
					Mormon tea	2
					giant dropseed	2
					needle and thread	2

Table 6.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
14:						
Councelor	Sandy	900	600	300	Indian ricegrass	20
					blue grama	10
					big sagebrush	5
					bottlebrush squirreltail	5
					needle and thread	5
					sand dropseed	5
					spike dropseed	5
					winterfat	5
					mesa dropseed	3
					Mormon tea	3
					other annual forbs	3
					miscellaneous perennial forbs	3
					giant dropseed	2
Eslendo	Shallow	600	350	150	Indian ricegrass	15
					New Mexico Feathergrass	10
					galleta	10
					Ephedra	5
					alkali sacaton	5
					big sagebrush	5
					blue grama	5
					bottlebrush squirreltail	5
					fourwing saltbush	5
					other annual forbs	5
					miscellaneous perennial forbs	5
					Bigelow sagebrush	3
					rabbitbrush	3
					sand dropseed	3
Calladito	Deep Sand	1,100	800	500	Indian ricegrass	30
					fourwing saltbush	10
					galleta	10
					sand dropseed	10
					blue grama	5
					sand sagebrush	5
					spike dropseed	5
					broom snakeweed	3
					mesa dropseed	3
					sandhill muhly	3
					Mormon tea	2
					giant dropseed	2
					needle and thread	2

Table 6.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
16:						
Starlake	Sodic Slopes	500	350	200	alkali sacaton	30
					galleta	20
					blue grama	5
					fourwing saltbush	5
					greasewood	5
					mound saltbush	5
					western wheatgrass	5
					other annual forbs	3
					miscellaneous perennial forbs	3
					shadscale saltbush	3
					threeawn	3
22:						
Querencia	Loamy	1,500	1,000	500	blue grama	20
					western wheatgrass	20
					miscellaneous perennial forbs	8
					spike muhly	8
					alkali sacaton	5
					bottlebrush squirreltail	5
					fourwing saltbush	5
					galleta	5
					other annual forbs	5
					winterfat	5
					oneseed juniper	2
					broom snakeweed	1
					rabbitbrush	1
					spineless horsebrush	1
Lavodnas	Shallow	850	550	300	winterfat	20
					Indian ricegrass	10
					alkali sacaton	10
					galleta	10
					needle and thread	10
					blue grama	5
					fourwing saltbush	5
					western wheatgrass	5
					Bigelow sagebrush	3
					other annual forbs	3
					miscellaneous perennial forbs	3
					Mormon tea	2
					oneseed juniper	2
					twoneedle pinyon	1

Table 6.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
30:						
Orlie	Loamy	1,100	850	600	western wheatgrass	20
					Indian ricegrass	10
					big sagebrush	10
					blue grama	10
					bottlebrush squirreltail	5
					galleta	5
					winterfat	5
					broom snakeweed	3
					muttongrass	3
					other annual forbs	3
					miscellaneous perennial forbs	3
					rabbitbrush	3
					spineless horsebrush	3
					oneseed juniper	2
					twoneedle pinyon	2
Tinian	Loamy	1,100	850	600	western wheatgrass	20
					Indian ricegrass	10
					big sagebrush	10
					blue grama	10
					bottlebrush squirreltail	5
					galleta	5
					other annual forbs	5
					spineless horsebrush	5
					winterfat	5
					muttongrass	3
					oneseed juniper	2
					twoneedle pinyon	2
40:						
Nuffel	Bottomland	4,500	3,000	1,250	alkali sacaton	30
					western wheatgrass	20
					fourwing saltbush	10
					blue grama	5
					galleta	5
					miscellaneous perennial forbs	5
					spike muhly	5
					mat muhly	3
					other annual forbs	3
					sand dropseed	3
					spineless horsebrush	1
42:						
Suwanee	Bottomland	4,500	3,000	1,250	alkali sacaton	30
					western wheatgrass	20
					fourwing saltbush	10
					blue grama	5
					galleta	5
					miscellaneous perennial forbs	5
					spike muhly	5
					mat muhly	3
					other annual forbs	3
					sand dropseed	3
					spineless horsebrush	1

Table 6.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
44:						
Suwanee	Clayey Bottomland	4,000	3,000	1,250	western wheatgrass	25
					alkali sacaton	20
					fourwing saltbush	10
					galleta	10
					blue grama	5
					spike muhly	5
					mat muhly	3
					other annual forbs	3
					miscellaneous perennial forbs	2
					broom snakeweed	1
					rabbitbrush	1
45:						
Nutreeah	Clayey	1,200	1,000	800	western wheatgrass	25
					alkali sacaton	15
					big sagebrush	5
					blue grama	5
					bottlebrush squirreltail	5
					fourwing saltbush	5
					galleta	5
					other annual forbs	5
					miscellaneous perennial forbs	5
					Indian ricegrass	3
					rabbitbrush	3
					winterfat	3
47:						
Conchovar	Salty Bottomland	2,500	1,500	800	alkali sacaton	30
					western wheatgrass	20
					bottlebrush squirreltail	10
					fourwing saltbush	10
					galleta	10
					big sagebrush	5
					blue grama	5
					greasewood	5
					inland saltgrass	5
					other annual forbs	5
					miscellaneous perennial forbs	5
					mat muhly	3
49:						
Concho	Clayey	1,200	1,000	800	western wheatgrass	25
					alkali sacaton	15
					big sagebrush	5
					blue grama	5
					bottlebrush squirreltail	5
					fourwing saltbush	5
					galleta	5
					other annual forbs	5
					miscellaneous perennial forbs	5
					Indian ricegrass	3
					rabbitbrush	3
					winterfat	3

Table 6.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
51:						
Kwakina	Bottomland	4,500	3,000	1,250	alkali sacaton	30
					western wheatgrass	20
					fourwing saltbush	10
					blue grama	5
					galleta	5
					miscellaneous perennial forbs	5
					spike muhly	5
					mat muhly	3
					other annual forbs	3
					sand dropseed	3
					spineless horsebrush	1
52:						
Zuniven	Riparian	---	---	---	cottonwood	---
					rush	---
					willow	---
53:						
Hawaikuh	Clayey	1,200	1,000	800	alkali sacaton	20
					western wheatgrass	20
					galleta	10
					Indian ricegrass	5
					blue grama	5
					bottlebrush squirreltail	5
					broom snakeweed	5
					fourwing saltbush	5
					threeawn	5
					winterfat	5
					mat muhly	3
					spike muhly	2
					oneseed juniper	1
54:						
Venadito	Clayey Bottomland	2,500	1,600	800	alkali sacaton	30
					western wheatgrass	15
					fourwing saltbush	10
					blue grama	5
					greasewood	5
					inland saltgrass	5
					other annual forbs	5
					miscellaneous perennial forbs	5
					mat muhly	3
55:						
Sparham	Swale	1,700	1,200	800	western wheatgrass	30
					blue grama	10
					big sagebrush	5
					muttongrass	5
					rabbitbrush	5
					broom snakeweed	3
					other annual forbs	3
					miscellaneous perennial forbs	2
					sedge	2

Table 6.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
60:						
Redpen	Loamy	1,500	1,000	500	blue grama	20
					western wheatgrass	20
					miscellaneous perennial forbs	8
					spike muhly	8
					alkali sacaton	5
					bottlebrush squirreltail	5
					fourwing saltbush	5
					galleta	5
					other annual forbs	5
					winterfat	5
					oneseed juniper	2
					broom snakeweed	1
					rabbitbrush	1
					spineless horsebrush	1
100:						
Norkiki	Sandy Loam Upland 5-8 Pz	250	200	100	Indian ricegrass	20
					galleta	15
					Bigelow sagebrush	10
					New Mexico Feathergrass	10
					Ephedra	5
					alkali sacaton	5
					blue grama	5
					other annual forbs	3
					rabbitbrush	3
					black grama	2
					fourwing saltbush	2
					miscellaneous perennial forbs	2
					shadscale saltbush	2
					narrowleaf yucca	1
					sand dropseed	1
Kimnoli	Sandstone Upland 5-8" P.z.	250	200	100	Indian ricegrass	20
					Bigelow sagebrush	10
					galleta	10
					New Mexico Feathergrass	5
					black grama	5
					blue grama	5
					fourwing saltbush	5
					Mormon tea	5
					sand dropseed	5
					shadscale saltbush	5
					sideoats grama	5
					other annual forbs	3
					miscellaneous perennial forbs	2
					narrowleaf yucca	1

Table 6.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
110:						
Benally	Loamy Upland (sodic) 5-8" P.z.	500	400	300	alkali sacaton	25
					mound saltbush	15
					galleta	10
					Indian ricegrass	5
					blue grama	3
					other annual forbs	3
					miscellaneous perennial forbs	2
					sand dropseed	1
					shadscale saltbush	1
Fruitland	Sandy Upland 5-8" P.z.	550	400	300	Indian ricegrass	30
					blue grama	10
					galleta	10
					fourwing saltbush	5
					winterfat	5
					bottlebrush squirreltail	3
					miscellaneous perennial forbs	3
					other annual forbs	2
					sand dropseed	2
					broom snakeweed	1
					rabbitbrush	1
					sandhill muhly	1
111:						
Yelives	Loamy Upland 5-8" P.z.	550	450	350	blue grama	15
					western wheatgrass	15
					Indian ricegrass	10
					fourwing saltbush	10
					sand dropseed	10
					needle and thread	5
					other annual forbs	5
					miscellaneous perennial forbs	5
					spike dropseed	5
					winterfat	5
					galleta	3
					ring muhly	3
					rabbitbrush	1
					sand sagebrush	1
					spineless horsebrush	1
115:						
Razito	Sandy Upland 5-8" P.z.	500	350	250	Indian ricegrass	20
					Ephedra	10
					blue grama	5
					galleta	5
					sand dropseed	5
					sandhill muhly	5
					spike dropseed	3
					broom snakeweed	2
					fourwing saltbush	2
					giant dropseed	2
					needle and thread	2
					other annual forbs	2
					miscellaneous perennial forbs	2
					rabbitbrush	2
					winterfat	1

Table 6.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
115:						
Shiprock	Sandy Loam Upland 5-8 Pz	550	400	300	Indian ricegrass	30
					blue grama	10
					galleta	10
					fourwing saltbush	5
					winterfat	5
					bottlebrush squirreltail	3
					miscellaneous perennial forbs	3
					other annual forbs	2
					sand dropseed	2
					broom snakeweed	1
					rabbitbrush	1
					sandhill muhly	1
116:						
Fajada	Loamy Upland (sodic) 5-8" P.z.	500	400	300	alkali sacaton	25
					mound saltbush	15
					saltbush	15
					galleta	10
					Indian ricegrass	5
					blue grama	3
					other annual forbs	3
					miscellaneous perennial forbs	2
					sand dropseed	1
					shadscale saltbush	1
Huerfano	Loamy Upland (sodic) 5-8" P.z.	500	400	300	alkali sacaton	25
					mound saltbush	15
					galleta	10
					Indian ricegrass	5
					blue grama	3
					other annual forbs	3
					miscellaneous perennial forbs	2
					sand dropseed	1
					shadscale saltbush	1
Benally	Loamy Upland (sodic) 5-8" P.z.	500	400	300	alkali sacaton	25
					mound saltbush	15
					galleta	10
					Indian ricegrass	5
					blue grama	3
					other annual forbs	3
					miscellaneous perennial forbs	2
					sand dropseed	1
					shadscale saltbush	1

Table 6.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
118:						
Farb	Sandstone Upland 5-8" P.z.	250	175	100	Indian ricegrass	20
					Bigelow sagebrush	10
					galleta	10
					Ephedra	5
					New Mexico Feathergrass	5
					black grama	5
					blue grama	5
					fourwing saltbush	5
					sand dropseed	5
					shadscale saltbush	5
					sideoats grama	5
					other annual forbs	3
					miscellaneous perennial forbs	2
					narrowleaf yucca	1
Chipeta	Breaks 5-8" P.z.	300	225	150	mat saltbush	55
					galleta	10
					miscellaneous shrubs	10
					Native American pipeweed	5
					bottlebrush squirreltail	5
					bud sagebrush	5
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
Rock outcrop	---	---	---	---	---	---
120:						
Doak	Loamy Upland 5-8" P.z.	550	400	350	galleta	25
					Indian ricegrass	15
					fourwing saltbush	10
					alkali sacaton	5
					black grama	5
					blue grama	5
					bottlebrush squirreltail	5
					miscellaneous perennial forbs	3
					rabbitbrush	3
					winterfat	3
					sand dropseed	2
					other annual forbs	1
Shiprock	Sandy Loam Upland 5-8 Pz	550	425	300	Indian ricegrass	30
					blue grama	10
					galleta	10
					fourwing saltbush	5
					winterfat	5
					bottlebrush squirreltail	3
					miscellaneous perennial forbs	3
					other annual forbs	2
					sand dropseed	2
					broom snakeweed	1
					rabbitbrush	1
					sandhill muhly	1
121:						
Badland	---	---	---	---	---	---

Table 6.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
122:						
Farb	Sandstone Upland 5-8" P.z.	250	175	100	Indian ricegrass	20
					Bigelow sagebrush	10
					galleta	10
					New Mexico Feathergrass	5
					black grama	5
					blue grama	5
					fourwing saltbush	5
					Mormon tea	5
					sand dropseed	5
					shadscale saltbush	5
					sideoats grama	5
					other annual forbs	3
					miscellaneous perennial forbs	2
					narrowleaf yucca	1
Rock outcrop	---	---	---	---	---	---
125:						
Sanfeco	Loamy Terrace 5-8" P.z.	600	500	400	Indian ricegrass	20
					fourwing saltbush	20
					galleta	15
					alkali sacaton	10
					other annual forbs	7
					blue grama	5
					bottlebrush squirreltail	5
					sand dropseed	5
					broom snakeweed	2
					globemallow	2
					miscellaneous perennial forbs	2
130:						
Chipeta	Breaks 5-8" P.z.	300	225	150	mat saltbush	55
					galleta	10
					miscellaneous shrubs	10
					Native American pipeweed	5
					bottlebrush squirreltail	5
					bud sagebrush	5
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
Badlands	---	---	---	---	---	---
Moncisco	Porcelanite Hills 5-8" P.z.	550	450	350	alkali sacaton	25
					shadscale saltbush	20
					galleta	15
					Indian ricegrass	10
					bottlebrush squirreltail	5
					mound saltbush	5
					miscellaneous perennial forbs	5
					miscellaneous perennial grasses	5
					miscellaneous shrubs	5

Table 6.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
150:						
Riverwash	---	---	---	---	---	---
Escawetter	Sandy Bottomland (subirrigated)	3,000	2,000	1,200	alkali sacaton	20
					inland saltgrass	20
					Indian ricegrass	10
					miscellaneous perennial grasses	5
					saltcedar	5
					sand dropseed	5
					western wheatgrass	5
					Russian-olive	3
					miscellaneous perennial forbs	3
					bottlebrush squirreltail	2
160:						
Escawetter	Sandy Bottom (subirrigated) 5-8" P.z.	1,000	800	600	alkali sacaton	20
					inland saltgrass	20
					Indian ricegrass	10
					miscellaneous perennial grasses	5
					saltcedar	5
					sand dropseed	5
					western wheatgrass	5
					Russian-olive	3
					miscellaneous perennial forbs	3
					bottlebrush squirreltail	2
Riverwash	---	---	---	---	---	---
Razito	Sandy Upland 5-8" P.z.	500	400	250	Indian ricegrass	20
					Mormon tea	10
					blue grama	5
					galleta	5
					sand dropseed	5
					sandhill muhly	5
					spike dropseed	3
					broom snakeweed	2
					fourwing saltbush	2
					giant dropseed	2
					needle and thread	2
					other annual forbs	2
					miscellaneous perennial forbs	2
					rabbitbrush	2
					winterfat	1
205:						
Penistaja	Loamy	1,500	1,000	500	blue grama	20
					western wheatgrass	20
					miscellaneous perennial forbs	8
					spike muhly	8
					alkali sacaton	5
					bottlebrush squirreltail	5
					fourwing saltbush	5
					galleta	5
					other annual forbs	5
					winterfat	5
					oneseed juniper	2
					broom snakeweed	1
					rabbitbrush	1
					spineless horsebrush	1

Table 6.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
205:						
Tintero	Sandy	1,200	900	600	blue grama	25
					western wheatgrass	15
					Indian ricegrass	10
					sand dropseed	10
					fourwing saltbush	5
					other annual forbs	5
					miscellaneous perennial forbs	5
					spike dropseed	5
					winterfat	5
					galleta	3
					ring muhly	3
					oneseed juniper	2
					rabbitbrush	1
					sand sagebrush	1
					sand sagebrush	1
					spineless horsebrush	1
208:						
Marianolake	Loamy	1,500	1,000	500	blue grama	20
					western wheatgrass	20
					miscellaneous perennial forbs	8
					spike muhly	8
					alkali sacaton	5
					bottlebrush squirreltail	5
					fourwing saltbush	5
					galleta	5
					other annual forbs	5
					winterfat	5
					oneseed juniper	2
					broom snakeweed	1
					rabbitbrush	1
					spineless horsebrush	1
210:						
Marianolake	Loamy	1,500	1,000	500	blue grama	20
					western wheatgrass	20
					miscellaneous perennial forbs	8
					spike muhly	8
					alkali sacaton	5
					bottlebrush squirreltail	5
					fourwing saltbush	5
					galleta	5
					other annual forbs	5
					winterfat	5
					oneseed juniper	2
					broom snakeweed	1
					rabbitbrush	1
					spineless horsebrush	1

Table 6.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
210:						
Skyvillage	Shallow Sandstone	700	500	275	Bigelow sagebrush	10
					blue grama	10
					fourwing saltbush	10
					galleta	10
					Indian ricegrass	5
					New Mexico Feathergrass	5
					little bluestem	5
					shadscale saltbush	5
					sideoats grama	5
					winterfat	5
					cliffrose	3
					Mormon tea	3
					oneseed juniper	3
					twoneedle pinyon	2
212:						
Rehobeth	Salty Bottomland	2,500	1,600	800	alkali sacaton	30
					western wheatgrass	20
					bottlebrush squirreltail	10
					fourwing saltbush	10
					galleta	10
					big sagebrush	5
					blue grama	5
					greasewood	5
					inland saltgrass	5
					other annual forbs	5
					miscellaneous perennial forbs	5
					mat muhly	3
215:						
Viuda	Malpais	500	350	200	blue grama	15
					galleta	15
					alkali sacaton	10
					hairy grama	10
					sideoats grama	10
					black grama	5
					common wolfstail	5
					fourwing saltbush	5
					little bluestem	5
					spike muhly	5
Penistaja	Loamy	1,500	1,000	500	blue grama	20
					western wheatgrass	20
					miscellaneous perennial forbs	8
					spike muhly	8
					alkali sacaton	5
					bottlebrush squirreltail	5
					fourwing saltbush	5
					galleta	5
					other annual forbs	5
					winterfat	5
					oneseed juniper	2
					broom snakeweed	1
					rabbitbrush	1
					spineless horsebrush	1
Rock outcrop	---	---	---	---	---	---

Table 6.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
220:						
Hagerwest	Loamy	1,500	1,000	500	blue grama	20
					western wheatgrass	20
					miscellaneous perennial forbs	8
					spike muhly	8
					alkali sacaton	5
					bottlebrush squirreltail	5
					fourwing saltbush	5
					galleta	5
					other annual forbs	5
					winterfat	5
					oneseed juniper	2
					broom snakeweed	1
					rabbitbrush	1
					spineless horsebrush	1
Bond	Shallow Sandstone	700	500	275	Bigelow sagebrush	10
					blue grama	10
					fourwing saltbush	10
					Indian ricegrass	5
					New Mexico Feathergrass	5
					galleta	5
					little bluestem	5
					other annual forbs	5
					miscellaneous perennial forbs	5
					sideoats grama	5
					winterfat	5
					Ephedra	3
					cliffrose	3
					oneseed juniper	3
					twoneedle pinyon	2
225:						
Aquima	Loamy	1,500	1,000	500	blue grama	20
					western wheatgrass	20
					miscellaneous perennial forbs	8
					spike muhly	8
					alkali sacaton	5
					bottlebrush squirreltail	5
					fourwing saltbush	5
					galleta	5
					other annual forbs	5
					winterfat	5
					oneseed juniper	2
					broom snakeweed	1
					rabbitbrush	1
					spineless horsebrush	1
Hawaikuh	Clayey	1,200	1,000	800	alkali sacaton	20
					western wheatgrass	20
					galleta	10
					Indian ricegrass	5
					blue grama	5
					bottlebrush squirreltail	5
					broom snakeweed	5
					fourwing saltbush	5
					threeawn	5
					winterfat	5
					mat muhly	3
					spike muhly	2

Table 6.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
230:						
Sparank	Clayey Bottomland	4,000	2,500	1,250	western wheatgrass	25
					alkali sacaton	20
					fourwing saltbush	10
					galleta	10
					blue grama	5
					spike muhly	5
					mat muhly	3
					other annual forbs	3
					miscellaneous perennial forbs	2
					broom snakeweed	1
					rabbitbrush	1
San Mateo	Bottomland	4,500	2,600	1,250	alkali sacaton	30
					western wheatgrass	20
					fourwing saltbush	10
					blue grama	5
					galleta	5
					miscellaneous perennial forbs	5
					spike muhly	5
					mat muhly	3
					other annual forbs	3
					sand dropseed	3
					spineless horsebrush	1
Zia	Sandy	1,200	900	600	blue grama	25
					western wheatgrass	15
					Indian ricegrass	10
					sand dropseed	10
					fourwing saltbush	5
					other annual forbs	5
					miscellaneous perennial forbs	5
					spike dropseed	5
					winterfat	5
					galleta	3
					ring muhly	3
					oneseed juniper	2
					rabbitbrush	1
					sand sagebrush	1
					sand sagebrush	1
					spineless horsebrush	1
235:						
Notal	Clay Loam Terrace (sodic) 5-8" P.z.	600	500	400	alkali sacaton	30
					mound saltbush	25
					galleta	10
					greasewood	5
Hamburn	Saline Bottom 5-8" P.z.	1,600	1,200	800	alkali sacaton	50
					galleta	15
					Indian ricegrass	10
					mound saltbush	10
					miscellaneous perennial grasses	5
					western wheatgrass	5
					miscellaneous shrubs	3
					perennial forbs	3
					black greasewood	1
					fourwing saltbush	1

Table 6.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
240:						
Breadsprings	Salty Bottomland	2,500	1,600	800	alkali sacaton	30
					western wheatgrass	20
					bottlebrush squirreltail	10
					fourwing saltbush	10
					galleta	10
					big sagebrush	5
					blue grama	5
					greasewood	5
					inland saltgrass	5
					other annual forbs	5
					miscellaneous perennial forbs	5
					mat muhly	3
Nahodish	Salty Bottomland	2,500	1,600	800	alkali sacaton	30
					western wheatgrass	15
					fourwing saltbush	10
					blue grama	5
					bottlebrush squirreltail	5
					greasewood	5
					inland saltgrass	5
					mound saltbush	5
					other annual forbs	5
					miscellaneous perennial forbs	5
					mat muhly	3
					rabbitbrush	3
241:						
Mentmore	Loamy	1,500	1,000	500	western wheatgrass	20
					Indian ricegrass	10
					big sagebrush	10
					blue grama	10
					bottlebrush squirreltail	5
					galleta	5
					oneseed juniper	5
					winterfat	5
					broom snakeweed	3
					muttongrass	3
					other annual forbs	3
					miscellaneous perennial forbs	3
					rabbitbrush	3
					spineless horsebrush	2
					twoneedle pinyon	2
242:						
Gish	Clayey	1,200	1,000	800	western wheatgrass	25
					alkali sacaton	15
					big sagebrush	5
					blue grama	5
					bottlebrush squirreltail	5
					fourwing saltbush	5
					galleta	5
					other annual forbs	5
					miscellaneous perennial forbs	5
					Indian ricegrass	3
					rabbitbrush	3
					winterfat	3

Table 6.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
242:						
Mentmore	Loamy	1,500	1,000	500	western wheatgrass	20
					Indian ricegrass	10
					big sagebrush	10
					blue grama	10
					bottlebrush squirreltail	5
					galleta	5
					oneseed juniper	5
					winterfat	5
					broom snakeweed	3
					muttongrass	3
					other annual forbs	3
					miscellaneous perennial forbs	3
					rabbitbrush	3
					spineless horsebrush	2
					twoneedle pinyon	2
244:						
Buckle	Loamy	1,500	1,000	500	western wheatgrass	20
					Indian ricegrass	10
					big sagebrush	10
					blue grama	10
					bottlebrush squirreltail	5
					galleta	5
					oneseed juniper	5
					winterfat	5
					broom snakeweed	3
					muttongrass	3
					other annual forbs	3
					miscellaneous perennial forbs	3
					rabbitbrush	3
					spineless horsebrush	2
					twoneedle pinyon	2
245:						
Buckle	Loamy	1,500	1,000	500	western wheatgrass	20
					Indian ricegrass	10
					big sagebrush	10
					blue grama	10
					bottlebrush squirreltail	5
					galleta	5
					oneseed juniper	5
					winterfat	5
					broom snakeweed	3
					muttongrass	3
					other annual forbs	3
					miscellaneous perennial forbs	3
					rabbitbrush	3
					spineless horsebrush	2
					twoneedle pinyon	2

Table 6.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
245:						
Gapmesa	Loamy	1,500	1,000	500	blue grama	20
					western wheatgrass	15
					Indian ricegrass	10
					big sagebrush	10
					galleta	10
					bottlebrush squirreltail	5
					fourwing saltbush	5
					needle and thread	5
					oneseed juniper	5
					sand dropseed	3
					spineless horsebrush	2
					rabbitbrush	1
					twoneedle pinyon	1
Barboncito	Loamy	700	500	275	blue grama	20
					western wheatgrass	15
					Indian ricegrass	10
					big sagebrush	10
					galleta	10
					bottlebrush squirreltail	5
					fourwing saltbush	5
					needle and thread	5
					oneseed juniper	5
					sand dropseed	3
					spineless horsebrush	2
					rabbitbrush	1
					twoneedle pinyon	1
250:						
Hospah	Shale Hills	660	425	250	alkali sacaton	15
					galleta	15
					Indian ricegrass	5
					blue grama	5
					bottlebrush squirreltail	5
					fourwing saltbush	5
					little bluestem	5
					needle and thread	5
					sideoats grama	5
					western wheatgrass	5
					mound saltbush	2
					shadscale saltbush	2
					Bigelow sagebrush	1
					oneseed juniper	1
					winterfat	1
Skyvillage	Shallow Sandstone	700	475	275	Bigelow sagebrush	10
					blue grama	10
					fourwing saltbush	10
					galleta	10
					Indian ricegrass	5
					New Mexico Feathergrass	5
					little bluestem	5
					shadscale saltbush	5
					sideoats grama	5
					winterfat	5
					cliffrose	3
					Mormon tea	3
					oneseed juniper	3
					twoneedle pinyon	2

Table 6.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
250:						
Rock outcrop	---	---	---	---	---	---
Eagleye	Clayey	660	475	250	western wheatgrass	25
					alkali sacaton	15
					big sagebrush	5
					blue grama	5
					bottlebrush squirreltail	5
					fourwing saltbush	5
					galleta	5
					other annual forbs	5
					miscellaneous perennial forbs	5
					Indian ricegrass	3
					rabbitbrush	3
					winterfat	3
Atchee	Clayey	700	500	275	alkali sacaton	20
					western wheatgrass	20
					galleta	10
					Indian ricegrass	5
					black sagebrush	5
					blue grama	5
					bottlebrush squirreltail	5
					broom snakeweed	5
					oneseed juniper	5
					threeawn	5
					twoneedle pinyon	5
					mat muhly	3
					spike muhly	2
Rock outcrop	---	---	---	---	---	---
270:						
Alesna	Foothills	750	500	375	blue grama	20
					galleta	10
					sideoats grama	10
					alkali sacaton	5
					black grama	5
					bottlebrush squirreltail	5
					fourwing saltbush	5
					little bluestem	5
					needle and thread	5
					winterfat	5
					common wolfstail	3
					oneseed juniper	3
					twoneedle pinyon	2
					yucca	2
Rock outcrop	---	---	---	---	---	---

Table 6.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
275:						
Eldado	Gravelly	900	600	350	blue grama	15
					sideoats grama	10
					Indian ricegrass	5
					black grama	5
					bottlebrush squirreltail	5
					little bluestem	5
					needle and thread	5
					western wheatgrass	5
					winterfat	5
					fourwing saltbush	3
					galleta	3
					oneseed juniper	2
					rabbitbrush	2
					sand dropseed	2
					twoneedle pinyon	1
280:						
Azabache	Loamy Upland (sodic) 5-8" P.z.	500	400	300	alkali sacaton	25
					mound saltbush	15
					galleta	10
					Indian ricegrass	5
					blue grama	3
					other annual forbs	3
					miscellaneous perennial forbs	2
					sand dropseed	1
					shadscale saltbush	1
290:						
Rock outcrop	---	---	---	---	---	---
Westmion	Foothills	750	500	375	Indian ricegrass	5
					Mormon tea	5
					blue grama	5
					cliffrose	5
					fourwing saltbush	5
					galleta	5
					little bluestem	5
					mountain mahogany	5
					sideoats grama	5
					winterfat	5
					oneseed juniper	1
					twoneedle pinyon	1
Skyvillage	Shallow Sandstone	750	500	275	Bigelow sagebrush	10
					blue grama	10
					fourwing saltbush	10
					galleta	10
					Indian ricegrass	5
					New Mexico Feathergrass	5
					little bluestem	5
					shadscale saltbush	5
					sideoats grama	5
					winterfat	5
					cliffrose	3
					Mormon tea	3
					oneseed juniper	3
					twoneedle pinyon	2

Table 6.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
291:						
Rock outcrop	---	---	---	---	---	---
Eagleye	Clayey	800	650	500	western wheatgrass	25
					alkali sacaton	15
					big sagebrush	5
					blue grama	5
					bottlebrush squirreltail	5
					fourwing saltbush	5
					galleta	5
					other annual forbs	5
					miscellaneous perennial forbs	5
					Indian ricegrass	3
					rabbitbrush	3
					winterfat	3
Atchee	Clayey	800	650	500	alkali sacaton	20
					western wheatgrass	20
					galleta	10
					Indian ricegrass	5
					blue grama	5
					bottlebrush squirreltail	5
					broom snakeweed	5
					oneseed juniper	5
					threeawn	5
					twoneedle pinyon	5
					winterfat	5
					mat muhly	3
					spike muhly	2
305:						
Celavar	Savannah	875	500	300	blue grama	20
					western wheatgrass	15
					Indian ricegrass	5
					needle and thread	5
					oneseed juniper	5
					other annual forbs	5
					miscellaneous perennial forbs	5
					sand dropseed	5
					twoneedle pinyon	5
					muttongrass	3
					rabbitbrush	3
					winterfat	3
					Bigelow sagebrush	2
					bottlebrush squirreltail	2
					spineless horsebrush	2
Atarque	Shallow Sandstone	700	500	275	Indian ricegrass	10
					New Mexico Feathergrass	10
					blue grama	10
					little bluestem	10
					sideoats grama	10
					Bigelow sagebrush	5
					fourwing saltbush	5
					galleta	5
					other annual forbs	5
					miscellaneous perennial forbs	5
					rabbitbrush	3
					twoneedle pinyon	3
					Mormon tea	2
					oneseed juniper	2

Table 6.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
308:						
Fikel	Clayey	1,200	800	600	alkali sacaton	20
					western wheatgrass	20
					galleta	10
					Indian ricegrass	5
					blue grama	5
					bottlebrush squirreltail	5
					broom snakeweed	5
					fourwing saltbush	5
					threeawn	5
					winterfat	5
					mat muhly	3
					spike muhly	2
Venzuni	Clayey	1,200	800	600	alkali sacaton	20
					western wheatgrass	20
					galleta	10
					Indian ricegrass	5
					blue grama	5
					bottlebrush squirreltail	5
					broom snakeweed	5
					fourwing saltbush	5
					threeawn	5
					turpentine bush	5
					winterfat	5
					mat muhly	3
					spike muhly	2
310:						
Parkelei	Loamy	1,100	800	600	western wheatgrass	20
					Indian ricegrass	10
					big sagebrush	10
					blue grama	10
					bottlebrush squirreltail	5
					galleta	5
					oneseed juniper	5
					winterfat	5
					broom snakeweed	3
					muttongrass	3
					other annual forbs	3
					miscellaneous perennial forbs	3
					rabbitbrush	3
					spineless horsebrush	2
					twoneedle pinyon	2
312:						
Bluewater	Meadow	3,000	2,000	1,500	western wheatgrass	20
					rush	10
					sedge	10
					California brome	5
					bottlebrush squirreltail	5
					slender wheatgrass	5
					willow	5
					clover	3
					other annual forbs	3
					miscellaneous perennial forbs	3

Table 6.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
315:						
Fragua	Sandy Slopes	1,800	1,200	600	Indian ricegrass	15
					blue grama	10
					western wheatgrass	10
					galleta	5
					needle and thread	5
					other annual forbs	5
					miscellaneous perennial forbs	5
					rabbitbrush	5
					sand dropseed	5
					spineless horsebrush	5
					threeawn	5
					oneseed juniper	3
					ring muhly	3
					twoneedle pinyon	1
316:						
Royosa	Sandy Plains	1,100	800	500	blue grama	20
					Indian ricegrass	10
					big sagebrush	10
					oneseed juniper	10
					sand sagebrush	10
					little bluestem	5
					other annual forbs	5
					miscellaneous perennial forbs	5
					rabbitbrush	5
					twoneedle pinyon	5
					antelope bitterbrush	2
					cliffrose	2
					spineless horsebrush	---
325:						
Venzuni	Clayey	3,000	2,000	1,500	western wheatgrass	25
					alkali sacaton	15
					big sagebrush	5
					blue grama	5
					bottlebrush squirreltail	5
					fourwing saltbush	5
					galleta	5
					other annual forbs	5
					miscellaneous perennial forbs	5
					Indian ricegrass	3
					rabbitbrush	3
					winterfat	3
335:						
Venadito	Clayey Bottomland	4,000	2,500	1,250	western wheatgrass	25
					alkali sacaton	20
					fourwing saltbush	10
					galleta	10
					blue grama	5
					spike muhly	5
					mat muhly	3
					other annual forbs	3
					miscellaneous perennial forbs	2
					broom snakeweed	1
					rabbitbrush	1

Table 6.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
336:						
Nuffel	Bottomland	4,500	3,000	1,250	alkali sacaton	30
					western wheatgrass	20
					fourwing saltbush	10
					blue grama	5
					galleta	5
					miscellaneous perennial forbs	5
					spike muhly	5
					mat muhly	3
					other annual forbs	3
					sand dropseed	3
					spineless horsebrush	1
Venadito	Clayey Bottomland	4,000	3,000	1,250	western wheatgrass	25
					alkali sacaton	20
					fourwing saltbush	10
					galleta	10
					blue grama	5
					spike muhly	5
					mat muhly	3
					other annual forbs	3
					miscellaneous perennial forbs	2
					broom snakeweed	1
					rabbitbrush	1
338:						
Zyme	Clayey	600	400	150	western wheatgrass	25
					alkali sacaton	15
					big sagebrush	5
					blue grama	5
					bottlebrush squirreltail	5
					fourwing saltbush	5
					galleta	5
					other annual forbs	5
					miscellaneous perennial forbs	5
					Indian ricegrass	3
					rabbitbrush	3
					winterfat	3
Lockerby	Clayey	600	400	150	alkali sacaton	20
					western wheatgrass	20
					galleta	10
					Indian ricegrass	5
					blue grama	5
					bottlebrush squirreltail	5
					broom snakeweed	5
					fourwing saltbush	5
					threeawn	5
					winterfat	5
					mat muhly	3
					spike muhly	2

Table 6.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
351:						
Rock outcrop	---	---	---	---	---	---
Vessilla	Shallow Savannah	500	300	200	Gambel oak	---
					antelope bitterbrush	---
					banana yucca	---
					big sagebrush	---
					blue grama	---
					broom snakeweed	---
					buckwheat	---
					little bluestem	---
					mountain mahogany	---
					muttongrass	---
					oneseed juniper	---
					other annual forbs	---
					miscellaneous perennial forbs	---
					prairie junegrass	---
					sideoats grama	---
352:						
Zia	Sandy	1,200	900	600	blue grama	25
					western wheatgrass	15
					Indian ricegrass	10
					sand dropseed	10
					fourwing saltbush	5
					other annual forbs	5
					miscellaneous perennial forbs	5
					spike dropseed	5
					winterfat	5
					galleta	3
					ring muhly	3
					oneseed juniper	2
					rabbitbrush	1
					sand sagebrush	1
					sand sagebrush	1
					spineless horsebrush	1
353:						
Mido	Deep Sand	900	600	400	Indian ricegrass	20
					blue grama	10
					antelope bitterbrush	5
					broom snakeweed	5
					fourwing saltbush	5
					sand dropseed	5
					sandhill muhly	5
354:						
Knifehill	Meadow	3,000	2,200	1,500	western wheatgrass	25
					rush	10
					sedge	10
					slender wheatgrass	10
					California brome	5
					muttongrass	5
					willow	5
					other annual forbs	3
					miscellaneous perennial forbs	3

Table 6.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
355:						
Rizno	Shallow Sandstone	700	500	275	Indian ricegrass	10
					New Mexico Feathergrass	10
					blue grama	10
					little bluestem	10
					sideoats grama	10
					Bigelow sagebrush	5
					fourwing saltbush	5
					galleta	5
					miscellaneous perennial forbs	5
					sand dropseed	5
					antelope bitterbrush	3
					cliffrose	2
					Mormon tea	2
					oneseed juniper	---
Tekapo	Shale Hills	660	400	250	alkali sacaton	15
					galleta	15
					Indian ricegrass	5
					blue grama	5
					bottlebrush squirreltail	5
					fourwing saltbush	5
					little bluestem	5
					needle and thread	5
					sideoats grama	5
					western wheatgrass	5
					mound saltbush	2
					shadscale saltbush	2
					Bigelow sagebrush	1
					oneseed juniper	1
					winterfat	1
Rock outcrop	---	---	---	---	---	---
357:						
Heshotauthla	Salty Bottomland	2,500	1,500	800	alkali sacaton	30
					western wheatgrass	20
					bottlebrush squirreltail	10
					fourwing saltbush	10
					galleta	10
					big sagebrush	5
					blue grama	5
					greasewood	5
					inland saltgrass	5
					other annual forbs	5
					miscellaneous perennial forbs	5
					mat muhly	3

Table 6.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
360:						
Hosta	Loamy	1,100	800	600	western wheatgrass	20
					Indian ricegrass	10
					big sagebrush	10
					blue grama	10
					bottlebrush squirreltail	5
					galleta	5
					oneseed juniper	5
					winterfat	5
					broom snakeweed	3
					muttongrass	3
					other annual forbs	3
					miscellaneous perennial forbs	3
					rabbitbrush	3
					spineless horsebrush	2
					twoneedle pinyon	2
Concho	Clayey	1,200	1,000	800	western wheatgrass	25
					alkali sacaton	15
					big sagebrush	5
					blue grama	5
					bottlebrush squirreltail	5
					fourwing saltbush	5
					galleta	5
					other annual forbs	5
					miscellaneous perennial forbs	5
					Indian ricegrass	3
					rabbitbrush	3
					winterfat	3
361:						
Monpark	Clayey	1,200	1,000	800	western wheatgrass	25
					alkali sacaton	20
					blue grama	10
					galleta	10
					Indian ricegrass	5
					fourwing saltbush	5
					winterfat	5
					other annual forbs	4
					miscellaneous perennial forbs	4
					bottlebrush squirreltail	3
					rabbitbrush	2
					broom snakeweed	1

Table 6.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
365:						
Vessilla	Shallow Savannah	700	450	275	Bigelow sagebrush	10
					blue grama	10
					fourwing saltbush	10
					Indian ricegrass	5
					New Mexico Feathergrass	5
					galleta	5
					little bluestem	5
					other annual forbs	5
					miscellaneous perennial forbs	5
					sideoats grama	5
					winterfat	5
					cliffrose	3
					Mormon tea	3
					oneseed juniper	3
					twoneedle pinyon	2
Rock outcrop	---	---	---	---	---	---
366:						
Bosonoak	Loamy	1,100	850	600	western wheatgrass	20
					Indian ricegrass	10
					big sagebrush	10
					blue grama	10
					galleta	5
					winterfat	5
					rubber rabbitbrush	3
					oneseed juniper	2
					twoneedle pinyon	2
375:						
Todest	Savannah	875	500	300	blue grama	20
					western wheatgrass	15
					Indian ricegrass	5
					needle and thread	5
					oneseed juniper	5
					other annual forbs	5
					miscellaneous perennial forbs	5
					sand dropseed	5
					twoneedle pinyon	5
					muttongrass	3
					rabbitbrush	3
					winterfat	3
					Bigelow sagebrush	2
					bottlebrush squirreltail	2
					spineless horsebrush	2
Shadilto	Shallow	850	500	300	New Mexico Feathergrass	25
					blue grama	20
					sideoats grama	15
					Indian ricegrass	10
					bottlebrush squirreltail	10
					little bluestem	10
					western wheatgrass	10
					galleta	5
					sand dropseed	5
					threeawn	5
					oneseed juniper	3
					twoneedle pinyon	3

Table 6.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
376:						
Todest	Savannah	875	500	300	blue grama	20
					western wheatgrass	15
					Indian ricegrass	5
					needle and thread	5
					oneseed juniper	5
					other annual forbs	5
					miscellaneous perennial forbs	5
					sand dropseed	5
					twoneedle pinyon	5
					muttongrass	3
					rabbitbrush	3
					winterfat	3
					Bigelow sagebrush	2
					bottlebrush squirreltail	2
					spineless horsebrush	2
380:						
Berryhill	Clayey	1,200	1,000	800	western wheatgrass	25
					alkali sacaton	20
					blue grama	10
					galleta	10
					Indian ricegrass	5
					fourwing saltbush	5
					winterfat	5
					other annual forbs	4
					miscellaneous perennial forbs	4
					bottlebrush squirreltail	3
					rabbitbrush	2
					broom snakeweed	1
Casamero	Clayey	1,200	1,000	800	western wheatgrass	25
					alkali sacaton	20
					blue grama	10
					galleta	10
					Indian ricegrass	5
					fourwing saltbush	5
					winterfat	5
					other annual forbs	4
					miscellaneous perennial forbs	4
					bottlebrush squirreltail	3
					rabbitbrush	2
					broom snakeweed	1
390:						
Banquito	Limy	950	600	375	western wheatgrass	20
					blue grama	10
					needle and thread	10
					winterfat	10
					Indian ricegrass	5
					bottlebrush squirreltail	5
					other annual forbs	5
					miscellaneous perennial forbs	5
					fourwing saltbush	3
					twoneedle pinyon	2
					broom snakeweed	1
					oneseed juniper	1
					rabbitbrush	1
					spineless horsebrush	1

Table 6.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
406:						
Polich	Meadow	4,500	3,000	2,000	redtop	25
					sedge	20
					Rocky Mountain iris	12
					bottlebrush squirreltail	12
					muttongrass	5
					plantain	5
					Kentucky bluegrass	4
					rush	4
					miscellaneous perennial forbs	3
					western wheatgrass	3
					clover	2
					other annual forbs	2
					smooth brome	1
					western yarrow	1
411:						
Robolata	Mountain Grassland	1,400	1,000	600	Arizona fescue	15
					mountain muhly	15
					blue grama	5
					buckwheat	5
					muttongrass	5
					western wheatgrass	3
					pingue hymenoxys	2
					silvery lupine	2
					spineless horsebrush	2
					whorled plantain	2
					Gambel oak	1
					broom snakeweed	1
413:						
Morclay	Clayey	1,200	1,000	800	western wheatgrass	25
					needle and thread	10
					Indian ricegrass	5
					blue grama	5
					bottlebrush squirreltail	5
					galleta	5
					other annual forbs	5
					miscellaneous perennial forbs	5
					pingue hymenoxys	3
					rabbitbrush	3
420:						
Seco	Mountain Grassland	1,400	1000	600	Arizona fescue	15
					mountain muhly	15
					blue grama	5
					buckwheat	5
					muttongrass	5
					western wheatgrass	3
					pingue hymenoxys	2
					silvery lupine	2
					spineless horsebrush	2
					whorled plantain	2
					Gambel oak	1
					broom snakeweed	1

Table 6.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
425:						
Montillo	Shallow	1,000	700	400	Arizona fescue	20
					mountain muhly	20
					blue grama	5
					buckwheat	5
					prairie junegrass	5
					bottlebrush squirreltail	3
					spineless horsebrush	3
					broom snakeweed	2
Canoneros	Shallow	1,000	700	400	Arizona fescue	20
					mountain muhly	20
					blue grama	5
					buckwheat	5
					prairie junegrass	5
					bottlebrush squirreltail	3
					spineless horsebrush	3
					broom snakeweed	2
430:						
Montillo	Shallow	1,000	700	400	Arizona fescue	20
					Gambel oak	15
					mountain muhly	15
					blue grama	5
					bottlebrush squirreltail	5
					prairie junegrass	5
					broom snakeweed	3
					muttongrass	3
					buckwheat	2
					whorled plantain	2
435:						
Tsoodzil	Cinder Hills	1,400	1,000	600	Gambel oak	30
					Arizona fescue	20
					mountain muhly	15
					blue grama	5
					bottlebrush squirreltail	5
					muttongrass	5
					prairie junegrass	5
					buckwheat	3
Amcec	Cinder Hills	1,400	1,000	600	Arizona fescue	25
					mountain muhly	20
					Gambel oak	15
					blue grama	5
					bottlebrush squirreltail	5
					muttongrass	5
					prairie junegrass	5
					buckwheat	3
440:						
Chivato	Playa	500	350	200	western wheatgrass	80
					curly dock	2
					pingue hymenoxys	1

Table 6.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
525:						
Silcat	Clayey	1,200	900	600	western wheatgrass	25
					alkali sacaton	15
					big sagebrush	5
					blue grama	5
					bottlebrush squirreltail	5
					fourwing saltbush	5
					galleta	5
					other annual forbs	5
					miscellaneous perennial forbs	5
					Indian ricegrass	3
					rabbitbrush	3
					winterfat	3
Galzuni	Clayey	1,200	900	600	western wheatgrass	25
					alkali sacaton	15
					big sagebrush	5
					blue grama	5
					bottlebrush squirreltail	5
					fourwing saltbush	5
					galleta	5
					other annual forbs	5
					miscellaneous perennial forbs	5
					Indian ricegrass	3
					rabbitbrush	3
					winterfat	3
560:						
Flugle	Loamy	1,500	1,000	500	blue grama	20
					western wheatgrass	20
					miscellaneous perennial forbs	8
					spike muhly	8
					alkali sacaton	5
					bottlebrush squirreltail	5
					fourwing saltbush	5
					galleta	5
					other annual forbs	5
					winterfat	5
					oneseed juniper	2
					broom snakeweed	1
					rabbitbrush	1
					spineless horsebrush	1
560:						
Teczuni	Loamy	1,500	1,000	500	blue grama	25
					bottlebrush squirreltail	10
					western wheatgrass	10
					Indian ricegrass	5
					needle and thread	5
					other annual forbs	5
					miscellaneous perennial forbs	5
					winterfat	5
					fringed sagewort	3
					broom snakeweed	1
					rabbitbrush	1
					spineless horsebrush	1
					twoneedle pinyon	1

Table 6.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
565:						
Plumasano	Sandy Slopes	900	600	300	blue grama	15
					galleta	10
					sand dropseed	10
					Indian ricegrass	3
					antelope bitterbrush	3
					cliffrose	3
					muttongrass	3
					oneseed juniper	3
					other annual forbs	3
					miscellaneous perennial forbs	3
					rabbitbrush	3
					ring muhly	3
					sideoats grama	3
					twoneedle pinyon	3
					yucca	1
Rock outcrop	---	---	---	---	---	---
566:						
Bamac	Gravelly	800	500	300	sideoats grama	15
					black grama	10
					galleta	10
					Indian ricegrass	5
					New Mexico Feathergrass	5
					antelope bitterbrush	5
					blue grama	5
					muttongrass	5
					other annual forbs	5
					miscellaneous perennial forbs	5
					Bigelow sagebrush	3
					Mormon tea	2
					oneseed juniper	2
					twoneedle pinyon	1
575:						
Ramah	Loamy	1,100	850	600	western wheatgrass	20
					Indian ricegrass	10
					big sagebrush	10
					blue grama	10
					bottlebrush squirreltail	5
					galleta	5
					oneseed juniper	5
					winterfat	5
					broom snakeweed	3
					muttongrass	3
					other annual forbs	3
					miscellaneous perennial forbs	3
					rabbitbrush	3
					spineless horsebrush	2
					twoneedle pinyon	2

Table 6.--Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
575:						
Pescado	Malpais	500	300	200	big sagebrush	15
					blue grama	10
					galleta	10
					western wheatgrass	10
					Indian ricegrass	5
					bottlebrush squirreltail	5
					little bluestem	5
					muttongrass	5
					needle and thread	5
					sideoats grama	5
					winterfat	5
					oneseed juniper	3
					other annual forbs	3
					miscellaneous perennial forbs	3
					twoneedle pinyon	3

Table 7.--Forest Productivity

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber	
			cu ft/ac	
255:				
Farview	oneseed juniper	---	0	oneseed juniper, twoneedle pinyon
	twoneedle pinyon	79	10	
300:				
Regracic	Rocky Mountain juniper	---	0	Rocky Mountain juniper, ponderosa pine, twoneedle pinyon
	ponderosa pine	34	3	
	twoneedle pinyon	---	0	
315:				
Flugle	oneseed juniper	---	0	oneseed juniper, twoneedle pinyon
	twoneedle pinyon	91	14	
Fragua	oneseed juniper	---	0	oneseed juniper, twoneedle pinyon
	twoneedle pinyon	58	6	
317:				
Highdye	Rocky Mountain juniper	---	0	Rocky Mountain juniper, oneseed juniper, twoneedle pinyon
	oneseed juniper	---	0	
	twoneedle pinyon	153	29	
Evpark	oneseed juniper	---	0	oneseed juniper, twoneedle pinyon
	twoneedle pinyon	121	29	
Bryway	Rocky Mountain juniper	---	0	Rocky Mountain juniper, oneseed juniper, twoneedle pinyon
	oneseed juniper	---	0	
	twoneedle pinyon	141	29	
320:				
Parkelei	oneseed juniper	---	0	oneseed juniper, twoneedle pinyon
	twoneedle pinyon	125	29	
Fraguni	oneseed juniper	---	0	oneseed juniper, twoneedle pinyon
	twoneedle pinyon	85	14	
332:				
Evpark	oneseed juniper	---	0	oneseed juniper, twoneedle pinyon
	twoneedle pinyon	121	29	
Arabrab	Utah juniper	---	0	Utah juniper, twoneedle pinyon
	twoneedle pinyon	90	29	
345:				
Tuces	oneseed juniper	---	0	oneseed juniper, twoneedle pinyon
	twoneedle pinyon	90	14	

Table 7.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber	
			cu ft/ac	
350:				
Toldohn	Gambel oak	---	0	Gambel oak, Rocky Mountain juniper, oneseed juniper, twoneedle pinyon
	Rocky Mountain juniper	---	0	
	oneseed juniper	---	0	
	twoneedle pinyon	127	29	
Vessilla	Gambel oak	---	0	Gambel oak, Rocky Mountain juniper, oneseed juniper, twoneedle pinyon
	Rocky Mountain juniper	---	0	
	oneseed juniper	---	0	
	twoneedle pinyon	89	14	
365:				
Vessilla	oneseed juniper	---	0	oneseed juniper, twoneedle pinyon
	twoneedle pinyon	89	14	
367:				
Chunkmonk	Rocky Mountain juniper	---	0	Rocky Mountain juniper, oneseed juniper, twoneedle pinyon
	oneseed juniper	---	0	
	twoneedle pinyon	136	29	
368:				
Simitarq	Rocky Mountain juniper	---	0	Rocky Mountain juniper, oneseed juniper, twoneedle pinyon
	oneseed juniper	---	0	
	twoneedle pinyon	110	18	
Celavar	Rocky Mountain juniper	---	0	Rocky Mountain juniper, oneseed juniper, twoneedle pinyon
	oneseed juniper	---	0	
	twoneedle pinyon	79	10	
385:				
Mcorreon	Rocky Mountain juniper	---	0	Rocky Mountain juniper, oneseed juniper, twoneedle pinyon
	oneseed juniper	---	0	
	twoneedle pinyon	42	5	
395:				
Cabezon	Rocky Mountain juniper	---	0	Rocky Mountain juniper, oneseed juniper, twoneedle pinyon
	oneseed juniper	---	0	
	twoneedle pinyon	52	5	
Mcorreon	Rocky Mountain juniper	---	0	Rocky Mountain juniper, oneseed juniper, twoneedle pinyon
	oneseed juniper	---	0	
	twoneedle pinyon	42	4	

Table 7.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber	
			cu ft/ac	
400:				
Shoemaker	Rocky Mountain juniper	---	0	Rocky Mountain juniper, alligator juniper, ponderosa pine, twoneedle pinyon
	alligator juniper	---	0	
	ponderosa pine	58	43	
	twoneedle pinyon	---	0	
Stozuni	Rocky Mountain juniper	---	0	Rocky Mountain juniper, alligator juniper, ponderosa pine, twoneedle pinyon
	alligator juniper	---	0	
	ponderosa pine	50	43	
	twoneedle pinyon	---	0	
403:				
Valnor	Gambel oak	---	0	Gambel oak, Rocky Mountain juniper, alligator juniper, ponderosa pine, twoneedle pinyon
	Rocky Mountain juniper	---	0	
	alligator juniper	---	0	
	ponderosa pine	45	29	
	twoneedle pinyon	---	0	
Techado	Gambel oak	---	0	Gambel oak, Rocky Mountain juniper, alligator juniper, ponderosa pine, twoneedle pinyon
	Rocky Mountain juniper	---	0	
	alligator juniper	---	0	
	ponderosa pine	45	29	
	twoneedle pinyon	---	0	
404:				
Techado	Douglas fir	---	0	Douglas fir, Gambel oak, Rocky Mountain juniper, alligator juniper, ponderosa pine, twoneedle pinyon
	Gambel oak	---	0	
	Rocky Mountain juniper	---	0	
	alligator juniper	---	0	
	ponderosa pine	43	29	
	twoneedle pinyon	---	0	
Stozuni	Douglas fir	---	0	Douglas fir, Gambel oak, Rocky Mountain juniper, alligator juniper, ponderosa pine, twoneedle pinyon
	Gambel oak	---	0	
	Rocky Mountain juniper	---	0	
	alligator juniper	---	0	
	ponderosa pine	43	29	
	twoneedle pinyon	---	0	
405:				
Fortwingate	Gambel oak	---	0	Gambel oak, Rocky Mountain juniper, ponderosa pine, twoneedle pinyon
	Rocky Mountain juniper	---	0	
	ponderosa pine	46	29	
	twoneedle pinyon	---	0	

Table 7.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber	
			cu ft/ac	
405:				
Owlrock	Gambel oak	---	0	Gambel oak, Rocky Mountain juniper, ponderosa pine, twoneedle pinyon
	Rocky Mountain juniper	---	0	
	ponderosa pine	55	43	
	twoneedle pinyon	---	0	
407:				
Cinnadale	Gambel oak	---	0	Gambel oak, Rocky Mountain juniper, ponderosa pine, twoneedle pinyon
	Rocky Mountain juniper	---	0	
	ponderosa pine	65	57	
	twoneedle pinyon	---	0	
Heckly	Gambel oak	---	0	Gambel oak, Rocky Mountain juniper, ponderosa pine, twoneedle pinyon
	Rocky Mountain juniper	---	0	
	ponderosa pine	55	43	
	twoneedle pinyon	---	0	
408:				
Mirabal	Gambel oak	---	0	Gambel oak, ponderosa pine
	ponderosa pine	60	43	
Zuni	Gambel oak	---	0	Gambel oak, ponderosa pine
	ponderosa pine	55	43	
409:				
Rauster	Gambel oak	---	0	Gambel oak, Rocky Mountain juniper, ponderosa pine, twoneedle pinyon
	Rocky Mountain juniper	---	0	
	ponderosa pine	57	33	
	twoneedle pinyon	---	0	
410:				
Montillo	Gambel oak	---	0	ponderosa pine, twoneedle pinyon
	Rocky Mountain juniper	---	0	
	ponderosa pine	50	43	
	twoneedle pinyon	---	0	
Tsoodzil	Gambel oak	---	0	Gambel oak, ponderosa pine, twoneedle pinyon
	ponderosa pine	54	32	
	twoneedle pinyon	---	0	
411:				
Ligocki	Gambel oak	---	0	Gambel oak, Rocky Mountain juniper, ponderosa pine, twoneedle pinyon
	Rocky Mountain juniper	---	0	
	ponderosa pine	70	39	
	twoneedle pinyon	---	0	

Table 7.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber	
			cu ft/ac	
412:				
Rionutria	Douglas fir	---	0	Douglas fir, Rocky Mountain juniper, ponderosa pine, twoneedle pinyon
	Rocky Mountain juniper	---	0	
	ponderosa pine	45	34	
	twoneedle pinyon	---	0	
Zaster	Rocky Mountain juniper	---	0	Rocky Mountain juniper, alligator juniper, oneseed juniper, twoneedle pinyon
	alligator juniper	---	0	
	oneseed juniper	---	0	
	twoneedle pinyon	60	6	
414:				
Zunalei	Gambel oak	---	0	Gambel oak, Rocky Mountain juniper, ponderosa pine, twoneedle pinyon
	Rocky Mountain juniper	---	0	
	ponderosa pine	55	33	
	twoneedle pinyon	---	0	
Corzuni	Gambel oak	---	0	Gambel oak, Rocky Mountain juniper, ponderosa pine, twoneedle pinyon
	Rocky Mountain juniper	---	0	
	ponderosa pine	55	33	
	twoneedle pinyon	---	0	
415:				
Tsoodzil	ponderosa pine	54	32	Gambel oak, ponderosa pine, twoneedle pinyon
416:				
Bluesky	Douglas fir	---	0	Douglas fir, Rocky Mountain juniper, ponderosa pine, twoneedle pinyon
	Rocky Mountain juniper	---	0	
	ponderosa pine	---	0	
	twoneedle pinyon	---	0	
418:				
Asaayi	Gambel oak	---	0	Gambel oak, Rocky Mountain juniper, ponderosa pine, twoneedle pinyon
	Rocky Mountain juniper	---	0	
	ponderosa pine	96	96	
	twoneedle pinyon	---	0	
Osoridge	Gambel oak	---	0	Gambel oak, Rocky Mountain juniper, ponderosa pine, twoneedle pinyon
	Rocky Mountain juniper	---	0	
	ponderosa pine	77	64	
	twoneedle pinyon	---	0	

Table 7.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber	
			cu ft/ac	
419:				
Fortwingate	Gambel oak	---	0	Gambel oak, Rocky Mountain juniper, ponderosa pine, twoneedle pinyon
	Rocky Mountain juniper	---	0	
	ponderosa pine	55	43	
	twoneedle pinyon	---	0	
Cinnadale	Gambel oak	---	0	Gambel oak, Rocky Mountain juniper, ponderosa pine, twoneedle pinyon
	Rocky Mountain juniper	---	0	
	ponderosa pine	65	57	
	twoneedle pinyon	---	0	
550:				
Bryway	Rocky Mountain juniper	---	0	Rocky Mountain juniper, oneseed juniper, twoneedle pinyon
	oneseed juniper	---	0	
	twoneedle pinyon	141	29	
555:				
Parkelei	oneseed juniper	---	0	oneseed juniper, twoneedle pinyon
	twoneedle pinyon	123	29	
Evpark	oneseed juniper	---	0	oneseed juniper, twoneedle pinyon
	twoneedle pinyon	121	29	
561:				
Flugle	oneseed juniper	---	0	oneseed juniper, twoneedle pinyon
	twoneedle pinyon	91	14	
Plumasano	oneseed juniper	---	0	oneseed juniper, twoneedle pinyon
	twoneedle pinyon	86	14	
565:				
Plumasano	oneseed juniper	---	0	oneseed juniper, twoneedle pinyon
	twoneedle pinyon	82	10	

Table 8a.--Forestland Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Hazard of off-road or off-trail erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
300:							
Regracic	80	Slight Slope/erodibility	0.08	Slight Slope/erodibility	0.25	Moderately suited Strength	0.50
315:							
Flugle	50	Slight Slope/erodibility	0.07	Moderate Slope/erodibility	0.33	Moderately suited Strength	0.50
Fragua	40	Slight Slope/erodibility	0.10	Moderate Slope/erodibility	0.56	Well suited	
317:							
Highdye	35	Slight Slope/erodibility	0.22	Severe Slope/erodibility	1.00	Moderately suited Slope	0.50
Evpark	30	Slight Slope/erodibility	0.12	Moderate Slope/erodibility	0.56	Moderately suited Strength	0.50
Bryway	20	Slight Slope/erodibility	0.10	Moderate Slope/erodibility	0.56	Well suited	
320:							
Parkelei	45	Slight Slope/erodibility	0.08	Moderate Slope/erodibility	0.44	Well suited	
Fraguni	40	Slight Slope/erodibility	0.08	Slight Slope/erodibility	0.25	Well suited	
332:							
Evpark	50	Slight Slope/erodibility	0.08	Moderate Slope/erodibility	0.44	Moderately suited Strength	0.50
Arabrab	40	Slight Slope/erodibility	0.08	Moderate Slope/erodibility	0.44	Well suited	
345:							
Tuces	40	Moderate Slope/erodibility	0.59	Severe Slope/erodibility	1.00	Poorly suited Slope Strength	1.00 0.50
350:							
Toldohn	35	Moderate Slope/erodibility	0.39	Severe Slope/erodibility	1.00	Poorly suited Slope Strength	1.00 0.50
Vessilla	30	Slight Slope/erodibility	0.16	Moderate Slope/erodibility	0.89	Moderately suited Slope	0.50
365:							
Vessilla	55	Slight Slope/erodibility	0.16	Moderate Slope/erodibility	0.89	Moderately suited Slope	0.50

Table 8a.--Forestland Management--continued

Map symbol and soil name	Pct of map unit	Hazard of off-road or off-trail erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
366:							
Bosonoak	95	Slight		Moderate		Moderately suited	
		Slope/erodibility	0.06	Slope/erodibility	0.33	Strength	0.50
367:							
Chunkmonk	85	Slight		Moderate		Moderately suited	
		Slope/erodibility	0.12	Slope/erodibility	0.38	Slope	0.50
368:							
Simitarq	60	Slight		Moderate		Well suited	
		Slope/erodibility	0.10	Slope/erodibility	0.56		
Celavar	20	Slight		Moderate		Well suited	
		Slope/erodibility	0.10	Slope/erodibility	0.56		
385:							
Mcorreon	65	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.49	Slope/erodibility	1.00	Slope	1.00
						Strength	0.50
395:							
Cabezon	60	Slight		Moderate		Moderately suited	
		Slope/erodibility	0.10	Slope/erodibility	0.56	Strength	0.50
Mcorreon	30	Slight		Moderate		Moderately suited	
		Slope/erodibility	0.10	Slope/erodibility	0.31	Strength	0.50
						Stickiness	0.50
400:							
Shoemaker	45	Slight		Moderate		Well suited	
		Slope/erodibility	0.10	Slope/erodibility	0.56		
Stozuni	35	Slight		Moderate		Well suited	
		Slope/erodibility	0.10	Slope/erodibility	0.56		
403:							
Valnor	50	Slight		Moderate		Moderately suited	
		Slope/erodibility	0.16	Slope/erodibility	0.89	Slope	0.50
				Slope/erodibility	0.50		
Techado	30	Moderate		Moderate		Poorly suited	
		Slope/erodibility	0.29	Slope/erodibility	0.94	Slope	1.00
						Strength	0.50
404:							
Techado	35	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.49	Slope/erodibility	1.00	Slope	1.00
						Strength	0.50
Stozuni	25	Slight		Moderate		Moderately suited	
		Slope/erodibility	0.20	Slope/erodibility	0.62	Slope	0.50
405:							
Fortwingate	50	Slight		Moderate		Moderately suited	
		Slope/erodibility	0.10	Slope/erodibility	0.56	Strength	0.50

Table 8a.--Forestland Management--continued

Map symbol and soil name	Pct of map unit	Hazard of off-road or off-trail erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
405:							
Owlrock	35	Slight		Slight		Well suited	
		Slope/erodibility	0.10	Slope/erodibility	0.19		
407:							
Cinnadale	50	Slight		Moderate		Moderately suited	
		Slope/erodibility	0.20	Slope/erodibility	0.62	Slope	0.50
Heckly	35	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.49	Slope/erodibility	1.00	Slope	1.00
						Sandiness	0.50
408:							
Mirabal	50	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.39	Slope/erodibility	1.00	Slope	1.00
Zuni	40	Slight		Moderate		Moderately suited	
		Slope/erodibility	0.16	Slope/erodibility	0.50	Slope	0.50
						Stickiness	0.50
409:							
Rauster	60	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.39	Slope/erodibility	1.00	Slope	1.00
						Stickiness	0.50
						Strength	0.50
410:							
Montillo	50	Slight		Moderate		Moderately suited	
		Slope/erodibility	0.20	Slope/erodibility	0.62	Slope	0.50
						Strength	0.50
Tsoodzil	40	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.39	Slope/erodibility	1.00	Slope	1.00
						Sandiness	0.50
411:							
Ligocki	45	Slight		Moderate		Well suited	
		Slope/erodibility	0.06	Slope/erodibility	0.33		
412:							
Rionutria	25	Slight		Moderate		Moderately suited	
		Slope/erodibility	0.20	Slope/erodibility	0.38	Slope	0.50
						Strength	0.50
Zaster	25	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.49	Slope/erodibility	1.00	Slope	1.00
						Sandiness	0.50
413:							
Morclay	85	Slight		Slight		Moderately suited	
		Slope/erodibility	0.06	Slope/erodibility	0.19	Stickiness	0.50
						Strength	0.50

Table 8a.--Forestland Management--continued

Map symbol and soil name	Pct of map unit	Hazard of off-road or off-trail erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
414:							
Zunalei	50	Slight		Moderate		Well suited	
		Slope/erodibility	0.10	Slope/erodibility	0.56		
Corzuni	40	Slight		Moderate		Well suited	
		Slope/erodibility	0.10	Slope/erodibility	0.31		
415:							
Tsoodzil	60	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.59	Slope/erodibility	1.00	Slope	1.00
418:							
Asaayi	40	Slight		Moderate		Moderately suited	
		Slope/erodibility	0.16	Slope/erodibility	0.50	Slope	0.50
Osoridge	35	Slight		Moderate		Moderately suited	
		Slope/erodibility	0.16	Slope/erodibility	0.50	Slope	0.50
						Stickiness	0.50
						Strength	0.50
419:							
Fortwingate	35	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.49	Slope/erodibility	1.00	Slope	1.00
Cinnadale	30	Slight		Moderate		Moderately suited	
550:							
Bryway	50	Slight		Slight		Moderately suited	
		Slope/erodibility	0.08	Slope/erodibility	0.25	Strength	0.50
Galzuni	35	Slight		Moderate		Well suited	
		Slope/erodibility	0.10	Slope/erodibility	0.44		
		Slope/erodibility	0.08	Slope/erodibility	0.25		
555:							
Parkelei	45	Slight		Moderate		Well suited	
		Slope/erodibility	0.10	Slope/erodibility	0.56		
Evpark	35	Slight		Moderate		Well suited	
		Slope/erodibility	0.10	Slope/erodibility	0.56		
560:							
Flugle	45	Slight		Moderate		Well suited	
		Slope/erodibility	0.06	Slope/erodibility	0.33		
Teczuni	35	Slight		Moderate		Moderately suited	
		Slope/erodibility	0.06	Slope/erodibility	0.33	Strength	0.50
561:							
Flugle	50	Slight		Moderate		Well suited	
		Slope/erodibility	0.10	Slope/erodibility	0.56		
Plumasano	40	Slight		Moderate		Well suited	
		Slope/erodibility	0.10	Slope/erodibility	0.56		

Table 8b.--Forestland Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Suitability for hand planting		Suitability for mechanical planting		Suitability for use of harvesting equipment	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
300:							
Regracic	80	Moderately suited		Moderately suited		Moderately suited	
		Stickiness	0.50	Stoniness	0.50	Strength	0.50
				Stickiness	0.50		
315:							
Flugle	50	Well suited		Well suited		Moderately suited	
						Strength	0.50
Fragua	40	Well suited		Moderately suited		Well suited	
				Slope	0.50		
317:							
Highdye	35	Moderately suited		Moderately suited		Well suited	
		Stickiness	0.50	Stickiness	0.50		
				Slope	0.50		
Evpark	30	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Strength	0.50
Bryway	20	Moderately suited		Moderately suited		Well suited	
		Stickiness	0.50	Stickiness	0.50		
				Slope	0.50		
320:							
Parkelei	45	Well suited		Well suited		Well suited	
Fraguni	40	Well suited		Well suited		Well suited	
332:							
Evpark	50	Well suited		Well suited		Moderately suited	
						Strength	0.50
Arabrab	40	Moderately suited		Moderately suited		Well suited	
		Stickiness	0.50	Stickiness	0.50		
345:							
Tuces	40	Moderately suited		Unsuited		Moderately suited	
		Stoniness	0.50	Slope	1.00	Slope	0.50
		Stickiness	0.50	Stoniness	0.75	Strength	0.50
				Stickiness	0.50		
350:							
Toldohn	35	Moderately suited		Poorly suited		Moderately suited	
		Restrictive layer	0.50	Slope	0.75	Strength	0.50
		Stickiness	0.50	Stickiness	0.50	Slope	0.50
				Stoniness	0.50		

Table 8b.--Forestland Management--Continued

Map symbol and soil name	Pct of map unit	Suitability for hand planting		Suitability for mechanical planting		Suitability for use of harvesting equipment	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
350:							
Vessilla	30	Well suited		Moderately suited		Well suited	
				Slope	0.50		
365:							
Vessilla	55	Well suited		Moderately suited		Well suited	
				Slope	0.50		
367:							
Chunkmonk	85	Moderately suited		Unsuited		Well suited	
		Stoniness	0.50	Stoniness	1.00		
				Slope	0.50		
368:							
Simitarq	60	Moderately suited		Moderately suited		Well suited	
		Stickiness	0.50	Slope	0.50		
				Stickiness	0.50		
Celavar	20	Well suited		Moderately suited		Well suited	
				Slope	0.50		
385:							
Mcorreon	65	Moderately suited		Unsuited		Moderately suited	
		Stickiness	0.50	Stoniness	1.00	Slope	0.50
		Stoniness	0.50	Slope	0.75	Strength	0.50
				Stickiness	0.50		
395:							
Cabezon	60	Moderately suited		Unsuited		Moderately suited	
		Stickiness	0.50	Stoniness	1.00	Strength	0.50
		Stoniness	0.50	Stickiness	0.50		
				Slope	0.50		
Mcorreon	30	Moderately suited		Moderately suited		Moderately suited	
		Stickiness	0.50	Stickiness	0.50	Strength	0.50
				Slope	0.50	Stickiness	0.50
400:							
Shoemaker	45	Well suited		Moderately suited		Well suited	
				Slope	0.50		
Stozuni	35	Well suited		Moderately suited		Well suited	
				Slope	0.50		
403:							
Valnor	50	Moderately suited		Moderately suited		Well suited	
		Stickiness	0.50	Stickiness	0.50		
				Slope	0.50		
Techado	30	Moderately suited		Moderately suited		Moderately suited	
		Stickiness	0.50	Slope	0.50	Strength	0.50
				Stickiness	0.50		
				Stoniness	0.50		

Table 8b.--Forestland Management--Continued

Map symbol and soil name	Pct of map unit	Suitability for hand planting		Suitability for mechanical planting		Suitability for use of harvesting equipment	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
404:							
Techado	35	Poorly suited		Poorly suited		Moderately suited	
		Stickiness	0.75	Slope	0.75	Slope	0.50
				Stickiness	0.75	Strength	0.50
				Stoniness	0.50		
Stozuni	25	Unsuited		Moderately suited		Well suited	
		Restrictive layer	1.00	Slope	0.50		
				Stoniness	0.50		
405:							
Fortwingate	50	Poorly suited		Poorly suited		Moderately suited	
		Stickiness	0.75	Stickiness	0.75	Strength	0.50
				Slope	0.50		
Owlrock	35	Poorly suited		Unsuited		Well suited	
		Stoniness	0.75	Stoniness	1.00		
				Slope	0.50		
407:							
Cinnadale	50	Moderately suited		Poorly suited		Well suited	
		Stoniness	0.50	Stoniness	0.75		
				Slope	0.50		
Heckly	35	Moderately suited		Poorly suited		Moderately suited	
		Stickiness	0.50	Slope	0.75	Slope	0.50
		Sandiness	0.50	Stoniness	0.75	Sandiness	0.50
		Stoniness	0.50	Stickiness	0.50		
				Sandiness	0.50		
408:							
Mirabal	50	Moderately suited		Unsuited		Moderately suited	
		Stoniness	0.50	Stoniness	1.00	Slope	0.50
		Sandiness	0.50	Slope	0.75		
				Sandiness	0.50		
Zuni	40	Poorly suited		Poorly suited		Moderately suited	
		Stickiness	0.75	Stickiness	0.75	Stickiness	0.50
				Stoniness	0.50		
				Slope	0.50		
409:							
Rauster	60	Poorly suited		Poorly suited		Moderately suited	
		Stickiness	0.75	Slope	0.75	Strength	0.50
				Stickiness	0.75	Stickiness	0.50
						Slope	0.50
410:							
Montillo	50	Poorly suited		Poorly suited		Moderately suited	
		Stickiness	0.75	Stickiness	0.75	Strength	0.50
				Slope	0.50		
				Stoniness	0.50		

Table 8b.--Forestland Management--Continued

Map symbol and soil name	Pct of map unit	Suitability for hand planting		Suitability for mechanical planting		Suitability for use of harvesting equipment	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
410:							
Tsoodzil	40	Poorly suited		Poorly suited		Moderately suited	
		Stickiness	0.75	Stoniness	0.75	Sandiness	0.50
		Sandiness	0.50	Slope	0.75	Slope	0.50
		Stoniness	0.50	Stickiness	0.75		
				Sandiness	0.50		
411:							
Ligocki	45	Moderately suited		Moderately suited		Well suited	
		Stickiness	0.50	Stickiness	0.50		
412:							
Rionutria	25	Poorly suited		Unsuited		Moderately suited	
		Stoniness	0.75	Stoniness	1.00	Strength	0.50
		Stickiness	0.50	Slope	0.50		
				Stickiness	0.50		
Zaster	25	Moderately suited		Unsuited		Moderately suited	
		Stoniness	0.50	Stoniness	1.00	Slope	0.50
		Sandiness	0.50	Slope	0.75	Sandiness	0.50
				Sandiness	0.50		
413:							
Morclay	85	Poorly suited		Poorly suited		Moderately suited	
		Stickiness	0.75	Stickiness	0.75	Strength	0.50
						Stickiness	0.50
414:							
Zunalei	50	Well suited		Moderately suited		Well suited	
				Slope	0.50		
414:							
Corzuni	40	Well suited		Moderately suited		Well suited	
				Slope	0.50		
415:							
Tsoodzil	60	Moderately suited		Unsuited		Moderately suited	
		Stickiness	0.50	Stoniness	1.00	Slope	0.50
		Stoniness	0.50	Slope	1.00		
				Stickiness	0.50		
418:							
Asaayi	40	Moderately suited		Moderately suited		Well suited	
		Stickiness	0.50	Stickiness	0.50		
				Slope	0.50		
Osoridge	35	Poorly suited		Poorly suited		Moderately suited	
		Stickiness	0.75	Stickiness	0.75	Strength	0.50
				Stoniness	0.50	Stickiness	0.50
				Slope	0.50		

Table 8b.--Forestland Management--Continued

Map symbol and soil name	Pct of map unit	Suitability for hand planting		Suitability for mechanical planting		Suitability for use of harvesting equipment	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
419:							
Fortwingate	35	Poorly suited		Unsuited		Moderately suited	
		Stoniness	0.75	Stoniness	1.00	Slope	0.50
		Stickiness	0.50	Slope	0.75		
				Stickiness	0.50		
Cinnadale	30	Unsuited		Unsuited		Well suited	
		Restrictive layer	1.00	Stoniness	1.00		
		Stoniness	0.75	Slope	0.50		
425:							
Montillo	50	Poorly suited		Poorly suited		Moderately suited	
		Stickiness	0.75	Stickiness	0.75	Strength	0.50
						Stickiness	0.50
Canoneros	35	Poorly suited		Poorly suited		Moderately suited	
		Stickiness	0.75	Stoniness	0.75	Strength	0.50
		Stoniness	0.50	Stickiness	0.75	Stickiness	0.50
430:							
Montillo	80	Moderately suited		Moderately suited		Moderately suited	
		Stickiness	0.50	Stickiness	0.50	Strength	0.50
435:							
Tsoodzil	50	Poorly suited		Poorly suited		Moderately suited	
		Stickiness	0.75	Slope	0.75	Slope	0.50
				Stickiness	0.75		
				Stoniness	0.50		
Amcec	40	Moderately suited		Unsuited		Moderately suited	
		Sandiness	0.50	Slope	1.00	Slope	0.50
		Stoniness	0.50	Stoniness	0.75	Sandiness	0.50
				Sandiness	0.50		
550:							
Bryway	50	Moderately suited		Moderately suited		Moderately suited	
		Stickiness	0.50	Stickiness	0.50	Strength	0.50
555:							
Parkelei	45	Well suited		Moderately suited		Well suited	
				Slope	0.50		
Evpark	35	Well suited		Moderately suited		Well suited	
				Slope	0.50		
560:							
Flugle	45	Well suited		Well suited		Well suited	
Teczuni	35	Well suited		Well suited		Moderately suited	
						Strength	0.50

Table 8b.--Forestland Management--Continued

Map symbol and soil name	Pct of map unit	Suitability for hand planting		Suitability for mechanical planting		Suitability for use of harvesting equipment	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
561:							
Flugle	50	Well suited		Moderately suited Slope	0.50	Well suited	
Plumasano	40	Well suited		Moderately suited Slope	0.50	Well suited	
565:							
Plumasano	65	Well suited		Poorly suited Slope	0.75	Moderately suited Slope	0.50

Table 9a.--Recreation

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
8:							
Water	100	Not rated		Not rated		Not rated	
10:							
Tsosie	35	Very limited		Very limited		Very limited	
		Sodium content	1.00	Sodium content	1.00	Sodium content	1.00
		Flooding	1.00			Slope	0.01
Councelor	30	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Slope	0.01
Blancot	20	Not limited		Not limited		Somewhat limited	
						Slope	0.01
11:							
Doakum	60	Not limited		Not limited		Somewhat limited	
						Slope	0.03
Betonnie	25	Not limited		Not limited		Somewhat limited	
						Slope	0.50
12:							
Calladito	55	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.96	Too sandy	0.96	Too sandy	0.96
						Slope	0.13
Elias	30	Very limited		Very limited		Very limited	
		Sodium content	1.00	Sodium content	1.00	Sodium content	1.00
		Restricted permeability	0.41	Restricted permeability	0.41	Restricted permeability	0.41
						Slope	0.13
13:							
Councelor	60	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Slope	0.50
Calladito	30	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.96	Too sandy	0.96	Too sandy	0.96
						Slope	0.50
14:							
Councelor	30	Very limited		Not limited		Very limited	
		Flooding	1.00			Slope	1.00
Eslendo	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.96	Slope	0.96	Slope	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50

Table 9a.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
14:							
Calladito	25	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.96	Too sandy	0.96	Too sandy	0.96
						Slope	0.50
16:							
Starlake	85	Very limited		Very limited		Very limited	
		Sodium content	1.00	Sodium content	1.00	Sodium content	1.00
		Flooding	1.00	Too clayey	0.50	Too clayey	0.50
		Too clayey	0.50	Restricted permeability	0.45	Restricted permeability	0.45
		Restricted permeability	0.45			Slope	0.01
22:							
Querencia	50	Not limited		Not limited		Very limited	
						Slope	1.00
Lavodnas	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Restricted permeability	1.00	Restricted permeability	1.00	Slope	1.00
		Dusty	0.50	Dusty	0.50	Restricted permeability	1.00
		Slope	0.01	Slope	0.01	Dusty	0.50
30:							
Orlie	45	Not limited		Not limited		Somewhat limited	
						Slope	0.13
Tinian	40	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Depth to bedrock	0.90
						Slope	0.50
						Dusty	0.50
40:							
Nuffel	90	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Dusty	0.50	Flooding	1.00
		Dusty	0.50	Flooding	0.40	Dusty	0.50
42:							
Suwanee	90	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Flooding	0.40	Flooding	1.00
44:							
Suwanee	90	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Too clayey	0.50	Flooding	1.00
		Too clayey	0.50	Restricted permeability	0.41	Too clayey	0.50
		Restricted permeability	0.41	Flooding	0.40	Restricted permeability	0.41

Table 9a.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
45:							
Nutreeah	90	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Restricted permeability	0.45	Restricted permeability	0.45
		Restricted permeability	0.45				
47:							
Conchovar	90	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Restricted permeability	0.45	Restricted permeability	0.45
		Restricted permeability	0.45				
49:							
Concho	85	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Restricted permeability	0.41	Restricted permeability	0.41
		Restricted permeability	0.41				
51:							
Kwakina	90	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Too sandy	0.87	Too sandy	0.87
		Too sandy	0.87			Flooding	0.60
52:							
Zuniven	90	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Too sandy	0.92	Flooding	1.00
		Too sandy	0.92	Flooding	0.40	Too sandy	0.92
53:							
Hawaikuh	80	Not limited		Not limited		Not limited	
54:							
Venadito	90	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Too clayey	0.50	Flooding	0.60
		Too clayey	0.50	Restricted permeability	0.45	Too clayey	0.50
		Restricted permeability	0.45			Restricted permeability	0.45
55:							
Sparham	95	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Restricted permeability	0.45	Flooding	1.00
		Restricted permeability	0.45	Flooding	0.40	Restricted permeability	0.45
60:							
Redpen	90	Not limited		Not limited		Not limited	

Table 9a.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
100:							
Norkiki	45	Somewhat limited Too sandy	 0.79	Somewhat limited Too sandy	 0.79	Somewhat limited Too sandy Depth to bedrock Slope	 0.79 0.65 0.50
Kimnoli	40	Very limited Depth to bedrock	 1.00	Very limited Depth to bedrock	 1.00	Very limited Depth to bedrock Slope	 1.00 0.13
110:							
Benally	60	Very limited Sodium content Restricted permeability	 1.00 0.21	Very limited Sodium content Restricted permeability	 1.00 0.21	Very limited Sodium content Restricted permeability Slope Gravel content	 1.00 0.21 0.13 0.06
Fruitland	25	Somewhat limited Too sandy	 0.94	Somewhat limited Too sandy	 0.94	Somewhat limited Too sandy Slope	 0.94 0.13
111:							
Yelives	85	Very limited Flooding	 1.00	Not limited		Somewhat limited Slope	 0.01
115:							
Razito	45	Somewhat limited Too sandy	 0.79	Somewhat limited Too sandy	 0.79	Somewhat limited Too sandy Slope	 0.79 0.50
Shiprock	40	Not limited		Not limited		Somewhat limited Slope	 0.50
116:							
Fajada	30	Very limited Sodium content Restricted permeability Gravel content	 1.00 0.96 0.18	Very limited Sodium content Restricted permeability Gravel content	 1.00 0.96 0.18	Very limited Gravel content Sodium content Restricted permeability Depth to bedrock Slope	 1.00 1.00 0.96 0.65 0.13
Huerfano	30	Very limited Sodium content Depth to bedrock Restricted permeability Dusty	 1.00 1.00 0.96 0.50	Very limited Sodium content Depth to bedrock Restricted permeability Dusty	 1.00 1.00 0.96 0.50	Very limited Depth to bedrock Sodium content Restricted permeability Dusty Slope	 1.00 1.00 0.96 0.50 0.13

Table 9a.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
116:							
Benally	25	Very limited		Very limited		Very limited	
		Sodium content	1.00	Sodium content	1.00	Sodium content	1.00
		Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
						Gravel content	0.06
						Slope	0.01
118:							
Farb	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
						Slope	1.00
Chipeta	30	Very limited		Very limited		Very limited	
		Salinity	1.00	Salinity	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Salinity	1.00
		Slope	0.63	Slope	0.63	Slope	1.00
		Too clayey	0.50	Too clayey	0.50	Too clayey	0.50
		Restricted permeability	0.41	Restricted permeability	0.41	Restricted permeability	0.41
Rock outcrop	25	Not rated		Not rated		Not rated	
120:							
Doak	55	Not limited		Not limited		Somewhat limited	
						Slope	0.01
Shiprock	30	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.92	Too sandy	0.92	Too sandy	0.92
						Slope	0.50
121:							
Badland	90	Not rated		Not rated		Not rated	
122:							
Farb	45	Very limited		Very limited		Very limited	
		Gravel content	1.00	Gravel content	1.00	Gravel content	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
						Slope	0.87
Rock outcrop	45	Not rated		Not rated		Not rated	
125:							
Sanfeco	75	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Restricted permeability	0.96	Restricted permeability	0.96
		Restricted permeability	0.96				

Table 9a.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
130:							
Chipeta	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
		Dusty	0.50	Dusty	0.50	Gravel content	1.00
		Restricted permeability	0.45	Restricted permeability	0.45	Dusty	0.50
		Gravel content	0.08	Gravel content	0.08	Restricted permeability	0.45
Badlands	30	Not rated		Not rated		Not rated	
Moncisco	15	Very limited		Very limited		Very limited	
		Gravel content	1.00	Gravel content	1.00	Gravel content	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
						Content of large stones	0.01
150:							
Riverwash	65	Not rated		Not rated		Not rated	
Escawetter	25	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Too sandy	0.44	Flooding	1.00
		Too sandy	0.44	Flooding	0.40	Too sandy	0.44
160:							
Escawetter	40	Very limited		Very limited		Very limited	
		Flooding	1.00	Too sandy	1.00	Too sandy	1.00
		Too sandy	1.00	Flooding	0.40	Flooding	1.00
Riverwash	35	Not rated		Not rated		Not rated	
Razito	15	Very limited		Very limited		Very limited	
		Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
						Slope	0.13
205:							
Penistaja	45	Not limited		Not limited		Somewhat limited	
						Slope	0.13
Tintero	40	Not limited		Not limited		Somewhat limited	
						Slope	0.87
208:							
Marianolake	85	Not limited		Not limited		Somewhat limited	
						Slope	0.50

Table 9a.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
210:							
Marianolake	50	Not limited		Not limited		Somewhat limited	
						Slope	0.50
Skyvillage	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Gravel content	1.00
		Gravel content	0.68	Gravel content	0.68	Depth to bedrock	1.00
						Slope	0.50
						Content of large stones	0.11
212:							
Rehobeth	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Restricted permeability	0.41	Flooding	0.60
		Restricted permeability	0.41			Restricted permeability	0.41
215:							
Viuda	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Restricted permeability	0.96	Restricted permeability	0.96	Content of large stones	1.00
		Content of large stones	0.08	Content of large stones	0.08	Gravel content	1.00
		Gravel content	0.02	Gravel content	0.02	Restricted permeability	0.96
						Slope	0.13
Penistaja	30	Not limited		Not limited		Somewhat limited	
						Slope	0.13
Rock outcrop	25	Not rated		Not rated		Not rated	
220:							
Hagerwest	50	Not limited		Not limited		Somewhat limited	
						Slope	0.13
						Depth to bedrock	0.10
Bond	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
						Slope	0.50
225:							
Aquima	40	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
						Slope	0.13
Hawaikuh	40	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
						Slope	0.13

Table 9a.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
230:							
Sparank	40	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Restricted permeability	0.45	Flooding	0.60
		Restricted permeability	0.45			Restricted permeability	0.45
San Mateo	35	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Flooding	0.60
Zia	20	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Slope	0.01
235:							
Notal	45	Very limited		Very limited		Very limited	
		Flooding	1.00	Sodium content	1.00	Sodium content	1.00
		Sodium content	1.00	Dusty	0.50	Dusty	0.50
		Dusty	0.50	Restricted permeability	0.45	Restricted permeability	0.45
		Restricted permeability	0.45				
Hamburn	40	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Flooding	0.60
240:							
Breadsprings	35	Very limited		Very limited		Very limited	
		Flooding	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Dusty	0.50	Dusty	0.50
		Dusty	0.50				
Nahodish	35	Very limited		Very limited		Very limited	
		Flooding	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Dusty	0.50	Dusty	0.50
		Dusty	0.50	Restricted permeability	0.41	Restricted permeability	0.41
		Restricted permeability	0.41				
241:							
Mentmore	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Slope	0.50
						Dusty	0.50
242:							
Gish	45	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Restricted permeability	0.41	Slope	0.50
		Restricted permeability	0.41			Restricted permeability	0.41
Mentmore	35	Not limited		Not limited		Somewhat limited	
						Slope	0.50

Table 9a.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
244:							
Buckle	85	Not limited		Not limited		Somewhat limited	
						Slope	0.50
245:							
Buckle	35	Not limited		Not limited		Somewhat limited	
						Slope	0.50
Gapmesa	30	Not limited		Not limited		Somewhat limited	
						Slope	0.01
Barboncito	25	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too sandy	0.94	Too sandy	0.94	Too sandy	0.94
		Restricted permeability	0.22	Restricted permeability	0.22	Restricted permeability	0.22
						Slope	0.01
250:							
Hospah	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00	Content of large stones	1.00
		Content of large stones	0.71	Content of large stones	0.71	Slope	1.00
		Restricted permeability	0.41	Restricted permeability	0.41	Gravel content	1.00
		Gravel content	0.11	Gravel content	0.11	Restricted permeability	0.41
Skyvillage	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Gravel content	1.00
		Gravel content	0.68	Gravel content	0.68	Depth to bedrock	1.00
						Slope	0.87
						Content of large stones	0.11
Rock outcrop	25	Not rated		Not rated		Not rated	
255:							
Farview	50	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too sandy	0.89	Too sandy	0.89	Slope	1.00
		Slope	0.01	Slope	0.01	Too sandy	0.89
						Gravel content	0.78
Rock outcrop	35	Not rated		Not rated		Not rated	

Table 9a.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
258:							
Eagleye	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.41	Restricted permeability	0.41	Restricted permeability	0.41
Atchee	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
						Slope	1.00
Rock outcrop	20	Not rated		Not rated		Not rated	
260:							
Quarries and Pits	95	Not rated		Not rated		Not rated	
261:							
Coal Mine Lands	100	Not rated		Not rated		Not rated	
265:							
Uranium Mined Lands	95	Not rated		Not rated		Not rated	
270:							
Alesna	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.61	Gravel content	0.61	Content of large stones	1.00
		Dusty	0.50	Dusty	0.50	Gravel content	1.00
		Content of large stones	0.42	Content of large stones	0.42	Dusty	0.50
		Restricted permeability	0.41	Restricted permeability	0.41	Restricted permeability	0.41
Rock outcrop	20	Not rated		Not rated		Not rated	
275:							
Eldado	85	Somewhat limited		Somewhat limited		Very limited	
		Gravel content	0.62	Gravel content	0.62	Gravel content	1.00
						Slope	0.13
280:							
Azabache	85	Very limited		Very limited		Very limited	
		Sodium content	1.00	Gravel content	1.00	Gravel content	1.00
		Gravel content	1.00	Sodium content	1.00	Sodium content	1.00
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
						Slope	0.87
290:							
Rock outcrop	45	Not rated		Not rated		Not rated	

Table 9a.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
290:							
Westmion	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Restricted permeability	0.41	Restricted permeability	0.41	Restricted permeability	0.41
						Content of large stones	0.01
Skyvillage	15	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
						Slope	0.87
		Slope		Slope		Content of large stones	0.01
291:							
Rock outcrop	50	Not rated		Not rated		Not rated	
Eagleye	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Gravel content	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Gravel content	0.71	Gravel content	0.71	Depth to bedrock	1.00
		Restricted permeability	0.05	Restricted permeability	0.05	Content of large stones	0.08
						Restricted permeability	0.05
Atchee	15	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Gravel content	1.00
		Gravel content	0.88	Gravel content	0.88	Depth to bedrock	1.00
		Slope	0.63	Slope	0.63	Slope	1.00
						Content of large stones	0.16
300:							
Regracic	80	Somewhat limited		Somewhat limited		Very limited	
		Gravel content	0.90	Gravel content	0.90	Gravel content	1.00
						Slope	0.50
305:							
Celavar	50	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Slope	0.50
						Dusty	0.50
						Depth to bedrock	0.35
Atarque	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
						Slope	0.50

Table 9a.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
308:							
Fikel	50	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.41	Restricted permeability	0.41	Slope	0.50
						Restricted permeability	0.41
Venzuni	40	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Too clayey	0.50	Too clayey	0.50
		Too clayey	0.50	Restricted permeability	0.45	Restricted permeability	0.45
		Restricted permeability	0.45			Slope	0.13
310:							
Parkelei	80	Not limited		Not limited		Somewhat limited	
						Slope	0.50
312:							
Bluewater	90	Very limited		Not limited		Not limited	
		Flooding	1.00				
315:							
Flugle	50	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
						Slope	0.13
Fragua	40	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.79	Too sandy	0.79	Slope	0.87
						Too sandy	0.79
316:							
Royosa	80	Somewhat limited		Somewhat limited		Very limited	
		Too sandy	0.95	Too sandy	0.95	Slope	1.00
		Slope	0.01	Slope	0.01	Too sandy	0.95
317:							
Highdye	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Slope	0.37	Slope	1.00
						Content of large stones	0.01
Evpark	30	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Depth to bedrock	0.90
						Slope	0.87
						Dusty	0.50
Bryway	20	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.41	Restricted permeability	0.41	Depth to bedrock	0.95
						Slope	0.87
						Restricted permeability	0.41

Table 9a.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
320:							
Parkelei	45	Not limited		Not limited		Somewhat limited	
						Slope	0.50
Fraguni	40	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.92	Too sandy	0.92	Too sandy	0.92
						Slope	0.50
325:							
Venzuni	90	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Too clayey	0.50	Too clayey	0.50
		Too clayey	0.50	Restricted permeability	0.45	Restricted permeability	0.45
		Restricted permeability	0.45			Slope	0.01
332:							
Evpark	50	Not limited		Not limited		Somewhat limited	
						Slope	0.50
						Depth to bedrock	0.06
Arabrab	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
						Slope	0.50
						Content of large stones	0.01
335:							
Venadito	85	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Too clayey	0.50	Flooding	1.00
		Too clayey	0.50	Restricted permeability	0.45	Too clayey	0.50
		Restricted permeability	0.45	Flooding	0.40	Restricted permeability	0.45
						Slope	0.01
336:							
Nuffel	45	Very limited		Somewhat limited		Very limited	
Venadito	35	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Too clayey	0.50	Flooding	1.00
		Too clayey	0.50	Restricted permeability	0.45	Too clayey	0.50
		Restricted permeability	0.45	Flooding	0.40	Restricted permeability	0.45
						Slope	0.01
338:							
Zyme	50	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.41	Restricted permeability	0.41	Restricted permeability	0.41

Table 9a.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
338:							
Lockerby	40	Somewhat limited		Somewhat limited		Very limited	
		Restricted permeability	0.45	Restricted permeability	0.45	Slope	1.00
		Slope	0.16	Slope	0.16	Depth to bedrock	0.80
						Restricted permeability	0.45
345:							
Rock outcrop	40	Not rated		Not rated		Not rated	
Tuces	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Gravel content	1.00
		Gravel content	0.97	Gravel content	0.97	Slope	1.00
		Restricted permeability	0.41	Restricted permeability	0.41	Content of large stones	1.00
		Content of large stones	0.05	Content of large stones	0.05	Depth to bedrock	0.90
						Restricted permeability	0.41
350:							
Toldohn	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Restricted permeability	0.41	Restricted permeability	0.41	Restricted permeability	0.41
						Gravel content	0.11
						Content of large stones	0.08
Vessilla	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.01	Slope	0.01	Slope	1.00
						Content of large stones	0.03
						Gravel content	0.02
Rock outcrop	20	Not rated		Not rated		Not rated	
351:							
Rock outcrop	60	Not rated		Not rated		Not rated	

Table 9a.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
351:							
Vessilla	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.01	Slope	0.01	Slope	1.00
						Content of large stones	0.03
						Gravel content	0.02
352:							
Zia	80	Not limited		Not limited		Somewhat limited	
						Slope	0.13
353:							
Mido	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.44	Too sandy	0.44	Too sandy	0.44
						Slope	0.13
354:							
Knifehill	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.41	Restricted permeability	0.41	Restricted permeability	0.41
						Slope	0.13
355:							
Rizno	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.16	Slope	0.16	Slope	1.00
						Gravel content	0.22
Tekapo	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
						Gravel content	0.78
Rock outcrop	20	Not rated		Not rated		Not rated	
357:							
Heshotauthla	85	Very limited		Very limited		Very limited	
		Sodium content	1.00	Sodium content	1.00	Sodium content	1.00
		Flooding	1.00	Too clayey	0.50	Flooding	0.60
		Too clayey	0.50	Restricted permeability	0.45	Too clayey	0.50
		Restricted permeability	0.45			Restricted permeability	0.45
360:							
Hosta	45	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Restricted permeability	0.41	Restricted permeability	0.41	Restricted permeability	0.41
						Slope	0.13

Table 9a.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
360:							
Concho	40	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Restricted permeability	0.41	Restricted permeability	0.41
		Restricted permeability	0.41				
361:							
Monpark	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Too clayey	0.50	Too clayey	0.50	Depth to bedrock	0.71
		Restricted permeability	0.45	Restricted permeability	0.45	Slope	0.50
						Too clayey	0.50
						Restricted permeability	0.45
365:							
Vessilla	55	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.01	Slope	0.01	Slope	1.00
						Gravel content	0.22
Rock outcrop	35	Not rated		Not rated		Not rated	
366:							
Bosonoak	95	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
						Slope	0.13
367:							
Chunkmonk	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Gravel content	1.00
		Gravel content	1.00	Gravel content	1.00	Depth to bedrock	1.00
						Slope	1.00
						Content of large stones	0.08
368:							
Simitarq	60	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
						Slope	0.87
						Gravel content	0.68
						Content of large stones	0.01
Celavar	20	Not limited		Not limited		Somewhat limited	
						Slope	0.87
						Depth to bedrock	0.35

Table 9a.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
375:							
Todest	60	Not limited		Not limited		Somewhat limited	
						Slope	0.87
						Depth to bedrock	0.84
Shadilto	25	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Gravel content	1.00
		Gravel content	1.00	Gravel content	1.00	Depth to bedrock	1.00
						Slope	0.87
						Content of large stones	0.03
376:							
Todest	80	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.90
						Slope	0.87
380:							
Berryhill	50	Somewhat limited		Somewhat limited		Somewhat limited	
		Too clayey	0.50	Too clayey	0.50	Slope	0.87
		Restricted permeability	0.45	Restricted permeability	0.45	Too clayey	0.50
						Restricted permeability	0.45
Casamero	45	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	0.50	Too clayey	0.50	Slope	1.00
		Restricted permeability	0.45	Restricted permeability	0.45	Too clayey	0.50
						Restricted permeability	0.45
385:							
Mcorreon	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Gravel content	1.00
		Gravel content	0.75	Gravel content	0.75	Slope	1.00
		Restricted permeability	0.41	Restricted permeability	0.41	Content of large stones	1.00
		Content of large stones	0.20	Content of large stones	0.20	Restricted permeability	0.41
Rock outcrop	20	Not rated		Not rated		Not rated	
390:							
Banquito	90	Not limited		Not limited		Somewhat limited	
						Gravel content	0.18
						Slope	0.01

Table 9a.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
395:							
Cabezon	60	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Gravel content	0.79	Gravel content	0.79	Gravel content	1.00
		Restricted permeability	0.45	Restricted permeability	0.45	Content of large stones	1.00
Mcorreon	30	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.41	Restricted permeability	0.41	Slope	0.87
						Restricted permeability	0.41
						Gravel content	0.15
						Content of large stones	0.01
400:							
Shoemaker	45	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.79	Too sandy	0.79	Slope	0.87
						Too sandy	0.79
						Depth to bedrock	0.65
						Content of large stones	0.01
Stozuni	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
						Slope	0.87
403:							
Valnor	50	Somewhat limited		Somewhat limited		Very limited	
		Restricted permeability	0.41	Restricted permeability	0.41	Slope	1.00
		Slope	0.01	Slope	0.01	Restricted permeability	0.41
						Depth to bedrock	0.16
Techado	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00	Gravel content	1.00
		Too clayey	0.50	Too clayey	0.50	Slope	1.00
		Restricted permeability	0.41	Restricted permeability	0.41	Too clayey	0.50
		Gravel content	0.11	Gravel content	0.11	Restricted permeability	0.41
404:							
Rock outcrop	35	Not rated		Not rated		Not rated	

Table 9a.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
404:							
Techado	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00	Gravel content	1.00
		Restricted permeability	0.41	Restricted permeability	0.41	Slope	1.00
		Gravel content	0.11	Gravel content	0.11	Restricted permeability	0.41
						Content of large stones	0.01
Stozuni	25	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.16	Slope	0.16	Gravel content	1.00
		Gravel content	0.08	Gravel content	0.08	Slope	1.00
						Content of large stones	0.03
405:							
Fortwingate	50	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.41	Restricted permeability	0.41	Slope	0.87
						Depth to bedrock	0.80
						Restricted permeability	0.41
Owlrock	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Gravel content	1.00
		Gravel content	0.93	Gravel content	0.93	Depth to bedrock	1.00
		Content of large stones	0.02	Content of large stones	0.02	Content of large stones	1.00
						Slope	0.87
406:							
Polich	90	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Flooding	0.40	Flooding	1.00
407:							
Cinnadale	50	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Gravel content	1.00
		Gravel content	1.00	Gravel content	1.00	Depth to bedrock	1.00
		Slope	0.16	Slope	0.16	Slope	1.00
						Content of large stones	0.01
Heckly	35	Very limited		Very limited		Very limited	
		Gravel content	1.00	Gravel content	1.00	Gravel content	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.41	Restricted permeability	0.41	Content of large stones	0.84
						Restricted permeability	0.41
						Depth to bedrock	0.01

Table 9a.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
408:							
Mirabal	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.46
Zuni	40	Somewhat limited		Somewhat limited		Very limited	
		Restricted permeability	0.41	Restricted permeability	0.41	Slope	1.00
		Slope	0.01	Slope	0.01	Depth to bedrock	0.71
						Restricted permeability	0.41
409:							
Rauster	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Rock outcrop	30	Not rated		Not rated		Not rated	
410:							
Montillo	50	Somewhat limited		Somewhat limited		Very limited	
		Restricted permeability	0.41	Restricted permeability	0.41	Slope	1.00
		Slope	0.16	Slope	0.16	Gravel content	1.00
		Gravel content	0.02	Gravel content	0.02	Restricted permeability	0.41
						Depth to bedrock	0.29
						Content of large stones	0.05
Tsoodzil	40	Very limited		Very limited		Very limited	
		Gravel content	1.00	Gravel content	1.00	Gravel content	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.41	Restricted permeability	0.41	Restricted permeability	0.41
411:							
Ligocki	45	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.41	Restricted permeability	0.41	Restricted permeability	0.41
						Slope	0.13
Robolata	35	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Restricted permeability	0.41	Flooding	0.60
		Restricted permeability	0.41			Restricted permeability	0.41
						Slope	0.13
412:							
Rock outcrop	50	Not rated		Not rated		Not rated	

Table 9a.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
412:							
Rionutria	25	Somewhat limited		Somewhat limited		Very limited	
		Content of large stones	0.20	Content of large stones	0.20	Content of large stones	1.00
		Slope	0.16	Slope	0.16	Slope	1.00
		Gravel content	0.06	Gravel content	0.06	Gravel content	1.00
						Depth to bedrock	0.90
Zaster	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Gravel content	1.00
		Gravel content	0.99	Gravel content	0.99	Slope	1.00
		Content of large stones	0.18	Content of large stones	0.18	Content of large stones	1.00
						Depth to bedrock	0.71
413:							
Morclay	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Too clayey	0.50	Too clayey	0.50	Too clayey	0.50
		Restricted permeability	0.45	Restricted permeability	0.45	Restricted permeability	0.45
						Slope	0.13
414:							
Zunalei	50	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.92	Too sandy	0.92	Too sandy	0.92
						Slope	0.87
Corzuni	40	Not limited		Not limited		Somewhat limited	
						Slope	0.87
415:							
Tsoodzil	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.41	Restricted permeability	0.41	Content of large stones	1.00
		Content of large stones	0.26	Content of large stones	0.26	Gravel content	0.96
						Restricted permeability	0.41
Rubble Land	20	Not rated		Not rated		Not rated	
416:							
Rock outcrop	70	Not rated		Not rated		Not rated	

Table 9a.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
416:							
Bluesky	20	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Too sandy	1.00	Depth to bedrock	1.00
		Too sandy	1.00	Depth to bedrock	1.00	Too sandy	1.00
		Slope	0.16	Slope	0.16	Slope	1.00
418:							
Asaayi	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.01	Slope	0.01	Slope	1.00
Osoridge	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Gravel content	1.00
		Gravel content	0.71	Gravel content	0.71	Depth to bedrock	1.00
		Restricted permeability	0.41	Restricted permeability	0.41	Slope	1.00
		Slope	0.01	Slope	0.01	Restricted permeability	0.41
						Content of large stones	0.08
419:							
Fortwingate	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Content of large stones	1.00
		Content of large stones	0.50	Content of large stones	0.50	Slope	1.00
		Restricted permeability	0.41	Restricted permeability	0.41	Depth to bedrock	0.80
						Restricted permeability	0.41
						Gravel content	0.06
Cinnadale	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	1.00
		Content of large stones	0.94	Content of large stones	0.94	Depth to bedrock	1.00
		Slope	0.16	Slope	0.16	Slope	1.00
						Gravel content	0.81
Rock outcrop	20	Not rated		Not rated		Not rated	
420:							
Seco	85	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Restricted permeability	0.45	Restricted permeability	0.45
		Restricted permeability	0.45			Slope	0.13

Table 9a.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
425:							
Montillo	50	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.41	Restricted permeability	0.41	Slope	0.50
						Restricted permeability	0.41
						Depth to bedrock	0.10
						Content of large stones	0.01
Canoneros	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Restricted permeability	0.41	Restricted permeability	0.41	Content of large stones	0.92
						Gravel content	0.65
						Slope	0.50
						Restricted permeability	0.41
430:							
Montillo	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.41	Restricted permeability	0.41	Slope	0.50
						Restricted permeability	0.41
						Depth to bedrock	0.01
						Content of large stones	0.01
435:							
Tsoodzil	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Gravel content	1.00
		Gravel content	0.79	Gravel content	0.79	Slope	1.00
		Restricted permeability	0.41	Restricted permeability	0.41	Restricted permeability	0.41
						Content of large stones	0.38
Amcec	40	Very limited		Very limited		Very limited	
		Gravel content	1.00	Gravel content	1.00	Gravel content	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
						Content of large stones	0.26
440:							
Chivato	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Too clayey	0.50	Too clayey	0.50	Too clayey	0.50
		Restricted permeability	0.45	Restricted permeability	0.45	Restricted permeability	0.45

Table 9a.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
525:							
Silcat	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.45	Restricted permeability	0.45	Slope	0.87
						Restricted permeability	0.45
550:							
Bryway	50	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Slope	0.50
		Restricted permeability	0.41	Restricted permeability	0.41	Dusty	0.50
						Restricted permeability	0.41
						Depth to bedrock	0.29
Galzuni	35	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Slope	0.50
		Restricted permeability	0.41	Restricted permeability	0.41	Dusty	0.50
						Restricted permeability	0.41
555:							
Parkelei	45	Not limited		Not limited		Somewhat limited	
						Slope	0.87
Evpark	35	Not limited		Not limited		Somewhat limited	
						Slope	0.87
						Depth to bedrock	0.10
560:							
Flugle	45	Not limited		Not limited		Somewhat limited	
						Slope	0.13
Teczuni	35	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.41	Restricted permeability	0.41	Restricted permeability	0.41
						Slope	0.13
561:							
Flugle	50	Not limited		Not limited		Somewhat limited	
						Slope	0.87
Plumasano	40	Not limited		Not limited		Somewhat limited	
						Slope	0.87
565:							
Plumasano	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00

Table 9a.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
565:							
Rock outcrop	20	Not rated		Not rated		Not rated	
566:							
Bamac	90	Very limited		Very limited		Very limited	
		Gravel content	1.00	Gravel content	1.00	Gravel content	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
						Content of large stones	0.01
575:							
Ramah	45	Not limited		Not limited		Somewhat limited	
						Slope	0.01
Pescado	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
						Slope	0.50

Table 9b.--Recreation

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
8:							
Water	100	Not rated		Not rated		Not rated	
10:							
Tsosie	35	Not limited		Not limited		Very limited Sodium content	1.00
Councelor	30	Not limited		Not limited		Not limited	
Blancot	20	Not limited		Not limited		Somewhat limited Droughty	0.20
11:							
Doakum	60	Not limited		Not limited		Not limited	
Betonnie	25	Not limited		Not limited		Somewhat limited Droughty	0.02
12:							
Calladito	55	Somewhat limited Too sandy	0.96	Somewhat limited Too sandy	0.96	Somewhat limited Droughty	0.29
Elias	30	Not limited		Not limited		Very limited Sodium content Droughty	1.00 0.02
13:							
Councelor	60	Not limited		Not limited		Not limited	
Calladito	30	Somewhat limited Too sandy	0.96	Somewhat limited Too sandy	0.96	Somewhat limited Droughty	0.55
14:							
Councelor	30	Not limited		Not limited		Not limited	
Eslendo	30	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Very limited Depth to bedrock Droughty Slope	1.00 0.98 0.96
Calladito	25	Somewhat limited Too sandy	0.96	Somewhat limited Too sandy	0.96	Somewhat limited Droughty	0.61
16:							
Starlake	85	Somewhat limited Too clayey	0.50	Somewhat limited Too clayey	0.50	Very limited Sodium content Too clayey Droughty	1.00 1.00 0.01

Table 9b.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
22:							
Querencia	50	Not limited		Not limited		Not limited	
Lavodnas	35	Somewhat limited		Somewhat limited		Very limited	
		Dusty	0.50	Dusty	0.50	Depth to bedrock	1.00
						Droughty	1.00
						Slope	0.01
30:							
Orlie	45	Not limited		Not limited		Not limited	
Tinian	40	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Depth to bedrock	0.90
40:							
Nuffel	90	Somewhat limited		Somewhat limited		Very limited	
		Dusty	0.50	Dusty	0.50	Flooding	1.00
		Flooding	0.40	Flooding	0.40		
42:							
Suwanee	90	Somewhat limited		Somewhat limited		Very limited	
		Flooding	0.40	Flooding	0.40	Flooding	1.00
44:							
Suwanee	90	Somewhat limited		Somewhat limited		Very limited	
		Too clayey	0.50	Too clayey	0.50	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Too clayey	1.00
45:							
Nutreeah	90	Not limited		Not limited		Not limited	
47:							
Conchovar	90	Not limited		Not limited		Not limited	
49:							
Concho	85	Not limited		Not limited		Not limited	
51:							
Kwakina	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.87	Too sandy	0.87	Flooding	0.60
						Droughty	0.05
52:							
Zuniven	90	Somewhat limited		Somewhat limited		Very limited	
		Too sandy	0.92	Too sandy	0.92	Flooding	1.00
		Flooding	0.40	Flooding	0.40		
53:							
Hawaikuh	80	Not limited		Not limited		Not limited	
54:							
Venadito	90	Somewhat limited		Somewhat limited		Very limited	
		Too clayey	0.50	Too clayey	0.50	Too clayey	1.00
						Flooding	0.60

Table 9b.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
55:							
Sparham	95	Somewhat limited		Somewhat limited		Very limited	
		Flooding	0.40	Flooding	0.40	Flooding	1.00
60:							
Redpen	90	Not limited		Not limited		Not limited	
100:							
Norkiki	45	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.79	Too sandy	0.79	Depth to bedrock	0.65
						Droughty	0.02
Kimnoli	40	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	1.00
110:							
Benally	60	Not limited		Not limited		Very limited	
						Sodium content	1.00
Fruitland	25	Somewhat limited		Somewhat limited		Not limited	
		Too sandy	0.94	Too sandy	0.94		
111:							
Yelives	85	Not limited		Not limited		Not limited	
115:							
Razito	45	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.79	Too sandy	0.79	Droughty	0.69
Shiprock	40	Not limited		Not limited		Not limited	
116:							
Fajada	30	Not limited		Not limited		Very limited	
						Sodium content	1.00
						Droughty	0.96
						Depth to bedrock	0.65
						Gravel content	0.18
Huerfano	30	Somewhat limited		Somewhat limited		Very limited	
		Dusty	0.50	Dusty	0.50	Depth to bedrock	1.00
						Sodium content	1.00
						Droughty	1.00
Benally	25	Not limited		Not limited		Very limited	
						Sodium content	1.00
						Droughty	0.29
118:							
Farb	35	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	1.00

Table 9b.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
118:							
Chipeta	30	Somewhat limited		Somewhat limited		Very limited	
		Too clayey	0.50	Too clayey	0.50	Depth to bedrock	1.00
						Salinity	1.00
						Droughty	1.00
						Too clayey	1.00
						Slope	0.63
Rock outcrop	25	Not rated		Not rated		Not rated	
120:							
Doak	55	Not limited		Not limited		Not limited	
Shiprock	30	Somewhat limited		Somewhat limited		Not limited	
		Too sandy	0.92	Too sandy	0.92		
121:							
Badland	90	Not rated		Not rated		Not rated	
122:							
Farb	45	Very limited		Very limited		Very limited	
		Gravel content	1.00	Gravel content	1.00	Depth to bedrock	1.00
						Gravel content	1.00
						Droughty	1.00
Rock outcrop	45	Not rated		Not rated		Not rated	
125:							
Sanfeco	75	Not limited		Not limited		Not limited	
130:							
Chipeta	40	Somewhat limited		Somewhat limited		Very limited	
		Dusty	0.50	Dusty	0.50	Depth to bedrock	1.00
		Slope	0.02			Droughty	1.00
						Slope	1.00
						Gravel content	0.08
Badlands	30	Not rated		Not rated		Not rated	
Moncisco	15	Very limited		Very limited		Very limited	
		Gravel content	1.00	Gravel content	1.00	Gravel content	1.00
		Slope	0.68			Droughty	1.00
						Slope	1.00
						Content of large stones	0.01
150:							
Riverwash	65	Very limited		Very limited		Very limited	
		Too sandy	1.00	Too sandy	1.00	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Droughty	1.00
						Too sandy	0.50

Table 9b.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
150:							
Escawetter	25	Somewhat limited		Somewhat limited		Very limited	
		Too sandy	0.44	Too sandy	0.44	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Droughty	0.49
160:							
Escawetter	40	Very limited		Very limited		Very limited	
		Too sandy	1.00	Too sandy	1.00	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Droughty	0.89
Riverwash	35	Very limited		Very limited		Very limited	
		Too sandy	1.00	Too sandy	1.00	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Droughty	1.00
						Too sandy	0.50
Razito	15	Very limited		Very limited		Somewhat limited	
		Too sandy	1.00	Too sandy	1.00	Droughty	0.92
205:							
Penistaja	45	Not limited		Not limited		Not limited	
Tintero	40	Not limited		Not limited		Not limited	
208:							
Marianolake	85	Not limited		Not limited		Not limited	
210:							
Marianolake	50	Not limited		Not limited		Not limited	
Skyvillage	30	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	1.00
						Gravel content	0.68
						Content of large stones	0.11
212:							
Rehobeth	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
						Flooding	0.60
215:							
Viuda	35	Somewhat limited		Somewhat limited		Very limited	
		Content of large stones	0.08	Content of large stones	0.08	Depth to bedrock	1.00
						Content of large stones	1.00
						Droughty	0.88
						Gravel content	0.02
Penistaja	30	Not limited		Not limited		Not limited	
Rock outcrop	25	Not rated		Not rated		Not rated	

Table 9b.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
220:							
Hagerwest	50	Not limited		Not limited		Somewhat limited Depth to bedrock	0.10
Bond	35	Not limited		Not limited		Very limited Depth to bedrock Droughty	1.00 1.00
225:							
Aquima	40	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
Hawaikuh	40	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
230:							
Sparank	40	Not limited		Not limited		Somewhat limited Flooding	0.60
San Mateo	35	Not limited		Not limited		Somewhat limited Flooding	0.60
Zia	20	Not limited		Not limited		Not limited	
235:							
Notal	45	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Very limited Sodium content	1.00
Hamburn	40	Not limited		Not limited		Somewhat limited Flooding	0.60
240:							
Breadsprings	35	Very limited Ponding Dusty	1.00 0.50	Very limited Ponding Dusty	1.00 0.50	Very limited Ponding	1.00
Nahodish	35	Very limited Ponding Dusty	1.00 0.50	Very limited Ponding Dusty	1.00 0.50	Very limited Ponding	1.00
241:							
Mentmore	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
242:							
Gish	45	Not limited		Not limited		Not limited	
Mentmore	35	Not limited		Not limited		Not limited	
244:							
Buckle	85	Not limited		Not limited		Not limited	

Table 9b.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
245:							
Buckle	35	Not limited		Not limited		Not limited	
Gapmesa	30	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.35
Barboncito	25	Somewhat limited		Somewhat limited		Very limited	
		Too sandy	0.94	Too sandy	0.94	Depth to bedrock	1.00
						Droughty	1.00
250:							
Hospah	35	Somewhat limited		Somewhat limited		Very limited	
		Content of large stones	0.71	Content of large stones	0.71	Depth to bedrock	1.00
		Slope	0.02			Droughty	1.00
						Content of large stones	1.00
						Slope	1.00
						Gravel content	0.11
Skyvillage	30	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	1.00
						Gravel content	0.68
						Content of large stones	0.11
Rock outcrop	25	Not rated		Not rated		Not rated	
255:							
Farview	50	Somewhat limited		Somewhat limited		Very limited	
		Too sandy	0.89	Too sandy	0.89	Depth to bedrock	1.00
						Droughty	0.94
						Slope	0.01
Rock outcrop	35	Not rated		Not rated		Not rated	
258:							
Eagleye	40	Somewhat limited		Not limited		Very limited	
		Slope	0.50			Depth to bedrock	1.00
						Droughty	1.00
						Slope	1.00
Atchee	35	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	1.00
Rock outcrop	20	Not rated		Not rated		Not rated	

Table 9b.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
260:							
Quarries and Pits	95	Not rated		Not rated		Not rated	
261:							
Coal Mine Lands	100	Not rated		Not rated		Not rated	
265:							
Uranium Mined Lands	95	Not rated		Not rated		Not rated	
270:							
Alesna	70	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Dusty	0.50	Slope	1.00
		Dusty	0.50	Slope	0.44	Content of large stones	1.00
		Content of large stones	0.42	Content of large stones	0.42	Gravel content	0.61
Rock outcrop	20	Not rated		Not rated		Not rated	
275:							
Eldado	85	Not limited		Not limited		Somewhat limited	
						Gravel content	0.62
						Droughty	0.02
280:							
Azabache	85	Very limited		Very limited		Very limited	
		Gravel content	1.00	Gravel content	1.00	Gravel content	1.00
						Sodium content	1.00
						Droughty	0.54
290:							
Rock outcrop	45	Not rated		Not rated		Not rated	
Westmion	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
						Slope	1.00
						Droughty	0.98
						Content of large stones	0.01
Skyvillage	15	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	1.00
						Content of large stones	0.01
291:							
Rock outcrop	50	Not rated		Not rated		Not rated	

Table 9b.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
291:							
Eagleye	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
						Slope	1.00
						Droughty	0.80
						Gravel content	0.71
						Content of large stones	0.08
Atchee	15	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	1.00
						Gravel content	0.88
						Slope	0.63
						Content of large stones	0.16
300:							
Regracic	80	Not limited		Not limited		Somewhat limited	
						Gravel content	0.90
305:							
Celavar	50	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Depth to bedrock	0.35
Atarque	35	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	1.00
308:							
Fikel	50	Not limited		Not limited		Not limited	
Venzuni	40	Somewhat limited		Somewhat limited		Very limited	
		Too clayey	0.50	Too clayey	0.50	Too clayey	1.00
310:							
Parkelei	80	Not limited		Not limited		Not limited	
312:							
Bluewater	90	Not limited		Not limited		Not limited	
315:							
Flugle	50	Somewhat limited		Somewhat limited		Not limited	
		Dusty	0.50	Dusty	0.50		
Fragua	40	Somewhat limited		Somewhat limited		Not limited	
		Too sandy	0.79	Too sandy	0.79		
316:							
Royosa	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.95	Too sandy	0.95	Droughty	0.01
						Slope	0.01

Table 9b.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
317:							
Highdye	35	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	1.00
						Slope	0.37
						Content of large stones	0.01
Evpark	30	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Depth to bedrock	0.90
						Droughty	0.01
Bryway	20	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.95
						Droughty	0.22
320:							
Parkelei	45	Not limited		Not limited		Not limited	
Fraguni	40	Somewhat limited		Somewhat limited		Not limited	
		Too sandy	0.92	Too sandy	0.92		
325:							
Venzuni	90	Somewhat limited		Somewhat limited		Very limited	
		Too clayey	0.50	Too clayey	0.50	Too clayey	1.00
332:							
Evpark	50	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.06
Arabrab	40	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	0.73
						Content of large stones	0.01
335:							
Venadito	85	Somewhat limited		Somewhat limited		Very limited	
		Too clayey	0.50	Too clayey	0.50	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Too clayey	1.00
336:							
Nuffel	45	Somewhat limited		Somewhat limited		Very limited	
		Dusty	0.50	Dusty	0.50	Flooding	1.00
		Flooding	0.40	Flooding	0.40		
Venadito	35	Somewhat limited		Somewhat limited		Very limited	
		Too clayey	0.50	Too clayey	0.50	Too clayey	1.00
		Flooding	0.40	Flooding	0.40	Flooding	1.00

Table 9b.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
338:							
Zyme	50	Somewhat limited		Not limited		Very limited	
		Slope	0.50			Depth to bedrock	1.00
						Slope	1.00
						Droughty	0.92
Lockerby	40	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.80
						Slope	0.16
						Droughty	0.01
345:							
Rock outcrop	40	Not rated		Not rated		Not rated	
Tuces	40	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.22	Slope	1.00
		Content of large stones	0.05	Content of large stones	0.05	Content of large stones	1.00
						Gravel content	0.97
						Depth to bedrock	0.90
						Droughty	0.11
350:							
Toldohn	35	Somewhat limited		Not limited		Very limited	
		Slope	0.50			Depth to bedrock	1.00
						Droughty	1.00
						Slope	1.00
						Content of large stones	0.08
Vessilla	30	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	1.00
						Content of large stones	0.03
						Slope	0.01
Rock outcrop	20	Not rated		Not rated		Not rated	
351:							
Rock outcrop	60	Not rated		Not rated		Not rated	
Vessilla	30	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	1.00
						Content of large stones	0.03
						Slope	0.01
352:							
Zia	80	Not limited		Not limited		Not limited	

Table 9b.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
353:							
Mido	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.44	Too sandy	0.44	Droughty	0.01
354:							
Knifehill	80	Not limited		Not limited		Not limited	
355:							
Rizno	35	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	1.00
						Slope	0.16
Tekapo	30	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.22	Depth to bedrock	1.00
						Droughty	1.00
						Slope	1.00
Rock outcrop	20	Not rated		Not rated		Not rated	
357:							
Heshotauthla	85	Somewhat limited		Somewhat limited		Very limited	
		Too clayey	0.50	Too clayey	0.50	Sodium content	1.00
						Too clayey	1.00
						Flooding	0.60
						Droughty	0.01
360:							
Hosta	45	Somewhat limited		Somewhat limited		Not limited	
		Dusty	0.50	Dusty	0.50		
Concho	40	Not limited		Not limited		Not limited	
361:							
Monpark	80	Somewhat limited		Somewhat limited		Very limited	
		Too clayey	0.50	Too clayey	0.50	Too clayey	1.00
						Depth to bedrock	0.71
365:							
Vessilla	55	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	0.99
						Slope	0.01
Rock outcrop	35	Not rated		Not rated		Not rated	
366:							
Bosonoak	95	Somewhat limited		Somewhat limited		Not limited	
		Dusty	0.50	Dusty	0.50		

Table 9b.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
367:							
Chunkmonk	85	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	1.00
						Gravel content	1.00
						Content of large stones	0.08
368:							
Simitarq	60	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	1.00
						Content of large stones	0.01
Celavar	20	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.35
375:							
Todest	60	Not limited		Not limited		Very limited	
						Carbonate content	1.00
						Depth to bedrock	0.84
						Droughty	0.01
Shadilto	25	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	1.00
						Gravel content	1.00
						Carbonate content	1.00
						Content of large stones	0.03
376:							
Todest	80	Not limited		Not limited		Very limited	
380:							
Berryhill	50	Somewhat limited		Somewhat limited		Very limited	
		Too clayey	0.50	Too clayey	0.50	Too clayey	1.00
Casamero	45	Somewhat limited		Somewhat limited		Very limited	
		Too clayey	0.50	Too clayey	0.50	Too clayey	1.00
						Depth to bedrock	1.00
						Droughty	0.84
385:							
Mcorreon	65	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Content of large stones	0.20	Content of large stones	1.00
		Content of large stones	0.20	Slope	0.01	Slope	1.00
						Gravel content	0.75
Rock outcrop	20	Not rated		Not rated		Not rated	

Table 9b.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
390:							
Banquito	90	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.06
395:							
Cabezon	60	Somewhat limited		Somewhat limited		Very limited	
		Content of large stones	0.18	Content of large stones	0.18	Depth to bedrock	1.00
						Content of large stones	1.00
						Droughty	0.99
						Gravel content	0.79
Mcorreon	30	Not limited		Not limited		Somewhat limited	
						Content of large stones	0.01
400:							
Shoemaker	45	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.79	Too sandy	0.79	Depth to bedrock	0.65
						Content of large stones	0.01
Stozuni	35	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	1.00
403:							
Valnor	50	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.16
						Slope	0.01
Techado	30	Somewhat limited		Somewhat limited		Very limited	
		Too clayey	0.50	Too clayey	0.50	Depth to bedrock	1.00
404:							
Rock outcrop	35	Not rated		Not rated		Not rated	
Techado	35	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.01	Depth to bedrock	1.00
						Slope	1.00
						Droughty	0.77
						Gravel content	0.11
						Content of large stones	0.01
Stozuni	25	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	1.00
						Slope	0.16
						Gravel content	0.08
						Content of large stones	0.03

Table 9b.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
405:							
Fortwingate	50	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.80
						Droughty	0.08
Owlrock	35	Somewhat limited		Somewhat limited		Very limited	
		Content of large stones	0.02	Content of large stones	0.02	Depth to bedrock	1.00
						Droughty	1.00
						Content of large stones	1.00
						Gravel content	0.93
406:							
Polich	90	Somewhat limited		Somewhat limited		Very limited	
		Flooding	0.40	Flooding	0.40	Flooding	1.00
407:							
Cinnadale	50	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	1.00
						Gravel content	1.00
						Slope	0.16
						Content of large stones	0.01
Heckly	35	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.01	Gravel content	1.00
						Slope	1.00
						Content of large stones	0.84
						Depth to bedrock	0.01
408:							
Mirabal	50	Somewhat limited		Not limited		Very limited	
		Slope	0.50			Droughty	1.00
						Slope	1.00
						Depth to bedrock	0.46
Zuni	40	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.71
						Droughty	0.25
						Slope	0.01
409:							
Rauster	60	Somewhat limited		Not limited		Very limited	
		Slope	0.50			Slope	1.00
Rock outcrop	30	Not rated		Not rated		Not rated	

Table 9b.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
410:							
Montillo	50	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.29
						Slope	0.16
						Content of large stones	0.05
						Gravel content	0.02
Tsoodzil	40	Somewhat limited		Not limited		Very limited	
		Slope	0.50			Gravel content	1.00
						Slope	1.00
411:							
Ligocki	45	Not limited		Not limited		Not limited	
Robolata	35	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
412:							
Rock outcrop	50	Not rated		Not rated		Not rated	
Rionutria	25	Somewhat limited		Somewhat limited		Very limited	
		Content of large stones	0.20	Content of large stones	0.20	Content of large stones	1.00
						Depth to bedrock	0.90
						Droughty	0.68
						Slope	0.16
						Gravel content	0.06
Zaster	25	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Content of large stones	0.18	Slope	1.00
		Content of large stones	0.18	Slope	0.01	Content of large stones	1.00
						Gravel content	0.99
						Droughty	0.97
						Depth to bedrock	0.71
413:							
Morclay	85	Somewhat limited		Somewhat limited		Very limited	
		Too clayey	0.50	Too clayey	0.50	Too clayey	1.00
414:							
Zunalei	50	Somewhat limited		Somewhat limited		Not limited	
		Too sandy	0.92	Too sandy	0.92		
Corzuni	40	Not limited		Not limited		Not limited	

Table 9b.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
415:							
Tsoodzil	60	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Content of large stones	0.26	Content of large stones	1.00
		Content of large stones	0.26	Slope	0.22	Slope	1.00
Rubble Land	20	Not rated		Not rated		Not rated	
416:							
Rock outcrop	70	Not rated		Not rated		Not rated	
Bluesky	20	Very limited		Very limited		Very limited	
		Too sandy	1.00	Too sandy	1.00	Depth to bedrock	1.00
						Droughty	1.00
						Slope	0.16
418:							
Asaayi	40	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	0.77
						Slope	0.01
Osoridge	35	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	0.79
						Gravel content	0.71
						Content of large stones	0.08
						Slope	0.01
419:							
Fortwingate	35	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Content of large stones	0.50	Content of large stones	1.00
		Content of large stones	0.50	Slope	0.01	Slope	1.00
						Depth to bedrock	0.80
						Droughty	0.01
Cinnadale	30	Somewhat limited		Somewhat limited		Very limited	
		Content of large stones	0.94	Content of large stones	0.94	Depth to bedrock	1.00
						Content of large stones	1.00
						Droughty	1.00
						Slope	0.16
Rock outcrop	20	Not rated		Not rated		Not rated	
420:							
Seco	85	Not limited		Not limited		Not limited	

Table 9b.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
425:							
Montillo	50	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.10
						Droughty	0.04
						Content of large stones	0.01
Canoneros	35	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	1.00
						Content of large stones	0.92
430:							
Montillo	80	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.01
						Content of large stones	0.01
435:							
Tsoodzil	50	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.01	Slope	1.00
						Gravel content	0.79
						Content of large stones	0.38
Amcec	40	Very limited		Very limited		Very limited	
		Slope	1.00	Gravel content	1.00	Gravel content	1.00
		Gravel content	1.00	Slope	0.22	Droughty	1.00
						Slope	1.00
						Content of large stones	0.26
440:							
Chivato	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Too clayey	1.00
		Too clayey	0.50	Too clayey	0.50	Ponding	1.00
525:							
Silcat	85	Not limited		Not limited		Not limited	
550:							
Bryway	50	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Depth to bedrock	0.29
Galzuni	35	Somewhat limited		Somewhat limited		Not limited	
		Dusty	0.50	Dusty	0.50		

Table 9b.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
555:							
Parkelei	45	Not limited		Not limited		Not limited	
Evpark	35	Not limited		Not limited		Somewhat limited Depth to bedrock	 0.10
560:							
Flugle	45	Not limited		Not limited		Not limited	
Teczuni	35	Not limited		Not limited		Not limited	
561:							
Flugle	50	Not limited		Not limited		Not limited	
Plumasano	40	Not limited		Not limited		Not limited	
565:							
Plumasano	65	Very limited Slope	 1.00	Somewhat limited Slope	 0.01	Very limited Slope	 1.00
Rock outcrop	20	Not rated		Not rated		Not rated	
566:							
Bamac	90	Very limited Gravel content Slope	 1.00 1.00	Very limited Gravel content Slope	 1.00 0.01	Very limited Gravel content Droughty Slope Content of large stones	 1.00 1.00 1.00 0.01
575:							
Ramah	45	Not limited		Not limited		Not limited	
Pescado	35	Not limited		Not limited		Very limited Depth to bedrock Droughty	 1.00 0.73

Table 10a.--Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
8:							
Water	100	Not rated		Not rated		Not rated	
10:							
Tsosie	35	Very limited Flooding	 1.00	Very limited Flooding	 1.00	Very limited Flooding	 1.00
Councelor	30	Very limited Flooding	 1.00	Very limited Flooding	 1.00	Very limited Flooding	 1.00
Blancot	20	Not limited		Not limited		Not limited	
11:							
Doakum	60	Not limited		Not limited		Not limited	
Betonnie	25	Not limited		Not limited		Somewhat limited Slope	 0.01
12:							
Calladito	55	Not limited		Not limited		Not limited	
Elias	30	Not limited		Somewhat limited Shrink-swell	 0.50	Not limited	
13:							
Councelor	60	Very limited Flooding	 1.00	Very limited Flooding	 1.00	Very limited Flooding Slope	 1.00 0.01
Calladito	30	Not limited		Not limited		Somewhat limited Slope	 0.01
14:							
Councelor	30	Very limited Flooding	 1.00	Very limited Flooding	 1.00	Very limited Flooding Slope	 1.00 0.48
Eslendo	30	Somewhat limited Depth to soft bedrock Slope Shrink-swell	 1.00 0.96 0.50	Very limited Depth to soft bedrock Slope Shrink-swell	 1.00 0.96 0.50	Very limited Depth to soft bedrock Slope Shrink-swell	 1.00 1.00 0.50
Calladito	25	Not limited		Not limited		Somewhat limited Slope	 0.01

Table 10a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
16:							
Starlake	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
22:							
Querencia	50	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.22	Shrink-swell	0.22	Slope	0.48
						Shrink-swell	0.22
Lavodnas	35	Very limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Shrink-swell	1.00	Depth to soft bedrock	1.00
		Shrink-swell	1.00	Depth to soft bedrock	1.00	Shrink-swell	1.00
		Slope	0.01	Slope	0.01	Slope	1.00
30:							
Orlie	45	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Tinian	40	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.90	Depth to hard bedrock	1.00	Depth to hard bedrock	0.90
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
						Slope	0.01
40:							
Nuffel	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
42:							
Suwanee	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
44:							
Suwanee	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	0.50			Shrink-swell	0.50
45:							
Nutreeah	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
				Depth to saturated zone	0.82		
47:							
Conchovar	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
				Depth to saturated zone	0.73		

Table 10a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
49:							
Concho	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
51:							
Kwakina	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
52:							
Zuniven	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
53:							
Hawaikuh	80	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
54:							
Venadito	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
				Depth to saturated zone	0.61		
55:							
Sparham	95	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
60:							
Redpen	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
100:							
Norkiki	45	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.64	Depth to hard bedrock	1.00	Depth to hard bedrock	0.64
		Shrink-swell	0.22	Shrink-swell	0.22	Shrink-swell	0.22
						Slope	0.01
Kimnoli	40	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
110:							
Benally	60	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Fruitland	25	Not limited		Not limited		Not limited	
111:							
Yelives	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00

Table 10a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
115:							
Razito	45	Not limited		Not limited		Somewhat limited	
						Slope	0.01
Shiprock	40	Not limited		Not limited		Somewhat limited	
						Slope	0.01
116:							
Fajada	30	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Depth to soft bedrock	0.64	Shrink-swell	0.50
				Shrink-swell	0.50		
Huerfano	30	Somewhat limited		Very limited		Somewhat limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Benally	25	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
118:							
Farb	35	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
						Slope	0.48
Chipeta	30	Somewhat limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
		Slope	0.63	Slope	0.63	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Rock outcrop	25	Not rated		Not rated		Not rated	
120:							
Doak	55	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.22	Shrink-swell	0.22	Shrink-swell	0.22
Shiprock	30	Not limited		Not limited		Somewhat limited	
						Slope	0.01
121:							
Badland	90	Not rated		Not rated		Not rated	

Table 10a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
122:							
Farb	45	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
						Slope	0.12
Rock outcrop	45	Not rated		Not rated		Not rated	
125:							
Sanfeco	75	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	1.00			Shrink-swell	1.00
130:							
Chipeta	40	Very limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
Badlands	30	Not rated		Not rated		Not rated	
Moncisco	15	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
150:							
Riverwash	65	Not rated		Not rated		Not rated	
Escawetter	25	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.88		
160:							
Escawetter	40	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.47		
Riverwash	35	Not rated		Not rated		Not rated	
Razito	15	Not limited		Not limited		Not limited	
205:							
Penistaja	45	Not limited		Not limited		Not limited	
Tintero	40	Not limited		Not limited		Somewhat limited	
						Slope	0.12

Table 10a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
208:							
Marianolake	85	Somewhat limited		Not limited		Somewhat limited	
		Shrink-swell	0.22			Shrink-swell	0.22
						Slope	0.01
210:							
Marianolake	50	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
						Slope	0.01
Skyvillage	30	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	0.22	Shrink-swell	0.22	Shrink-swell	0.22
						Slope	0.01
212:							
Rehobeth	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
215:							
Viuda	35	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Depth to hard bedrock	1.00
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Shrink-swell	1.00
Penistaja	30	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.22	Shrink-swell	0.22	Shrink-swell	0.22
Rock outcrop	25	Not rated		Not rated		Not rated	
220:							
Hagerwest	50	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.10	Depth to hard bedrock	1.00	Depth to hard bedrock	0.10
Bond	35	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
						Slope	0.01
225:							
Aquima	40	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50

Table 10a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
225:							
Hawaikuh	40	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
230:							
Sparank	40	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
San Mateo	35	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Zia	20	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
235:							
Notal	45	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	0.50			Shrink-swell	0.50
Hamburn	40	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	0.22	Shrink-swell	0.78	Shrink-swell	0.22
240:							
Breadsprings	35	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
Nahodish	35	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Shrink-swell	0.78			Shrink-swell	0.78
241:							
Mentmore	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.78	Shrink-swell	0.78	Shrink-swell	0.78
						Slope	0.01
242:							
Gish	45	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
						Slope	0.01
Mentmore	35	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.78	Shrink-swell	0.78	Shrink-swell	0.78
						Slope	0.01

Table 10a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
244:							
Buckle	85	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.22	Shrink-swell	1.00	Shrink-swell	0.22
						Slope	0.01
245:							
Buckle	35	Somewhat limited		Not limited		Somewhat limited	
		Shrink-swell	0.78			Shrink-swell	0.78
						Slope	0.01
Gapmesa	30	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.35	Depth to hard bedrock	1.00	Depth to hard bedrock	0.35
		Shrink-swell	0.22	Shrink-swell	0.22	Shrink-swell	0.22
Barboncito	25	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	0.22	Shrink-swell	0.22	Shrink-swell	0.22
250:							
Hospah	35	Very limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Shrink-swell	1.00	Depth to soft bedrock	1.00
		Shrink-swell	1.00	Depth to soft bedrock	1.00	Shrink-swell	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
Skyvillage	30	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
						Slope	0.12
Rock outcrop	25	Not rated		Not rated		Not rated	
255:							
Farview	50	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Slope	0.01	Slope	0.01	Slope	1.00
Rock outcrop	35	Not rated		Not rated		Not rated	
258:							
Eagleye	40	Very limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Shrink-swell	1.00	Depth to soft bedrock	1.00
		Shrink-swell	1.00	Depth to soft bedrock	1.00	Shrink-swell	1.00
		Slope	1.00	Slope	1.00	Slope	1.00

Table 10a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
258:							
Atchee	35	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Content of large stones	0.98	Content of large stones	0.98	Content of large stones	0.98
		Shrink-swell	0.78	Shrink-swell	0.78	Shrink-swell	0.78
						Slope	0.48
Rock outcrop	20	Not rated		Not rated		Not rated	
260:							
Quarries and Pits	95	Not rated		Not rated		Not rated	
261:							
Coal Mine Lands	100	Not rated		Not rated		Not rated	
265:							
Uranium Mined Lands	95	Not rated		Not rated		Not rated	
270:							
Alesna	70	Very limited		Very limited		Very limited	
		Slope	1.00	Shrink-swell	1.00	Slope	1.00
		Shrink-swell	1.00	Slope	1.00	Shrink-swell	1.00
Rock outcrop	20	Not rated		Not rated		Not rated	
275:							
Eldado	85	Not limited		Not limited		Not limited	
280:							
Azabache	85	Not limited		Not limited		Somewhat limited	
						Slope	0.12
290:							
Rock outcrop	45	Not rated		Not rated		Not rated	
Westmion	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to soft bedrock	1.00	Shrink-swell	1.00	Depth to soft bedrock	1.00
		Shrink-swell	1.00	Depth to soft bedrock	1.00	Shrink-swell	1.00
Skyvillage	15	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
						Slope	0.12

Table 10a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
291:							
Rock outcrop	50	Not rated		Not rated		Not rated	
Eagleye	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
		Shrink-swell	0.78	Shrink-swell	0.78	Shrink-swell	0.78
Atchee	15	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Slope	0.63	Slope	0.63	Slope	1.00
		Content of large stones	0.44	Content of large stones	0.44	Content of large stones	0.44
300:							
Regracic	80	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
						Slope	0.01
305:							
Celavar	50	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.35	Depth to hard bedrock	1.00	Depth to hard bedrock	0.35
						Slope	0.01
Atarque	35	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
						Slope	0.01
308:							
Fikel	50	Very limited		Somewhat limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	0.50	Shrink-swell	1.00
						Slope	0.01
Venzuni	40	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
310:							
Parkelei	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
						Slope	0.01
312:							
Bluewater	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	0.50	Depth to saturated zone	0.95	Shrink-swell	0.50
				Shrink-swell	0.50		

Table 10a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
315:							
Flugle	50	Somewhat limited		Not limited		Somewhat limited	
		Shrink-swell	0.78			Shrink-swell	0.78
Fragua	40	Not limited		Not limited		Somewhat limited	
						Slope	0.12
316:							
Royosa	80	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.01	Slope	0.01	Slope	1.00
317:							
Highdye	35	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Depth to hard bedrock	1.00
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Shrink-swell	1.00
		Slope	0.37	Slope	0.37	Slope	1.00
Evpark	30	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.90	Depth to hard bedrock	1.00	Depth to hard bedrock	0.90
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
						Slope	0.12
Bryway	20	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
				Depth to soft bedrock	0.95	Slope	0.12
320:							
Parkelei	45	Somewhat limited		Not limited		Somewhat limited	
		Shrink-swell	0.50			Shrink-swell	0.50
						Slope	0.01
Fraguni	40	Not limited		Not limited		Somewhat limited	
						Slope	0.01
325:							
Venzuni	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
332:							
Evpark	50	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Depth to hard bedrock	1.00	Shrink-swell	0.50
		Depth to hard bedrock	0.06	Shrink-swell	0.50	Depth to hard bedrock	0.06
						Slope	0.01

Table 10a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
332:							
Arabrab	40	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	0.22	Shrink-swell	0.22	Shrink-swell	0.22
						Slope	0.01
335:							
Venadito	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
336:							
Nuffel	45	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Venadito	35	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
338:							
Zyme	50	Very limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Shrink-swell	1.00	Depth to soft bedrock	1.00
		Shrink-swell	1.00	Depth to soft bedrock	1.00	Shrink-swell	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
Lockerby	40	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
		Slope	0.16	Depth to soft bedrock	0.79	Slope	1.00
				Slope	0.16		
345:							
Rock outcrop	40	Not rated		Not rated		Not rated	
Tuces	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
				Depth to soft bedrock	0.90		
350:							
Toldohn	35	Very limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Shrink-swell	1.00	Depth to soft bedrock	1.00
		Shrink-swell	1.00	Depth to soft bedrock	1.00	Shrink-swell	1.00
		Slope	1.00	Slope	1.00	Slope	1.00

Table 10a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
350:							
Vessilla	30	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Slope	0.01	Slope	0.01	Slope	1.00
Rock outcrop	20	Not rated		Not rated		Not rated	
351:							
Rock outcrop	60	Not rated		Not rated		Not rated	
Vessilla	30	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Slope	0.01	Slope	0.01	Slope	1.00
352:							
Zia	80	Not limited		Not limited		Not limited	
353:							
Mido	90	Not limited		Not limited		Not limited	
354:							
Knifehill	80	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
355:							
Rizno	35	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Slope	0.16	Slope	0.16	Slope	1.00
Tekapo	30	Very limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Shrink-swell	1.00	Slope	1.00
		Shrink-swell	1.00	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00	Shrink-swell	1.00
Rock outcrop	20	Not rated		Not rated		Not rated	
357:							
Heshotauthla	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
360:							
Hosta	45	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00

Table 10a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
360:							
Concho	40	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
361:							
Monpark	80	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
				Depth to soft bedrock	0.71	Slope	0.01
365:							
Vessilla	55	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Slope	0.01	Slope	0.01	Slope	1.00
Rock outcrop	35	Not rated		Not rated		Not rated	
366:							
Bosonoak	95	Somewhat limited		Not limited		Somewhat limited	
		Shrink-swell	0.22			Shrink-swell	0.22
367:							
Chunkmonk	85	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
						Slope	0.48
368:							
Simitarq	60	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Depth to hard bedrock	1.00
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Shrink-swell	1.00
						Slope	0.12
Celavar	20	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.35	Depth to hard bedrock	1.00	Depth to hard bedrock	0.35
						Slope	0.12
375:							
Todest	60	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.84	Depth to hard bedrock	1.00	Depth to hard bedrock	0.84
						Slope	0.12
Shadilto	25	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
						Slope	0.12

Table 10a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
376:							
Todest	80	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.90	Depth to hard bedrock	1.00	Depth to hard bedrock	0.90
						Slope	0.12
380:							
Berryhill	50	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
						Slope	0.12
Casamero	45	Very limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Shrink-swell	1.00	Depth to soft bedrock	1.00
		Shrink-swell	1.00	Depth to soft bedrock	1.00	Shrink-swell	1.00
						Slope	0.48
385:							
Mcorreon	65	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Slope	1.00
		Slope	1.00	Slope	1.00	Shrink-swell	1.00
Rock outcrop	20	Not rated		Not rated		Not rated	
390:							
Banquito	90	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.06	Depth to hard bedrock	1.00	Depth to hard bedrock	0.06
395:							
Cabezon	60	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Depth to hard bedrock	1.00
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Shrink-swell	1.00
						Slope	0.12
Mcorreon	30	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
						Slope	0.12
400:							
Shoemaker	45	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.64	Depth to hard bedrock	1.00	Depth to hard bedrock	0.64
						Slope	0.12
Stozuni	35	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
						Slope	0.12

Table 10a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
403:							
Valnor	50	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
		Slope	0.01	Depth to soft bedrock	0.15	Slope	1.00
				Slope	0.01		
Techado	30	Very limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Shrink-swell	1.00	Depth to soft bedrock	1.00
		Shrink-swell	1.00	Depth to soft bedrock	1.00	Shrink-swell	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
404:							
Rock outcrop	35	Not rated		Not rated		Not rated	
Techado	35	Very limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Shrink-swell	1.00	Depth to soft bedrock	1.00
		Shrink-swell	1.00	Depth to soft bedrock	1.00	Shrink-swell	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
Stozuni	25	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Slope	0.16	Slope	0.16	Slope	1.00
405:							
Fortwingate	50	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
		Depth to hard bedrock	0.79	Depth to hard bedrock	1.00	Depth to hard bedrock	0.79
						Slope	0.12
Owlrock	35	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Content of large stones	1.00	Content of large stones	1.00	Content of large stones	1.00
						Slope	0.12
406:							
Polich	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	0.50	Depth to saturated zone	0.99	Shrink-swell	0.50
				Shrink-swell	0.50		

Table 10a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
407:							
Cinnadale	50	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Slope	0.16	Slope	0.16	Slope	1.00
Heckly	35	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Shrink-swell	0.50	Slope	1.00	Shrink-swell	0.50
		Depth to hard bedrock	0.01	Shrink-swell	0.50	Depth to hard bedrock	0.01
408:							
Mirabal	50	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.46	Slope	1.00	Depth to hard bedrock	0.46
		Content of large stones	0.01	Content of large stones	0.01	Content of large stones	0.01
Zuni	40	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
		Depth to hard bedrock	0.71	Depth to hard bedrock	1.00	Slope	1.00
		Slope	0.01	Slope	0.01	Depth to hard bedrock	0.71
409:							
Rauster	60	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
Rock outcrop	30	Not rated		Not rated		Not rated	
410:							
Montillo	50	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
		Depth to hard bedrock	0.29	Depth to hard bedrock	1.00	Slope	1.00
		Slope	0.16	Slope	0.16	Depth to hard bedrock	0.29
Tsoodzil	40	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
411:							
Ligocki	45	Very limited		Not limited		Very limited	
		Shrink-swell	1.00			Shrink-swell	1.00

Table 10a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
411:							
Robolata	35	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
412:							
Rock outcrop	50	Not rated		Not rated		Not rated	
Rionutria	25	Very limited		Very limited		Very limited	
		Content of large stones	1.00	Depth to hard bedrock	1.00	Content of large stones	1.00
		Depth to hard bedrock	0.90	Content of large stones	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Depth to hard bedrock	0.90
		Slope	0.16	Slope	0.16	Shrink-swell	0.50
Zaster	25	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.71	Slope	1.00	Depth to hard bedrock	0.71
		Content of large stones	0.33	Content of large stones	0.33	Content of large stones	0.33
413:							
Morclay	85	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
414:							
Zunalei	50	Not limited		Not limited		Somewhat limited	
						Slope	0.12
Corzuni	40	Not limited		Not limited		Somewhat limited	
						Slope	0.12
415:							
Tsoodzil	60	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Slope	1.00
		Slope	1.00	Slope	1.00	Shrink-swell	1.00
Rubble Land	20	Not rated		Not rated		Not rated	
416:							
Rock outcrop	70	Not rated		Not rated		Not rated	

Table 10a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
416:							
Bluesky	20	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Slope	0.16	Slope	0.16	Slope	1.00
418:							
Asaayi	40	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	1.00
		Slope	0.01	Slope	0.01	Shrink-swell	0.50
Osoridge	35	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Depth to hard bedrock	1.00
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Shrink-swell	1.00
		Slope	0.01	Slope	0.01	Slope	1.00
419:							
Fortwingate	35	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.79	Slope	1.00	Depth to hard bedrock	0.79
Cinnadale	30	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Content of large stones	0.95	Content of large stones	0.95	Slope	1.00
		Slope	0.16	Slope	0.16	Content of large stones	0.95
Rock outcrop	20	Not rated		Not rated		Not rated	
420:							
Seco	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
425:							
Montillo	50	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
		Depth to hard bedrock	0.10	Depth to hard bedrock	1.00	Depth to hard bedrock	0.10
		Content of large stones	0.01	Content of large stones	0.01	Content of large stones	0.01
						Slope	0.01

Table 10a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
425:							
Canoneros	35	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Depth to hard bedrock	1.00
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Shrink-swell	1.00
						Slope	0.01
430:							
Montillo	80	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
		Depth to hard bedrock	0.01	Depth to hard bedrock	1.00	Depth to hard bedrock	0.01
						Slope	0.01
435:							
Tsoodzil	50	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Slope	1.00	Shrink-swell	1.00
		Slope	1.00	Shrink-swell	0.50	Slope	1.00
Amcec	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
440:							
Chivato	90	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
525:							
Silcat	85	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
						Slope	0.12
550:							
Bryway	50	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
				Depth to soft bedrock	0.29	Slope	0.01
Galzuni	35	Very limited		Somewhat limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	0.50	Shrink-swell	1.00
						Slope	0.01
555:							
Parkelei	45	Not limited		Not limited		Somewhat limited	
						Slope	0.12
Evpark	35	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Depth to hard bedrock	1.00	Shrink-swell	0.50
		Depth to hard bedrock	0.10	Shrink-swell	0.50	Slope	0.12
						Depth to hard bedrock	0.10

Table 10a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
560:							
Flugle	45	Not limited		Not limited		Not limited	
Teczuni	35	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
561:							
Flugle	50	Not limited		Not limited		Somewhat limited Slope	0.12
Plumasano	40	Not limited		Not limited		Somewhat limited Slope	0.12
565:							
Plumasano	65	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Rock outcrop	20	Not rated		Not rated		Not rated	
566:							
Bamac	90	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
575:							
Ramah	45	Somewhat limited Shrink-swell	0.50	Not limited		Somewhat limited Shrink-swell	0.50
Pescado	35	Very limited Depth to hard bedrock Shrink-swell	1.00 0.50	Very limited Depth to hard bedrock Shrink-swell	1.00 0.50	Very limited Depth to hard bedrock Shrink-swell Slope	1.00 0.50 0.01

Table 10b.--Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
8:							
Water	100	Not rated		Not rated		Not rated	
10:							
Tsosie	35	Somewhat limited		Somewhat limited		Very limited	
		Flooding	0.40	Cutbanks cave	0.10	Sodium content	1.00
Councelor	30	Somewhat limited		Somewhat limited		Not limited	
		Flooding	0.40	Cutbanks cave	0.10		
Blancot	20	Not limited		Very limited		Somewhat limited	
				Cutbanks cave	1.00	Droughty	0.20
11:							
Doakum	60	Not limited		Somewhat limited		Not limited	
				Cutbanks cave	0.10		
Betonnie	25	Not limited		Very limited		Somewhat limited	
				Cutbanks cave	1.00	Droughty	0.02
12:							
Calladito	55	Not limited		Very limited		Somewhat limited	
				Cutbanks cave	1.00	Droughty	0.29
Elias	30	Not limited		Somewhat limited		Very limited	
				Cutbanks cave	0.10	Sodium content	1.00
						Droughty	0.02
13:							
Councelor	60	Somewhat limited		Very limited		Not limited	
		Flooding	0.40	Cutbanks cave	1.00		
Calladito	30	Not limited		Very limited		Somewhat limited	
				Cutbanks cave	1.00	Droughty	0.55
14:							
Councelor	30	Somewhat limited		Somewhat limited		Not limited	
		Flooding	0.40	Cutbanks cave	0.10		
Eslendo	30	Very limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00
		Low strength	1.00	Slope	0.96	Droughty	0.98
		Slope	0.96	Cutbanks cave	0.10	Slope	0.96
		Shrink-swell	0.50				

Table 10b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
14:							
Calladito	25	Not limited		Very limited		Somewhat limited	
				Cutbanks cave	1.00	Droughty	0.61
16:							
Starlake	85	Very limited		Somewhat limited		Very limited	
		Low strength	1.00	Too clayey	0.50	Sodium content	1.00
		Shrink-swell	1.00	Cutbanks cave	0.10	Too clayey	1.00
		Flooding	0.40			Droughty	0.01
22:							
Querencia	50	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Cutbanks cave	0.10		
		Shrink-swell	0.22				
Lavodnas	35	Very limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00
		Shrink-swell	1.00	Too clayey	0.12	Droughty	1.00
		Slope	0.01	Cutbanks cave	0.10	Slope	0.01
				Slope	0.01		
30:							
Orlie	45	Somewhat limited		Somewhat limited		Not limited	
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Frost action	0.50				
Tinian	40	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to hard bedrock	1.00	Depth to bedrock	0.90
		Depth to hard bedrock	0.90	Too clayey	0.12		
		Shrink-swell	0.50	Cutbanks cave	0.10		
40:							
Nuffel	90	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Flooding	0.80	Flooding	1.00
		Low strength	0.22	Cutbanks cave	0.10		
42:							
Suwanee	90	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Flooding	0.80	Flooding	1.00
		Low strength	1.00	Cutbanks cave	0.10		
		Shrink-swell	0.50				
44:							
Suwanee	90	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Flooding	0.80	Flooding	1.00
		Low strength	1.00	Too clayey	0.28	Too clayey	1.00
		Shrink-swell	0.50	Cutbanks cave	0.10		

Table 10b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
45:							
Nutreeah	90	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Depth to saturated zone	0.82		
		Shrink-swell	1.00	Too clayey	0.50		
		Flooding	0.40	Cutbanks cave	0.10		
47:							
Conchovar	90	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Depth to saturated zone	0.73		
		Shrink-swell	1.00	Too clayey	0.50		
		Flooding	0.40	Cutbanks cave	0.10		
49:							
Concho	85	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Too clayey	0.28		
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Flooding	0.40				
51:							
Kwakina	90	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Cutbanks cave	1.00	Flooding	0.60
				Flooding	0.60	Droughty	0.05
52:							
Zuniven	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Cutbanks cave	1.00	Flooding	1.00
		Low strength	1.00	Flooding	0.80		
		Frost action	0.50				
53:							
Hawaikuh	80	Very limited		Somewhat limited		Not limited	
		Shrink-swell	1.00	Too clayey	0.12		
		Low strength	1.00	Cutbanks cave	0.10		
54:							
Venadito	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Too clayey	1.00	Too clayey	1.00
		Low strength	1.00	Cutbanks cave	1.00	Flooding	0.60
		Shrink-swell	1.00	Depth to saturated zone	0.61		
				Flooding	0.60		
55:							
Sparham	95	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Flooding	0.80	Flooding	1.00
		Low strength	1.00	Too clayey	0.50		
		Shrink-swell	1.00	Cutbanks cave	0.10		

Table 10b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
60:							
Redpen	90	Somewhat limited Shrink-swell	 0.50	Somewhat limited Cutbanks cave	 0.10	Not limited	
100:							
Norkiki	45	Somewhat limited Depth to hard bedrock Shrink-swell	 0.64 0.22	Very limited Depth to hard bedrock Cutbanks cave	 1.00 0.10	Somewhat limited Depth to bedrock Droughty	 0.65 0.02
Kimnoli	40	Very limited Depth to hard bedrock	 1.00	Very limited Depth to hard bedrock Cutbanks cave	 1.00 0.10	Very limited Depth to bedrock Droughty	 1.00 1.00
110:							
Benally	60	Somewhat limited Shrink-swell	 0.50	Somewhat limited Cutbanks cave	 0.10	Very limited Sodium content	 1.00
Fruitland	25	Not limited		Very limited Cutbanks cave	 1.00	Not limited	
111:							
Yelives	85	Somewhat limited Flooding	 0.40	Very limited Cutbanks cave	 1.00	Not limited	
115:							
Razito	45	Not limited		Very limited Cutbanks cave	 1.00	Somewhat limited Droughty	 0.69
Shiprock	40	Not limited		Somewhat limited Cutbanks cave	 0.10	Not limited	
116:							
Fajada	30	Very limited Low strength Shrink-swell	 1.00 0.50	Somewhat limited Depth to soft bedrock Depth to dense layer Cutbanks cave	 0.64 0.50 0.10	Very limited Sodium content Droughty Depth to bedrock Gravel content	 1.00 0.96 0.65 0.18
Huerfano	30	Very limited Depth to soft bedrock Low strength Shrink-swell	 1.00 1.00 0.50	Very limited Depth to soft bedrock Cutbanks cave	 1.00 0.10	Very limited Depth to bedrock Sodium content Droughty	 1.00 1.00 1.00
Benally	25	Somewhat limited Shrink-swell	 0.50	Somewhat limited Cutbanks cave	 0.10	Very limited Sodium content Droughty	 1.00 0.29

Table 10b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
118:							
Farb	35	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
				Cutbanks cave	0.10	Droughty	1.00
Chipeta	30	Very limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00
		Low strength	1.00	Slope	0.63	Salinity	1.00
		Slope	0.63	Cutbanks cave	0.10	Droughty	1.00
		Shrink-swell	0.50			Too clayey	1.00
						Slope	0.63
Rock outcrop	25	Not rated		Not rated		Not rated	
120:							
Doak	55	Somewhat limited		Somewhat limited		Not limited	
		Shrink-swell	0.22	Cutbanks cave	0.10		
Shiprock	30	Not limited		Somewhat limited		Not limited	
				Cutbanks cave	0.10		
121:							
Badland	90	Not rated		Not rated		Not rated	
122:							
Farb	45	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
				Cutbanks cave	0.10	Gravel content	1.00
						Droughty	1.00
Rock outcrop	45	Not rated		Not rated		Not rated	
125:							
Sanfeco	75	Very limited		Very limited		Not limited	
		Low strength	1.00	Cutbanks cave	1.00		
		Shrink-swell	1.00	Too clayey	0.12		
		Flooding	0.40				
130:							
Chipeta	40	Very limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00	Droughty	1.00
				Cutbanks cave	0.10	Slope	1.00
						Gravel content	0.08
Badlands	30	Not rated		Not rated		Not rated	

Table 10b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
130:							
Moncisco	15	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Gravel content Droughty Slope Content of large stones	1.00 1.00 1.00 0.01
150:							
Riverwash	35	Not rated		Not rated		Not rated	
Escawetter	25	Very limited Flooding	1.00	Very limited Cutbanks cave Depth to saturated zone Flooding	1.00 0.88 0.80	Very limited Flooding Droughty	1.00 0.49
160:							
Escawetter	40	Very limited Flooding	1.00	Very limited Cutbanks cave Flooding Depth to saturated zone	1.00 0.80 0.47	Very limited Flooding Droughty	1.00 0.89
Riverwash	35	Not rated		Not rated		Not rated	
Razito	15	Not limited		Very limited Cutbanks cave	1.00	Somewhat limited Droughty	0.92
205:							
Penistaja	45	Not limited		Somewhat limited Cutbanks cave	0.10	Not limited	
Tintero	40	Not limited		Very limited Cutbanks cave	1.00	Not limited	
208:							
Marianolake	85	Somewhat limited Shrink-swell	0.22	Very limited Cutbanks cave	1.00	Not limited	
210:							
Marianolake	50	Very limited Low strength Shrink-swell	1.00 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Skyvillage	30	Very limited Depth to hard bedrock Shrink-swell	1.00 0.22	Very limited Depth to hard bedrock Cutbanks cave	1.00 0.10	Very limited Depth to bedrock Droughty Gravel content Content of large stones	1.00 1.00 0.68 0.11

Table 10b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
212:							
Rehobeth	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Cutbanks cave	1.00	Ponding	1.00
		Low strength	1.00	Ponding	1.00	Flooding	0.60
		Shrink-swell	1.00	Flooding	0.60		
		Ponding	1.00	Too clayey	0.28		
215:							
Viuda	35	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Shrink-swell	1.00	Cutbanks cave	0.10	Content of large stones	1.00
		Low strength	1.00	Too clayey	0.03	Droughty	0.88
						Gravel content	0.02
Penistaja	30	Somewhat limited		Somewhat limited		Not limited	
		Shrink-swell	0.22	Cutbanks cave	0.10		
Rock outcrop	25	Not rated		Not rated		Not rated	
220:							
Hagerwest	50	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.10	Depth to hard bedrock	1.00	Depth to bedrock	0.10
				Cutbanks cave	0.10		
Bond	35	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
				Cutbanks cave	0.10	Droughty	1.00
225:							
Aquima	40	Somewhat limited		Very limited		Not limited	
		Shrink-swell	0.50	Cutbanks cave	1.00		
Hawaikuh	40	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Cutbanks cave	0.10		
		Shrink-swell	0.50				
230:							
Sparank	40	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Flooding	0.60	Flooding	0.60
		Low strength	1.00	Too clayey	0.50		
		Shrink-swell	1.00	Cutbanks cave	0.10		
San Mateo	35	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Flooding	0.60	Flooding	0.60
		Shrink-swell	0.50	Cutbanks cave	0.10		

Table 10b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
230:							
Zia	20	Somewhat limited		Somewhat limited		Not limited	
		Flooding	0.40	Cutbanks cave	0.10		
235:							
Notal	45	Very limited		Somewhat limited		Very limited	
		Low strength	1.00	Too clayey	0.12	Sodium content	1.00
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Flooding	0.40				
Hamburn	40	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Flooding	0.60	Flooding	0.60
		Shrink-swell	0.22	Cutbanks cave	0.10		
240:							
Breadsprings	35	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Flooding	0.40	Cutbanks cave	0.10		
Nahodish	35	Very limited		Very limited		Very limited	
		Low strength	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Too clayey	0.50		
		Shrink-swell	0.78	Cutbanks cave	0.10		
		Flooding	0.40				
241:							
Mentmore	85	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Cutbanks cave	0.10		
		Shrink-swell	0.78				
242:							
Gish	45	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Too clayey	0.12		
		Shrink-swell	1.00	Cutbanks cave	0.10		
		Flooding	0.40				
Mentmore	35	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Cutbanks cave	0.10		
		Shrink-swell	0.78				
244:							
Buckle	85	Very limited		Very limited		Not limited	
		Low strength	1.00	Content of organic matter	1.00		
		Shrink-swell	0.22	Cutbanks cave	0.10		
245:							
Buckle	35	Somewhat limited		Somewhat limited		Not limited	
		Shrink-swell	0.78	Cutbanks cave	0.10		

Table 10b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
245:							
Gapmesa	30	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to hard bedrock	1.00	Depth to bedrock	0.35
		Depth to hard bedrock	0.35	Cutbanks cave	0.10		
		Shrink-swell	0.22				
Barboncito	25	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Low strength	1.00	Cutbanks cave	0.10	Droughty	1.00
		Shrink-swell	0.22				
250:							
Hospah	35	Very limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00
		Low strength	1.00	Slope	1.00	Droughty	1.00
		Shrink-swell	1.00	Too clayey	0.50	Content of large stones	1.00
		Slope	1.00	Cutbanks cave	0.10	Slope	1.00
						Gravel content	0.11
Skyvillage	30	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Shrink-swell	0.50	Cutbanks cave	0.10	Droughty	1.00
						Gravel content	0.68
						Content of large stones	0.11
Rock outcrop	25	Not rated		Not rated		Not rated	
255:							
Farview	50	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Slope	0.01	Cutbanks cave	0.10	Droughty	0.94
				Slope	0.01	Slope	0.01
Rock outcrop	35	Not rated		Not rated		Not rated	
258:							
Eagleye	40	Very limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00
		Shrink-swell	1.00	Slope	1.00	Droughty	1.00
		Slope	1.00	Too clayey	0.12	Slope	1.00
		Low strength	1.00	Cutbanks cave	0.10		

Table 10b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
258:							
Atchee	35	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Content of large stones	0.98	Content of large stones	0.98	Droughty	1.00
		Shrink-swell	0.78	Cutbanks cave	0.10		
Rock outcrop	20	Not rated		Not rated		Not rated	
260:							
Quarries and Pits	95	Not rated		Not rated		Not rated	
261:							
Coal Mine Lands	100	Not rated		Not rated		Not rated	
265:							
Uranium Mined Lands	95	Not rated		Not rated		Not rated	
270:							
Alesna	70	Very limited		Very limited		Very limited	
		Slope	1.00	Cutbanks cave	1.00	Slope	1.00
		Shrink-swell	1.00	Slope	1.00	Content of large stones	1.00
		Low strength	1.00	Too clayey	0.28	Gravel content	0.61
Rock outcrop	20	Not rated		Not rated		Not rated	
275:							
Eldado	85	Not limited		Very limited		Somewhat limited	
				Cutbanks cave	1.00	Gravel content	0.62
						Droughty	0.02
280:							
Azabache	85	Not limited		Very limited		Very limited	
				Cutbanks cave	1.00	Gravel content	1.00
						Sodium content	1.00
						Droughty	0.54
290:							
Rock outcrop	45	Not rated		Not rated		Not rated	
Westmion	30	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00
		Depth to soft bedrock	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Too clayey	0.28	Droughty	0.98
		Shrink-swell	1.00	Cutbanks cave	0.10	Content of large stones	0.01

Table 10b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
290:							
Skyvillage	15	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
				Cutbanks cave	0.10	Droughty	1.00
						Content of large stones	0.01
291:							
Rock outcrop	50	Not rated		Not rated		Not rated	
Eagleye	25	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00
		Depth to soft bedrock	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Cutbanks cave	0.10	Droughty	0.80
		Shrink-swell	0.78			Gravel content	0.71
						Content of large stones	0.08
Atchee	15	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Slope	0.63	Slope	0.63	Droughty	1.00
		Content of large stones	0.44	Content of large stones	0.44	Gravel content	0.88
				Cutbanks cave	0.10	Slope	0.63
						Content of large stones	0.16
300:							
Regracic	80	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Cutbanks cave	1.00	Gravel content	0.90
		Shrink-swell	1.00	Too clayey	0.03		
305:							
Celavar	50	Somewhat limited		Very limited		Somewhat limited	
		Frost action	0.50	Depth to hard bedrock	1.00	Depth to bedrock	0.35
		Depth to hard bedrock	0.35	Cutbanks cave	0.10		
Atarque	35	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Frost action	0.50	Cutbanks cave	0.10	Droughty	1.00
308:							
Fikel	50	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Too clayey	0.28		
		Shrink-swell	1.00	Cutbanks cave	0.10		

Table 10b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
308:							
Venzuni	40	Very limited		Very limited		Very limited	
		Low strength	1.00	Too clayey	1.00	Too clayey	1.00
		Shrink-swell	1.00	Cutbanks cave	1.00		
		Flooding	0.40	Depth to dense layer	0.50		
310:							
Parkelei	80	Somewhat limited		Somewhat limited		Not limited	
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Frost action	0.50				
312:							
Bluewater	90	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Depth to saturated zone	0.95		
		Shrink-swell	0.50	Too clayey	0.12		
		Frost action	0.50	Cutbanks cave	0.10		
		Flooding	0.40				
315:							
Flugle	50	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Cutbanks cave	0.10		
		Shrink-swell	0.78				
		Frost action	0.50				
Fragua	40	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
316:							
Royosa	80	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.01	Cutbanks cave	1.00	Droughty	0.01
				Slope	0.01	Slope	0.01
317:							
Highdye	35	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Low strength	1.00	Slope	0.37	Droughty	1.00
		Shrink-swell	1.00	Too clayey	0.28	Slope	0.37
		Slope	0.37	Cutbanks cave	0.10	Content of large stones	0.01
Evpark	30	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.90	Depth to hard bedrock	1.00	Depth to bedrock	0.90
		Shrink-swell	0.50	Cutbanks cave	0.10	Droughty	0.01
		Frost action	0.50				
Bryway	20	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Depth to soft bedrock	0.95	Depth to bedrock	0.95
		Shrink-swell	1.00	Too clayey	0.28	Droughty	0.22
		Frost action	0.50	Cutbanks cave	0.10		

Table 10b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
320:							
Parkelei	45	Somewhat limited		Somewhat limited		Not limited	
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Frost action	0.50				
Fraguni	40	Somewhat limited		Very limited		Not limited	
		Frost action	0.50	Cutbanks cave	1.00		
				Depth to dense layer	0.50		
325:							
Venzuni	90	Very limited		Very limited		Very limited	
		Low strength	1.00	Too clayey	1.00	Too clayey	1.00
		Shrink-swell	1.00	Cutbanks cave	1.00		
		Flooding	0.40				
332:							
Evpark	50	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to hard bedrock	1.00	Depth to bedrock	0.06
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Frost action	0.50				
		Depth to hard bedrock	0.06				
Arabrab	40	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Low strength	1.00	Cutbanks cave	0.10	Droughty	0.73
		Frost action	0.50			Content of large stones	0.01
		Shrink-swell	0.22				
335:							
Venadito	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Too clayey	1.00	Flooding	1.00
		Low strength	1.00	Cutbanks cave	1.00	Too clayey	1.00
		Shrink-swell	1.00	Flooding	0.80		
336:							
Nuffel	45	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Flooding	0.80	Flooding	1.00
		Low strength	1.00	Too clayey	0.50		
		Shrink-swell	0.50	Cutbanks cave	0.10		
Venadito	35	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Too clayey	1.00	Too clayey	1.00
		Flooding	1.00	Cutbanks cave	1.00	Flooding	1.00
		Low strength	1.00	Flooding	0.80		

Table 10b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
338:							
Zyme	50	Very limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00
		Low strength	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Too clayey	0.12	Droughty	0.92
		Slope	1.00	Cutbanks cave	0.10		
Lockerby	40	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Depth to soft bedrock	0.79	Depth to bedrock	0.80
		Shrink-swell	1.00	Slope	0.16	Slope	0.16
		Slope	0.16	Too clayey	0.12	Droughty	0.01
				Cutbanks cave	0.10		
345:							
Rock outcrop	40	Not rated		Not rated		Not rated	
Tuces	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Depth to soft bedrock	0.90	Content of large stones	1.00
		Shrink-swell	1.00	Too clayey	0.50	Gravel content	0.97
				Cutbanks cave	0.10	Depth to bedrock	0.90
						Droughty	0.11
350:							
Toldohn	35	Very limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00
		Low strength	1.00	Slope	1.00	Droughty	1.00
		Shrink-swell	1.00	Too clayey	0.28	Slope	1.00
		Slope	1.00	Cutbanks cave	0.10	Content of large stones	0.08
Vessilla	30	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Frost action	0.50	Cutbanks cave	0.10	Droughty	1.00
		Slope	0.01	Slope	0.01	Content of large stones	0.03
						Slope	0.01
Rock outcrop	20	Not rated		Not rated		Not rated	
351:							
Rock outcrop	60	Not rated		Not rated		Not rated	

Table 10b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
351:							
Vessilla	30	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Frost action	0.50	Cutbanks cave	0.10	Droughty	1.00
		Slope	0.01	Slope	0.01	Content of large stones	0.03
						Slope	0.01
352:							
Zia	80	Not limited		Somewhat limited		Not limited	
				Cutbanks cave	0.10		
353:							
Mido	90	Not limited		Very limited		Somewhat limited	
				Cutbanks cave	1.00	Droughty	0.01
354:							
Knifehill	80	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Too clayey	0.12		
		Shrink-swell	1.00	Cutbanks cave	0.10		
		Frost action	0.50				
355:							
Rizno	35	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Slope	0.16	Slope	0.16	Droughty	1.00
				Cutbanks cave	0.10	Slope	0.16
Tekapo	30	Very limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00
		Shrink-swell	1.00	Slope	1.00	Droughty	1.00
		Slope	1.00	Cutbanks cave	0.10	Slope	1.00
		Low strength	1.00	Too clayey	0.03		
Rock outcrop	20	Not rated		Not rated		Not rated	
357:							
Heshotauthla	85	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Too clayey	0.82	Sodium content	1.00
		Low strength	1.00	Flooding	0.60	Too clayey	1.00
		Shrink-swell	1.00	Cutbanks cave	0.10	Flooding	0.60
						Droughty	0.01
360:							
Hosta	45	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Too clayey	0.28		
		Shrink-swell	1.00	Cutbanks cave	0.10		
		Frost action	0.50				

Table 10b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
360:							
Concho	40	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Too clayey	0.28		
		Shrink-swell	1.00	Cutbanks cave	0.10		
		Flooding	0.40				
361:							
Monpark	80	Very limited		Very limited		Very limited	
		Low strength	1.00	Cutbanks cave	1.00	Too clayey	1.00
		Shrink-swell	1.00	Depth to soft bedrock	0.71	Depth to bedrock	0.71
				Too clayey	0.50		
365:							
Vessilla	55	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Frost action	0.50	Cutbanks cave	0.10	Droughty	0.99
		Slope	0.01	Slope	0.01	Slope	0.01
Rock outcrop	35	Not rated		Not rated		Not rated	
366:							
Bosonoak	95	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Cutbanks cave	0.10		
		Frost action	0.50				
		Shrink-swell	0.22				
367:							
Chunkmonk	85	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Frost action	0.50	Cutbanks cave	0.10	Droughty	1.00
						Gravel content	1.00
						Content of large stones	0.08
368:							
Simitarq	60	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Shrink-swell	1.00	Cutbanks cave	0.10	Droughty	1.00
		Frost action	0.50			Content of large stones	0.01
Celavar	20	Somewhat limited		Very limited		Somewhat limited	
		Frost action	0.50	Depth to hard bedrock	1.00	Depth to bedrock	0.35
		Depth to hard bedrock	0.35	Cutbanks cave	0.10		

Table 10b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
375:							
Todest	60	Somewhat limited		Very limited		Very limited	
		Depth to hard bedrock	0.84	Depth to hard bedrock	1.00	Carbonate content	1.00
		Frost action	0.50	Cutbanks cave	0.10	Depth to bedrock	0.84
						Droughty	0.01
Shadilto	25	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Frost action	0.50	Cutbanks cave	0.10	Droughty	1.00
						Gravel content	1.00
						Carbonate content	1.00
						Content of large stones	0.03
376:							
Todest	80	Somewhat limited		Very limited		Very limited	
		Depth to hard bedrock	0.90	Depth to hard bedrock	1.00	Carbonate content	1.00
		Frost action	0.50	Cutbanks cave	0.10	Depth to bedrock	0.90
						Droughty	0.15
380:							
Berryhill	50	Very limited		Very limited		Very limited	
		Low strength	1.00	Cutbanks cave	1.00	Too clayey	1.00
		Shrink-swell	1.00	Too clayey	0.72		
Casamero	45	Very limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Too clayey	1.00
		Low strength	1.00	Cutbanks cave	1.00	Depth to bedrock	1.00
		Shrink-swell	1.00	Too clayey	1.00	Droughty	0.84
385:							
Mcorreon	65	Very limited		Very limited		Very limited	
		Low strength	1.00	Slope	1.00	Content of large stones	1.00
		Shrink-swell	1.00	Too clayey	0.50	Slope	1.00
		Slope	1.00	Cutbanks cave	0.10	Gravel content	0.75
Rock outcrop	20	Not rated		Not rated		Not rated	
390:							
Banquito	90	Somewhat limited		Very limited		Somewhat limited	
		Frost action	0.50	Depth to hard bedrock	1.00	Depth to bedrock	0.06
		Depth to hard bedrock	0.06	Cutbanks cave	0.10		

Table 10b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
395:							
Cabezon	60	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Shrink-swell	1.00	Too clayey	0.50	Content of large stones	1.00
		Low strength	1.00	Cutbanks cave	0.10	Droughty	0.99
						Gravel content	0.79
Mcorreon	30	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Too clayey	0.50	Content of large stones	0.01
		Shrink-swell	0.50	Cutbanks cave	0.10		
400:							
Shoemaker	45	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.64	Depth to hard bedrock	1.00	Depth to bedrock	0.65
		Frost action	0.50	Cutbanks cave	0.10	Content of large stones	0.01
Stozuni	35	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Frost action	0.50	Cutbanks cave	0.10	Droughty	1.00
403:							
Valnor	50	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Too clayey	0.50	Depth to bedrock	0.16
		Shrink-swell	1.00	Depth to soft bedrock	0.15	Slope	0.01
		Slope	0.01	Cutbanks cave	0.10		
				Slope	0.01		
Techado	30	Very limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00
		Low strength	1.00	Slope	1.00	Droughty	1.00
		Shrink-swell	1.00	Too clayey	0.50	Too clayey	1.00
		Slope	1.00	Cutbanks cave	0.10	Slope	1.00
						Gravel content	0.11
404:							
Rock outcrop	35	Not rated		Not rated		Not rated	
Techado	35	Very limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00
		Low strength	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Too clayey	0.50	Droughty	0.77
		Slope	1.00	Cutbanks cave	0.10	Gravel content	0.11
						Content of large stones	0.01

Table 10b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
404:							
Stozuni	25	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Frost action	0.50	Slope	0.16	Droughty	1.00
		Slope	0.16	Cutbanks cave	0.10	Slope	0.16
						Gravel content	0.08
						Content of large stones	0.03
405:							
Fortwingate	50	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to hard bedrock	1.00	Depth to bedrock	0.80
		Shrink-swell	1.00	Too clayey	0.12	Droughty	0.08
		Depth to hard bedrock	0.79	Cutbanks cave	0.10		
Owlrock	35	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Content of large stones	1.00	Content of large stones	1.00	Droughty	1.00
		Frost action	0.50	Cutbanks cave	0.10	Content of large stones	1.00
						Gravel content	0.93
406:							
Polich	90	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Depth to saturated zone	0.99	Flooding	1.00
		Low strength	1.00	Flooding	0.80		
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Frost action	0.50				
407:							
Cinnadale	50	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Frost action	0.50	Slope	0.16	Droughty	1.00
		Slope	0.16	Cutbanks cave	0.10	Gravel content	1.00
						Slope	0.16
						Content of large stones	0.01
Heckly	35	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Gravel content	1.00
		Shrink-swell	0.50	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.01	Too clayey	0.12	Content of large stones	0.84
				Cutbanks cave	0.10	Depth to bedrock	0.01

Table 10b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
408:							
Mirabal	50	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Droughty	1.00
		Frost action	0.50	Cutbanks cave	1.00	Slope	1.00
		Depth to hard bedrock	0.46	Slope	1.00	Depth to bedrock	0.46
		Content of large stones	0.01	Content of large stones	0.01		
Zuni	40	Very limited		Very limited		Somewhat limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to bedrock	0.71
		Depth to hard bedrock	0.71	Cutbanks cave	1.00	Droughty	0.25
		Low strength	0.22	Too clayey	0.03	Slope	0.01
		Slope	0.01	Slope	0.01		
409:							
Rauster	60	Very limited		Very limited		Very limited	
		Low strength	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Too clayey	0.12		
		Slope	1.00	Cutbanks cave	0.10		
Rock outcrop	30	Not rated		Not rated		Not rated	
410:							
Montillo	50	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to hard bedrock	1.00	Depth to bedrock	0.29
		Shrink-swell	1.00	Cutbanks cave	1.00	Slope	0.16
		Depth to hard bedrock	0.29	Too clayey	1.00	Content of large stones	0.05
		Slope	0.16	Slope	0.16	Gravel content	0.02
Tsoodzil	40	Very limited		Very limited		Very limited	
		Low strength	1.00	Too clayey	1.00	Gravel content	1.00
		Shrink-swell	1.00	Cutbanks cave	1.00	Slope	1.00
		Slope	1.00	Slope	1.00		
411:							
Ligocki	45	Very limited		Very limited		Not limited	
		Low strength	1.00	Cutbanks cave	1.00		
		Shrink-swell	1.00	Too clayey	0.12		
Robolata	35	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Cutbanks cave	1.00	Flooding	0.60
		Low strength	1.00	Flooding	0.60		
		Shrink-swell	0.50	Too clayey	0.12		
		Frost action	0.50				

Table 10b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
412:							
Rock outcrop	50	Not rated		Not rated		Not rated	
Rionutria	25	Very limited		Very limited		Very limited	
		Content of large stones	1.00	Depth to hard bedrock	1.00	Content of large stones	1.00
		Depth to hard bedrock	0.90	Content of large stones	1.00	Depth to bedrock	0.90
		Low strength	0.78	Slope	0.16	Droughty	0.68
		Shrink-swell	0.50	Cutbanks cave	0.10	Slope	0.16
		Slope	0.16			Gravel content	0.06
Zaster	25	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.71	Cutbanks cave	1.00	Content of large stones	1.00
		Frost action	0.50	Slope	1.00	Gravel content	0.99
		Content of large stones	0.33	Content of large stones	0.33	Droughty	0.97
						Depth to bedrock	0.71
413:							
Morclay	85	Very limited		Very limited		Very limited	
		Low strength	1.00	Cutbanks cave	1.00	Too clayey	1.00
		Shrink-swell	1.00	Too clayey	0.50		
414:							
Zunalei	50	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
Corzuni	40	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
415:							
Tsoodzil	60	Very limited		Very limited		Very limited	
		Low strength	1.00	Cutbanks cave	1.00	Content of large stones	1.00
		Shrink-swell	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Too clayey	0.50		
Rubble Land	20	Not rated		Not rated		Not rated	
416:							
Rock outcrop	70	Not rated		Not rated		Not rated	
Bluesky	20	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Slope	0.16	Slope	0.16	Droughty	1.00
				Cutbanks cave	0.10	Slope	0.16

Table 10b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
418:							
Asaayi	40	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Low strength	1.00	Cutbanks cave	0.10	Droughty	0.77
		Shrink-swell	0.50	Slope	0.01	Slope	0.01
		Frost action	0.50				
		Slope	0.01				
Osoridge	35	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Low strength	1.00	Too clayey	0.12	Droughty	0.79
		Shrink-swell	1.00	Cutbanks cave	0.10	Gravel content	0.71
		Slope	0.01	Slope	0.01	Content of large stones	0.08
						Slope	0.01
419:							
Fortwingate	35	Very limited		Very limited		Very limited	
		Low strength	1.00	Depth to hard bedrock	1.00	Content of large stones	1.00
		Shrink-swell	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Too clayey	0.12	Depth to bedrock	0.80
		Depth to hard bedrock	0.79	Cutbanks cave	0.10	Droughty	0.01
Cinnadale	30	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Content of large stones	0.95	Content of large stones	0.95	Content of large stones	1.00
		Frost action	0.50	Slope	0.16	Droughty	1.00
		Slope	0.16	Cutbanks cave	0.10	Slope	0.16
Rock outcrop	20	Not rated		Not rated		Not rated	
420:							
Seco	85	Very limited		Very limited		Not limited	
		Low strength	1.00	Too clayey	1.00		
		Shrink-swell	1.00	Cutbanks cave	0.10		
		Flooding	0.40				
425:							
Montillo	50	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to hard bedrock	1.00	Depth to bedrock	0.10
		Shrink-swell	1.00	Too clayey	0.88	Droughty	0.04
		Depth to hard bedrock	0.10	Cutbanks cave	0.10	Content of large stones	0.01
		Content of large stones	0.01	Content of large stones	0.01		

Table 10b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
425:							
Canoneros	35	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Low strength	1.00	Too clayey	0.72	Droughty	1.00
		Shrink-swell	1.00	Cutbanks cave	0.10	Content of large stones	0.92
430:							
Montillo	80	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to hard bedrock	1.00	Depth to bedrock	0.01
		Shrink-swell	1.00	Cutbanks cave	1.00	Content of large stones	0.01
		Depth to hard bedrock	0.01	Too clayey	1.00		
435:							
Tsoodzil	50	Very limited		Very limited		Very limited	
		Low strength	1.00	Too clayey	1.00	Slope	1.00
		Shrink-swell	1.00	Cutbanks cave	1.00	Gravel content	0.79
		Slope	1.00	Slope	1.00	Content of large stones	0.38
Amcec	40	Very limited		Very limited		Very limited	
		Slope	1.00	Cutbanks cave	1.00	Gravel content	1.00
		Frost action	0.50	Slope	1.00	Droughty	1.00
						Slope	1.00
						Content of large stones	0.26
440:							
Chivato	90	Very limited		Very limited		Very limited	
		Low strength	1.00	Cutbanks cave	1.00	Too clayey	1.00
		Shrink-swell	1.00	Too clayey	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00		
525:							
Silcat	85	Very limited		Very limited		Not limited	
		Low strength	1.00	Cutbanks cave	1.00		
		Shrink-swell	1.00	Too clayey	0.50		
550:							
Bryway	50	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Depth to soft bedrock	0.29	Depth to bedrock	0.29
		Shrink-swell	1.00	Too clayey	0.28		
		Frost action	0.50	Cutbanks cave	0.10		
Galzuni	35	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Too clayey	0.28		
		Shrink-swell	1.00	Cutbanks cave	0.10		

Table 10b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
555:							
Parkelei	45	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
Evpark	35	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Depth to hard bedrock	1.00	Depth to bedrock	0.10
		Frost action	0.50	Cutbanks cave	0.10		
		Depth to hard bedrock	0.10				
560:							
Flugle	45	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
Teczuni	35	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Too clayey	0.12		
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Frost action	0.50				
561:							
Flugle	50	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
Plumasano	40	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
565:							
Plumasano	65	Very limited		Very limited		Very limited	
		Slope	1.00	Cutbanks cave	1.00	Slope	1.00
		Frost action	0.50	Slope	1.00		
Rock outcrop	20	Not rated		Not rated		Not rated	
566:							
Bamac	90	Very limited		Very limited		Very limited	
		Slope	1.00	Cutbanks cave	1.00	Gravel content	1.00
				Slope	1.00	Droughty	1.00
						Slope	1.00
						Content of large stones	0.01
575:							
Ramah	45	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Cutbanks cave	0.10		
		Shrink-swell	0.50				
		Frost action	0.50				
Pescado	35	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Low strength	1.00	Cutbanks cave	0.10	Droughty	0.73
		Shrink-swell	0.50				
		Frost action	0.50				

Table 11a.--Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
8:					
Water	100	Not rated		Not rated	
10:					
Tsosie	35	Very limited		Somewhat limited	
		Restricted permeability	1.00	Seepage	0.53
		Flooding	0.40	Flooding	0.40
				Slope	0.01
Councelor	30	Somewhat limited		Very limited	
		Restricted permeability	0.46	Seepage	1.00
		Flooding	0.40	Flooding	0.40
				Slope	0.01
Blancot	20	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
				Slope	0.01
11:					
Doakum	60	Somewhat limited		Very limited	
		Restricted permeability	0.46	Seepage	1.00
				Slope	0.03
Betonnie	25	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
				Slope	0.33
12:					
Calladito	55	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
				Slope	0.09
Elias	30	Very limited		Very limited	
		Restricted permeability	1.00	Seepage	1.00
				Slope	0.09

Table 11a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
13:					
Councelor	60	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Restricted permeability	0.46	Flooding	0.40
		Flooding	0.40	Slope	0.33
Calladito	30	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
				Slope	0.33
14:					
Councelor	30	Somewhat limited		Very limited	
		Flooding	0.40	Seepage	1.00
				Slope	0.91
				Flooding	0.40
Eslendo	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	0.96	Slope	1.00
Calladito	25	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
				Slope	0.33
16:					
Starlake	85	Very limited		Somewhat limited	
		Restricted permeability	1.00	Flooding	0.40
		Flooding	0.40	Slope	0.01
22:					
Querencia	50	Very limited		Somewhat limited	
		Restricted permeability	1.00	Slope	0.91
Lavodnas	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	0.01	Slope	1.00
30:					
Orlie	45	Very limited		Somewhat limited	
		Restricted permeability	1.00	Seepage	0.53
				Slope	0.09

Table 11a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
30:					
Tinian	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Restricted permeability	1.00	Slope	0.33
40:					
Nuffel	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Restricted permeability	1.00	Seepage	0.53
42:					
Suwanee	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Restricted permeability	1.00	Seepage	0.53
44:					
Suwanee	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Restricted permeability	1.00	Seepage	1.00
45:					
Nutreeah	90	Very limited		Somewhat limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Flooding	0.40
		Flooding	0.40		
47:					
Conchovar	90	Very limited		Somewhat limited	
		Restricted permeability	1.00	Depth to saturated zone	0.92
		Depth to saturated zone	1.00	Flooding	0.40
		Flooding	0.40		
49:					
Concho	85	Very limited		Somewhat limited	
		Restricted permeability	1.00	Flooding	0.40
		Flooding	0.40		
51:					
Kwakina	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Filtering capacity	1.00	Seepage	1.00

Table 11a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
52:					
Zuniven	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Filtering capacity	1.00	Seepage	1.00
		Restricted permeability	1.00		
53:					
Hawaikuh	80	Very limited		Not limited	
		Restricted permeability	1.00		
54:					
Venadito	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Restricted permeability	1.00	Depth to saturated zone	0.71
		Depth to saturated zone	1.00		
55:					
Sparham	95	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Restricted permeability	1.00	Seepage	0.53
60:					
Redpen	90	Very limited		Somewhat limited	
		Restricted permeability	1.00	Seepage	0.53
100:					
Norkiki	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Restricted permeability	0.46	Seepage	1.00
				Slope	0.33
Kimnoli	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
				Seepage	0.54
				Slope	0.09
110:					
Benally	60	Very limited		Somewhat limited	
		Restricted permeability	1.00	Seepage	0.53
				Slope	0.09

Table 11a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
110:					
Fruitland	25	Very limited Filtering capacity	1.00	Very limited Seepage	1.00
				Slope	0.09
111:					
Yelives	85	Very limited Filtering capacity	1.00	Very limited Seepage	1.00
		Restricted permeability	0.82	Flooding	0.40
		Flooding	0.40	Slope	0.01
115:					
Razito	45	Very limited Filtering capacity	1.00	Very limited Seepage	1.00
				Slope	0.33
Shiprock	40	Very limited Filtering capacity	1.00	Very limited Seepage	1.00
				Slope	0.33
116:					
Fajada	30	Very limited Depth to bedrock	1.00	Very limited Depth to soft bedrock	1.00
		Restricted permeability	1.00	Slope	0.09
Huerfano	30	Very limited Depth to bedrock	1.00	Very limited Depth to soft bedrock	1.00
				Slope	0.09
Benally	25	Very limited Restricted permeability	1.00	Somewhat limited Depth to soft bedrock	0.84
		Depth to bedrock	0.94	Slope	0.01
118:					
Farb	35	Very limited Depth to bedrock	1.00	Very limited Depth to hard bedrock	1.00
				Slope	0.91
				Seepage	0.28
Chipeta	30	Very limited Depth to bedrock	1.00	Very limited Depth to soft bedrock	1.00
		Slope	0.63	Slope	1.00

Table 11a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
118:					
Rock outcrop	25	Not rated		Not rated	
120:					
Doak	55	Somewhat limited		Very limited	
		Restricted permeability	0.46	Seepage	1.00
				Slope	0.01
Shiprock	30	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
				Slope	0.33
121:					
Badland	90	Not rated		Not rated	
122:					
Farb	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
				Slope	0.67
Rock outcrop	45	Not rated		Not rated	
125:					
Sanfeco	75	Very limited		Very limited	
		Restricted permeability	1.00	Seepage	1.00
		Filtering capacity	1.00	Flooding	0.40
		Flooding	0.40		
130:					
Chipeta	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
Badlands	30	Not rated		Not rated	
Moncisco	15	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Slope	1.00	Slope	1.00
				Content of large stones	0.16

Table 11a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
150:					
Riverwash	65	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Filtering capacity	1.00	Seepage	1.00
Escawetter	25	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Filtering capacity	1.00	Seepage	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
160:					
Escawetter	40	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Filtering capacity	1.00	Seepage	1.00
		Depth to saturated zone	0.94	Depth to saturated zone	0.39
Riverwash	35	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Filtering capacity	1.00	Seepage	1.00
Razito	15	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
				Slope	0.09
205:					
Penistaja	45	Not limited		Very limited	
				Seepage	1.00
				Slope	0.09
Tintero	40	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
				Slope	0.67
208:					
Marianolake	85	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
				Slope	0.33
210:					
Marianolake	50	Very limited		Very limited	
		Restricted permeability	1.00	Seepage	1.00
				Slope	0.33

Table 11a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
210:					
Skyvillage	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
				Seepage	0.53
				Slope	0.33
212:					
Rehobeth	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Restricted permeability	1.00	Ponding	1.00
		Ponding	1.00		
215:					
Viuda	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
				Seepage	0.53
				Slope	0.09
Penistaja	30	Not limited		Very limited	
				Seepage	1.00
				Slope	0.09
Rock outcrop	25	Not rated		Not rated	
220:					
Hagerwest	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
				Seepage	1.00
				Slope	0.09
Bond	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
				Seepage	0.53
				Slope	0.33
225:					
Aquima	40	Somewhat limited		Somewhat limited	
		Restricted permeability	0.72	Seepage	0.53
				Slope	0.09
Hawaikuh	40	Very limited		Very limited	
		Restricted permeability	1.00	Seepage	1.00
				Slope	0.09

Table 11a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
230:					
Sparank	40	Very limited Flooding Restricted permeability	 1.00 1.00	Very limited Flooding	 1.00
San Mateo	35	Very limited Flooding Restricted permeability	 1.00 1.00	Very limited Flooding Seepage	 1.00 1.00
Zia	20	Very limited Filtering capacity Flooding	 1.00 0.40	Very limited Seepage Flooding Slope	 1.00 0.40 0.01
235:					
Notal	45	Very limited Restricted permeability Flooding	 1.00 0.40	Somewhat limited Flooding	 0.40
Hamburn	40	Very limited Flooding Restricted permeability	 1.00 1.00	Very limited Flooding	 1.00
240:					
Breadsprings	35	Very limited Ponding Restricted permeability Flooding	 1.00 0.50 0.40	Very limited Ponding Seepage Flooding	 1.00 1.00 0.40
Nahodish	35	Very limited Restricted permeability Ponding Flooding	 1.00 1.00 0.40	Very limited Ponding Seepage Flooding	 1.00 0.50 0.40
241:					
Mentmore	85	Very limited Restricted permeability	 1.00	Somewhat limited Slope	 0.33
242:					
Gish	45	Very limited Restricted permeability Flooding	 1.00 0.40	Somewhat limited Flooding Slope	 0.40 0.33

Table 11a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
242:					
Mentmore	35	Very limited Restricted permeability	1.00	Somewhat limited Slope	0.33
244:					
Buckle	85	Very limited Restricted permeability	1.00	Somewhat limited Seepage Slope	0.50 0.33
245:					
Buckle	35	Very limited Restricted permeability	1.00	Very limited Seepage Slope	1.00 0.33
Gapmesa	30	Very limited Depth to bedrock Restricted permeability	1.00 1.00	Very limited Depth to hard bedrock Seepage Slope	1.00 0.50 0.01
Barboncito	25	Very limited Depth to bedrock	1.00	Very limited Depth to hard bedrock Slope	1.00 0.01
250:					
Hospah	35	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to soft bedrock Slope	1.00 1.00
Skyvillage	30	Very limited Depth to bedrock	1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 0.67 0.28
Rock outcrop	25	Not rated		Not rated	
255:					
Farview	50	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to hard bedrock Seepage Slope	1.00 1.00 1.00
Rock outcrop	35	Not rated		Not rated	

Table 11a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
258:					
Eagleye	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
Atchee	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Content of large stones	0.98	Content of large stones	1.00
				Slope	0.91
Rock outcrop	20	Not rated		Not rated	
260:					
Quarries and Pits	95	Not rated		Not rated	
261:					
Coal Mine Lands	100	Not rated		Not rated	
265:					
Uranium Mined Lands	95	Not rated		Not rated	
270:					
Alesna	70	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	1.00	Depth to soft bedrock	0.26
		Depth to bedrock	0.69		
Rock outcrop	20	Not rated		Not rated	
275:					
Eldado	85	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Restricted permeability	0.46	Slope	0.09
280:					
Azabache	85	Very limited		Somewhat limited	
		Restricted permeability	1.00	Slope	0.67
				Seepage	0.53

Table 11a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
290:					
Rock outcrop	45	Not rated		Not rated	
Westmion	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
Skyvillage	15	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope		Seepage	1.00
				Slope	0.67
291:					
Rock outcrop	50	Not rated		Not rated	
Eagleye	25	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
Atchee	15	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	0.63	Slope	1.00
		Content of large stones	0.44		
300:					
Regracic	80	Very limited		Somewhat limited	
		Restricted permeability	1.00	Slope	0.33
				Seepage	0.28
305:					
Celavar	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Restricted permeability	0.46	Seepage	0.53
				Slope	0.33
Atarque	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
				Seepage	0.53
				Slope	0.33
308:					
Fikel	50	Very limited		Somewhat limited	
		Restricted permeability	1.00	Seepage	0.65
				Slope	0.33

Table 11a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
308:					
Venzuni	40	Very limited		Somewhat limited	
		Restricted permeability	1.00	Seepage	0.53
		Flooding	0.40	Flooding	0.40
				Slope	0.09
310:					
Parkelei	80	Very limited		Somewhat limited	
		Restricted permeability	1.00	Seepage	0.53
				Slope	0.33
312:					
Bluewater	90	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Flooding	0.40
		Flooding	0.40		
315:					
Flugle	50	Very limited		Very limited	
		Restricted permeability	1.00	Seepage	1.00
				Slope	0.09
Fragua	40	Not limited		Very limited	
				Seepage	1.00
				Slope	0.67
316:					
Royosa	80	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Slope	0.01	Slope	1.00
317:					
Highdye	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	0.37	Slope	1.00
				Seepage	0.28
Evpark	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Restricted permeability	0.46	Slope	0.67
				Seepage	0.53

Table 11a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
317:					
Bryway	20	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
				Slope	0.67
320:					
Parkelei	45	Somewhat limited		Very limited	
		Restricted permeability	0.46	Seepage	1.00
				Slope	0.33
Fraguni	40	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Restricted permeability	0.46	Slope	0.33
325:					
Venzuni	90	Very limited		Somewhat limited	
		Restricted permeability	1.00	Flooding	0.40
		Flooding	0.40	Slope	0.01
332:					
Evpark	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Restricted permeability	1.00	Slope	0.33
				Seepage	0.28
Arabrab	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
				Slope	0.33
335:					
Venadito	85	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Restricted permeability	1.00	Slope	0.01
336:					
Nuffel	45	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Restricted permeability	1.00	Seepage	0.53
				Slope	0.01
Venadito	35	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Restricted permeability	1.00	Slope	0.01

Table 11a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
338:					
Zyme	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
Lockerby	40	Very limited		Very limited	
		Restricted permeability	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slope	0.16		
345:					
Rock outcrop	40	Not rated		Not rated	
Tuces	40	Very limited		Very limited	
		Restricted permeability	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00		
350:					
Toldohn	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
Vessilla	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	0.01	Slope	1.00
				Seepage	0.28
Rock outcrop	20	Not rated		Not rated	
351:					
Rock outcrop	60	Not rated		Not rated	
Vessilla	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	0.01	Slope	1.00
				Seepage	0.28
352:					
Zia	80	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
				Slope	0.09

Table 11a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
353:					
Mido	90	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
				Slope	0.09
354:					
Knifehill	80	Very limited		Somewhat limited	
		Restricted permeability	1.00	Slope	0.09
355:					
Rizno	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	0.16	Slope	1.00
				Seepage	0.28
Tekapo	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
Rock outcrop	20	Not rated		Not rated	
357:					
Heshotauthla	85	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Restricted permeability	1.00		
360:					
Hosta	45	Very limited		Somewhat limited	
		Restricted permeability	1.00	Seepage	0.53
				Slope	0.09
Concho	40	Very limited		Somewhat limited	
		Restricted permeability	1.00	Flooding	0.40
		Flooding	0.40		
361:					
Monpark	80	Very limited		Very limited	
		Restricted permeability	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	0.33

Table 11a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
365:					
Vessilla	55	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	0.01	Seepage	1.00
				Slope	1.00
Rock outcrop	35	Not rated		Not rated	
366:					
Bosonoak	95	Very limited		Somewhat limited	
		Restricted permeability	1.00	Seepage	0.65
				Slope	0.09
367:					
Chunkmonk	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
				Slope	0.91
368:					
Simitarq	60	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
				Slope	0.67
				Seepage	0.28
Celavar	20	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Restricted permeability	0.46	Slope	0.67
				Seepage	0.53
375:					
Todest	60	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Restricted permeability	0.46	Slope	0.67
				Seepage	0.53
Shadilto	25	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
				Seepage	1.00
				Slope	0.67

Table 11a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
376:					
Todest	80	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Restricted permeability	0.46	Slope	0.67
				Seepage	0.53
380:					
Berryhill	50	Very limited		Somewhat limited	
		Restricted permeability	1.00	Slope	0.67
Casamero	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
				Slope	0.91
385:					
Mcorreon	65	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Slope	1.00		
Rock outcrop	20	Not rated		Not rated	
390:					
Banquito	90	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Filtering capacity	1.00	Seepage	1.00
				Slope	0.01
395:					
Cabezon	60	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
				Slope	0.67
Mcorreon	30	Very limited		Somewhat limited	
		Restricted permeability	1.00	Slope	0.67
400:					
Shoemaker	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Restricted permeability	0.46	Slope	0.67
				Seepage	0.53

Table 11a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
400:					
Stozuni	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
				Seepage	1.00
				Slope	0.67
403:					
Valnor	50	Very limited		Very limited	
		Restricted permeability	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slope	0.01		
Techado	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
404:					
Rock outcrop	35	Not rated		Not rated	
Techado	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
Stozuni	25	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	0.16	Slope	1.00
				Seepage	0.28
405:					
Fortwingate	50	Very limited		Very limited	
		Restricted permeability	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	0.67
Owlrock	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Content of large stones	1.00	Content of large stones	1.00
				Slope	0.67
				Seepage	0.53
406:					
Polich	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	0.53

Table 11a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
407:					
Cinnadale	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	0.16	Seepage	1.00
				Slope	1.00
Heckly	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Restricted permeability	1.00	Slope	1.00
		Slope	1.00	Seepage	0.28
408:					
Mirabal	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Filtering capacity	1.00	Seepage	1.00
		Slope	1.00	Slope	1.00
		Content of large stones	0.01	Content of large stones	0.01
Zuni	40	Very limited		Very limited	
		Restricted permeability	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slope	0.01		
409:					
Rauster	60	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Slope	1.00	Depth to soft bedrock	0.08
		Depth to bedrock	0.52		
Rock outcrop	30	Not rated		Not rated	
410:					
Montillo	50	Very limited		Very limited	
		Restricted permeability	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Filtering capacity	1.00	Seepage	1.00
		Slope	0.16		
Tsoodzil	40	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Slope	1.00		

Table 11a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
411:					
Ligocki	45	Very limited		Somewhat limited	
		Restricted permeability	1.00	Seepage	0.53
				Slope	0.09
Robolata	35	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Restricted permeability	1.00	Seepage	1.00
				Slope	0.09
412:					
Rock outcrop	50	Not rated		Not rated	
Rionutria	25	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Restricted permeability	1.00	Content of large stones	1.00
		Content of large stones	1.00	Slope	1.00
		Slope	0.16		
Zaster	25	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
		Content of large stones	0.33	Seepage	1.00
				Content of large stones	0.88
413:					
Morclay	85	Very limited		Somewhat limited	
		Restricted permeability	1.00	Slope	0.09
414:					
Zunalei	50	Not limited		Very limited	
				Seepage	1.00
				Slope	0.67
Corzuni	40	Not limited		Very limited	
				Seepage	1.00
				Slope	0.67
415:					
Tsoodzil	60	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Slope	1.00		
Rubble Land	20	Not rated		Not rated	

Table 11a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
416:					
Rock outcrop	70	Not rated		Not rated	
Bluesky	20	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	0.16	Slope	1.00
				Seepage	0.28
418:					
Asaayi	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	0.01	Slope	1.00
				Seepage	0.28
Osoridge	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	0.01	Slope	1.00
				Seepage	0.28
419:					
Fortwingate	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Restricted permeability	1.00	Slope	1.00
		Slope	1.00	Seepage	0.28
Cinnadale	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Content of large stones	0.95	Slope	1.00
		Slope	0.16	Content of large stones	0.30
				Seepage	0.28
Rock outcrop	20	Not rated		Not rated	
420:					
Seco	85	Very limited		Somewhat limited	
		Restricted permeability	1.00	Flooding	0.40
		Flooding	0.40	Slope	0.09

Table 11a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
425:					
Montillo	50	Very limited		Very limited	
		Restricted permeability	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Seepage	1.00
		Filtering capacity	1.00	Slope	0.33
		Content of large stones	0.01		
Canoneros	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
				Slope	0.33
430:					
Montillo	80	Very limited		Very limited	
		Restricted permeability	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Seepage	1.00
		Filtering capacity	1.00	Slope	0.33
435:					
Tsoodzil	50	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Slope	1.00		
Amcec	40	Very limited		Very limited	
		Filtering capacity	1.00	Slope	1.00
		Slope	1.00	Seepage	1.00
440:					
Chivato	90	Very limited		Very limited	
		Restricted permeability	1.00	Ponding	1.00
		Ponding	1.00		
525:					
Silcat	85	Very limited		Somewhat limited	
		Restricted permeability	1.00	Slope	0.67
550:					
Bryway	50	Very limited		Very limited	
		Restricted permeability	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	0.33

Table 11a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
550:					
Galzuni	35	Very limited		Somewhat limited	
		Restricted permeability	1.00	Seepage	0.53
				Slope	0.33
555:					
Parkelei	45	Not limited		Very limited	
				Seepage	1.00
				Slope	0.67
Evpark	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Restricted permeability	0.46	Slope	0.67
				Seepage	0.53
560:					
Flugle	45	Somewhat limited		Very limited	
		Restricted permeability	0.46	Seepage	1.00
				Slope	0.09
Teczuni	35	Very limited		Somewhat limited	
		Restricted permeability	1.00	Slope	0.09
561:					
Flugle	50	Not limited		Very limited	
				Seepage	1.00
				Slope	0.67
Plumasano	40	Somewhat limited		Very limited	
		Restricted permeability	0.46	Seepage	1.00
				Slope	0.67
565:					
Plumasano	65	Very limited		Very limited	
		Filtering capacity	1.00	Slope	1.00
		Slope	1.00	Seepage	1.00
Rock outcrop	20	Not rated		Not rated	
566:					
Bamac	90	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Slope	1.00	Slope	1.00

Table 11a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
575:					
Ramah	45	Very limited Restricted permeability	1.00	Somewhat limited Seepage Slope	0.53 0.01
Pescado	35	Very limited Depth to bedrock	1.00	Very limited Depth to hard bedrock Seepage Slope	1.00 1.00 0.33

Table 11b.--Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
8:							
Water	100	Not rated		Not rated		Not rated	
10:							
Tsosie	35	Somewhat limited		Somewhat limited		Not limited	
		Flooding	0.40	Flooding	0.40		
Councelor	30	Somewhat limited		Somewhat limited		Somewhat limited	
		Flooding	0.40	Flooding	0.40	Seepage	0.52
Blancot	20	Very limited		Not limited		Very limited	
		Too sandy	1.00			Seepage	1.00
						Too sandy	0.50
11:							
Doakum	60	Not limited		Not limited		Somewhat limited	
						Seepage	0.52
Betonnie	25	Very limited		Not limited		Very limited	
		Too sandy	1.00			Seepage	1.00
						Too sandy	0.50
12:							
Calladito	55	Very limited		Not limited		Very limited	
		Too sandy	1.00			Seepage	1.00
						Too sandy	0.50
Elias	30	Not limited		Not limited		Not limited	
13:							
Councelor	60	Very limited		Somewhat limited		Very limited	
		Too sandy	1.00	Flooding	0.40	Seepage	1.00
		Flooding	0.40			Too sandy	0.50
Calladito	30	Very limited		Not limited		Very limited	
		Too sandy	1.00			Seepage	1.00
						Too sandy	0.50
14:							
Councelor	30	Somewhat limited		Somewhat limited		Somewhat limited	
		Flooding	0.40	Flooding	0.40	Seepage	0.52
Eslendo	30	Very limited		Somewhat limited		Very limited	
		Depth to bedrock	1.00	Slope	0.96	Depth to bedrock	1.00
		Slope	0.96			Slope	0.96

Table 11b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
14:							
Calladito	25	Very limited		Not limited		Very limited	
		Too sandy	1.00			Seepage	1.00
						Too sandy	0.50
16:							
Starlake	85	Somewhat limited		Somewhat limited		Not limited	
		Flooding	0.40	Flooding	0.40		
22:							
Querencia	50	Not limited		Not limited		Not limited	
Lavodnas	35	Very limited		Somewhat limited		Very limited	
		Depth to bedrock	1.00	Slope	0.01	Depth to bedrock	1.00
		Slope	0.01			Slope	0.01
30:							
Orlie	45	Not limited		Not limited		Not limited	
Tinian	40	Very limited		Not limited		Very limited	
		Depth to bedrock	1.00			Depth to bedrock	1.00
40:							
Nuffel	90	Very limited		Very limited		Not limited	
		Flooding	1.00	Flooding	1.00		
42:							
Suwanee	90	Very limited		Very limited		Not limited	
		Flooding	1.00	Flooding	1.00		
44:							
Suwanee	90	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Seepage	0.52
45:							
Nutreeah	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00	Flooding	0.40		
		Flooding	0.40				
47:							
Conchovar	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00	Flooding	0.40		
		Flooding	0.40				
49:							
Concho	85	Somewhat limited		Somewhat limited		Not limited	
		Flooding	0.40	Flooding	0.40		

Table 11b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
51:							
Kwakina	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Seepage	1.00
		Too sandy	1.00			Too sandy	0.50
52:							
Zuniven	90	Very limited		Very limited		Not limited	
		Flooding	1.00	Flooding	1.00		
53:							
Hawaikuh	80	Not limited		Not limited		Not limited	
54:							
Venadito	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Hard to compact	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
55:							
Sparham	95	Very limited		Very limited		Not limited	
		Flooding	1.00	Flooding	1.00		
60:							
Redpen	90	Not limited		Not limited		Not limited	
100:							
Norkiki	45	Very limited		Not limited		Very limited	
		Depth to bedrock	1.00			Depth to bedrock	1.00
Kimnoli	40	Very limited		Not limited		Very limited	
		Depth to bedrock	1.00			Depth to bedrock	1.00
110:							
Benally	60	Not limited		Not limited		Not limited	
Fruitland	25	Not limited		Not limited		Somewhat limited	
						Seepage	0.50
111:							
Yelives	85	Somewhat limited		Somewhat limited		Very limited	
		Flooding	0.40	Flooding	0.40	Seepage	1.00
115:							
Razito	45	Very limited		Not limited		Very limited	
		Too sandy	1.00			Seepage	1.00
						Too sandy	0.50
Shiprock	40	Not limited		Not limited		Very limited	
						Seepage	1.00
116:							
Fajada	30	Very limited		Not limited		Very limited	
		Depth to bedrock	1.00			Depth to bedrock	1.00

Table 11b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
116:							
Huerfano	30	Very limited		Not limited		Very limited	
		Depth to bedrock	1.00			Depth to bedrock	1.00
Benally	25	Very limited		Not limited		Somewhat limited	
		Depth to bedrock	1.00			Depth to bedrock	0.84
118:							
Farb	35	Very limited		Not limited		Very limited	
		Depth to bedrock	1.00			Depth to bedrock	1.00
						Seepage	0.52
Chipeta	30	Very limited		Somewhat limited		Very limited	
		Depth to bedrock	1.00	Slope	0.63	Depth to bedrock	1.00
		Slope	0.63			Slope	0.63
Rock outcrop	25	Not rated		Not rated		Not rated	
120:							
Doak	55	Not limited		Not limited		Not limited	
Shiprock	30	Not limited		Not limited		Very limited	
						Seepage	1.00
121:							
Badland	90	Not rated		Not rated		Not rated	
122:							
Farb	45	Very limited		Not limited		Very limited	
		Depth to bedrock	1.00			Depth to bedrock	1.00
						Seepage	0.52
						Gravel content	0.14
Rock outcrop	45	Not rated		Not rated		Not rated	
125:							
Sanfeco	75	Very limited		Somewhat limited		Very limited	
		Too sandy	1.00	Flooding	0.40	Seepage	1.00
		Flooding	0.40			Too sandy	0.50
130:							
Chipeta	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00	Depth to bedrock	1.00
		Slope	1.00			Slope	1.00
Badlands	30	Not rated		Not rated		Not rated	
Moncisco	15	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Gravel content	1.00
						Slope	1.00

Table 11b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
150:							
Riverwash	65	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Too sandy	1.00
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	1.00				
Escawetter	25	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Too sandy	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	1.00
		Too sandy	1.00			Depth to saturated zone	0.01
160:							
Escawetter	40	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Too sandy	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	1.00
		Too sandy	1.00				
Riverwash	35	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Too sandy	1.00
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	1.00				
Razito	15	Very limited		Not limited		Very limited	
		Too sandy	1.00			Too sandy	1.00
						Seepage	1.00
205:							
Penistaja	45	Not limited		Not limited		Somewhat limited	
						Seepage	0.22
Tintero	40	Not limited		Not limited		Somewhat limited	
						Seepage	0.52
208:							
Marianolake	85	Very limited		Not limited		Very limited	
		Too sandy	1.00			Seepage	1.00
						Too sandy	0.50
210:							
Marianolake	50	Not limited		Not limited		Not limited	
Skyvillage	30	Very limited		Not limited		Very limited	
		Depth to bedrock	1.00			Depth to bedrock	1.00
212:							
Rehobeth	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Hard to compact	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00

Table 11b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
215:							
Viuda	35	Very limited Depth to bedrock	 1.00	Not limited		Very limited Depth to bedrock	 1.00
Penistaja	30	Not limited		Not limited		Somewhat limited Seepage	 0.22
Rock outcrop	25	Not rated		Not rated		Not rated	
220:							
Hagerwest	50	Very limited Depth to bedrock	 1.00	Not limited		Very limited Depth to bedrock Seepage	 1.00 0.52
Bond	35	Very limited Depth to bedrock	 1.00	Not limited		Very limited Depth to bedrock	 1.00
225:							
Aquima	40	Not limited		Not limited		Not limited	
Hawaikuh	40	Not limited		Not limited		Not limited	
230:							
Sparank	40	Very limited Flooding	 1.00	Very limited Flooding	 1.00	Not limited	
San Mateo	35	Very limited Flooding	 1.00	Very limited Flooding	 1.00	Not limited	
Zia	20	Somewhat limited Flooding	 0.40	Somewhat limited Flooding	 0.40	Somewhat limited Seepage	 0.52
235:							
Notal	45	Somewhat limited Flooding	 0.40	Somewhat limited Flooding	 0.40	Not limited	
Hamburn	40	Very limited Flooding	 1.00	Very limited Flooding	 1.00	Very limited Carbonate content	 1.00
240:							
Breadsprings	35	Very limited Ponding Flooding	 1.00 0.40	Very limited Ponding Flooding	 1.00 0.40	Very limited Ponding	 1.00
Nahodish	35	Very limited Ponding Flooding	 1.00 0.40	Very limited Ponding Flooding	 1.00 0.40	Very limited Ponding	 1.00
241:							
Mentmore	85	Not limited		Not limited		Not limited	
242:							
Gish	45	Somewhat limited Flooding	 0.40	Somewhat limited Flooding	 0.40	Very limited Hard to compact	 1.00

Table 11b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
242:							
Mentmore	35	Not limited		Not limited		Not limited	
244:							
Buckle	85	Not limited		Not limited		Not limited	
245:							
Buckle	35	Not limited		Not limited		Somewhat limited	
						Seepage	0.50
Gapmesa	30	Very limited		Not limited		Very limited	
		Depth to bedrock	1.00			Depth to bedrock	1.00
Barboncito	25	Very limited		Not limited		Very limited	
		Depth to bedrock	1.00			Depth to bedrock	1.00
250:							
Hospah	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00	Depth to bedrock	1.00
		Slope	1.00			Slope	1.00
						Hard to compact	1.00
Skyvillage	30	Very limited		Not limited		Very limited	
		Depth to bedrock	1.00			Depth to bedrock	1.00
						Seepage	0.52
Rock outcrop	25	Not rated		Not rated		Not rated	
255:							
Farview	50	Very limited		Somewhat limited		Very limited	
		Depth to bedrock	1.00	Slope	0.01	Depth to bedrock	1.00
		Slope	0.01			Seepage	0.50
						Slope	0.01
Rock outcrop	35	Not rated		Not rated		Not rated	
258:							
Eagleye	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00	Depth to bedrock	1.00
		Slope	1.00			Slope	1.00
						Too acid	1.00
Atchee	35	Very limited		Not limited		Very limited	
		Depth to bedrock	1.00			Depth to bedrock	1.00
		Content of large stones	0.98			Content of large stones	0.98
Rock outcrop	20	Not rated		Not rated		Not rated	
260:							
Quarries and Pits	95	Not rated		Not rated		Not rated	

Table 11b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
261:							
Coal Mine Lands	100	Not rated		Not rated		Not rated	
265:							
Uranium Mined Lands	95	Not rated		Not rated		Not rated	
270:							
Alesna	70	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00	Slope	1.00
		Slope	1.00			Depth to bedrock	0.26
Rock outcrop	20	Not rated		Not rated		Not rated	
275:							
Eldado	85	Very limited		Not limited		Very limited	
		Too sandy	1.00			Too sandy	1.00
						Seepage	1.00
						Gravel content	0.16
280:							
Azabache	85	Not limited		Not limited		Very limited	
						Gravel content	1.00
290:							
Rock outcrop	45	Not rated		Not rated		Not rated	
Westmion	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00			Slope	1.00
Skyvillage	15	Very limited		Not limited		Very limited	
		Depth to bedrock	1.00			Depth to bedrock	1.00
						Seepage	0.52
		Slope				Slope	
291:							
Rock outcrop	50	Not rated		Not rated		Not rated	
Eagleye	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00			Slope	1.00
						Gravel content	0.02
Atchee	15	Very limited		Somewhat limited		Very limited	
		Depth to bedrock	1.00	Slope	0.63	Depth to bedrock	1.00
		Slope	0.63			Slope	0.63
		Content of large stones	0.44			Content of large stones	0.44
						Gravel content	0.14
300:							
Regracic	80	Not limited		Not limited		Somewhat limited	
						Gravel content	0.02

Table 11b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
305:							
Celavar	50	Very limited		Not limited		Very limited	
		Depth to bedrock	1.00			Depth to bedrock	1.00
Atarque	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
308:							
Fikel	50	Not limited		Not limited		Not limited	
Venzuni	40	Somewhat limited		Somewhat limited		Very limited	
		Flooding	0.40	Flooding	0.40	Hard to compact	1.00
310:							
Parkelei	80	Not limited		Not limited		Not limited	
312:							
Bluewater	90	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
		Too clayey	0.50	Flooding	0.40	Depth to saturated zone	0.09
		Flooding	0.40				
315:							
Flugle	50	Not limited		Not limited		Somewhat limited	
						Seepage	0.52
Fragua	40	Not limited		Not limited		Somewhat limited	
						Seepage	0.52
316:							
Royosa	80	Very limited		Somewhat limited		Very limited	
		Too sandy	1.00	Slope	0.01	Too sandy	1.00
		Slope	0.01			Seepage	1.00
						Slope	0.01
317:							
Highdye	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	1.00	Slope	0.37	Too clayey	1.00
		Slope	0.37			Slope	0.37
Evpark	30	Very limited		Not limited		Very limited	
		Depth to bedrock	1.00			Depth to bedrock	1.00
Bryway	20	Very limited		Not limited		Very limited	
		Depth to bedrock	1.00			Depth to bedrock	1.00
320:							
Parkelei	45	Not limited		Not limited		Somewhat limited	
						Seepage	0.52

Table 11b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
320:							
Fraguni	40	Very limited		Not limited		Very limited	
		Too sandy	1.00			Seepage	1.00
						Too sandy	0.50
325:							
Venzuni	90	Somewhat limited		Somewhat limited		Very limited	
		Flooding	0.40	Flooding	0.40	Hard to compact	1.00
332:							
Evpark	50	Very limited		Not limited		Very limited	
		Depth to bedrock	1.00			Depth to bedrock	1.00
Arabrab	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	0.50			Carbonate content	1.00
						Too clayey	0.50
335:							
Venadito	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Hard to compact	1.00
336:							
Nuffel	45	Very limited		Very limited		Not limited	
		Flooding	1.00	Flooding	1.00		
Venadito	35	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Hard to compact	1.00
338:							
Zyme	50	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00	Depth to bedrock	1.00
		Slope	1.00			Hard to compact	1.00
						Slope	1.00
Lockerby	40	Very limited		Somewhat limited		Very limited	
		Depth to bedrock	1.00	Slope	0.16	Depth to bedrock	1.00
		Slope	0.16			Slope	0.16
345:							
Rock outcrop	40	Not rated		Not rated		Not rated	
Tuces	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00			Slope	1.00
						Hard to compact	1.00
350:							
Toldohn	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00	Depth to bedrock	1.00
		Slope	1.00			Slope	1.00

Table 11b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
350:							
Vessilla	30	Very limited		Somewhat limited		Very limited	
		Depth to bedrock	1.00	Slope	0.01	Depth to bedrock	1.00
		Slope	0.01			Slope	0.01
Rock outcrop	20	Not rated		Not rated		Not rated	
351:							
Rock outcrop	60	Not rated		Not rated		Not rated	
Vessilla	30	Very limited		Somewhat limited		Very limited	
		Depth to bedrock	1.00	Slope	0.01	Depth to bedrock	1.00
		Slope	0.01			Seepage	0.52
						Slope	0.01
352:							
Zia	80	Not limited		Not limited		Somewhat limited	
						Seepage	0.52
353:							
Mido	90	Very limited		Not limited		Very limited	
		Too sandy	1.00			Seepage	1.00
						Too sandy	0.50
354:							
Knifehill	80	Very limited		Not limited		Very limited	
		Too clayey	1.00			Too clayey	1.00
355:							
Rizno	35	Very limited		Somewhat limited		Very limited	
		Depth to bedrock	1.00	Slope	0.16	Depth to bedrock	1.00
		Slope	0.16			Seepage	0.52
						Slope	0.16
Tekapo	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00	Depth to bedrock	1.00
		Slope	1.00			Slope	1.00
						Too acid	1.00
Rock outcrop	20	Not rated		Not rated		Not rated	
357:							
Heshotauthla	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Hard to compact	1.00
360:							
Hosta	45	Not limited		Not limited		Not limited	
Concho	40	Somewhat limited		Somewhat limited		Not limited	
		Flooding	0.40	Flooding	0.40		

Table 11b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
361:							
Monpark	80	Very limited		Not limited		Very limited	
		Depth to bedrock	1.00			Depth to bedrock	1.00
						Hard to compact	1.00
365:							
Vessilla	55	Very limited		Somewhat limited		Very limited	
		Depth to bedrock	1.00	Slope	0.01	Depth to bedrock	1.00
		Slope	0.01			Seepage	0.52
						Slope	0.01
Rock outcrop	35	Not rated		Not rated		Not rated	
366:							
Bosonoak	95	Not limited		Not limited		Not limited	
367:							
Chunkmonk	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
						Too acid	1.00
						Seepage	0.52
						Gravel content	0.17
368:							
Simitarq	60	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	0.50			Too clayey	0.50
Celavar	20	Very limited		Not limited		Very limited	
		Depth to bedrock	1.00			Depth to bedrock	1.00
375:							
Todest	60	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
Shadilto	25	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
						Carbonate content	1.00
						Seepage	0.52
376:							
Todest	80	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
						Carbonate content	1.00
380:							
Berryhill	50	Not limited		Not limited		Very limited	
						Hard to compact	1.00
Casamero	45	Very limited		Not limited		Very limited	
		Depth to bedrock	1.00			Depth to bedrock	1.00
						Hard to compact	1.00

Table 11b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
385:							
Mcorreon	65	Very limited		Very limited		Very limited	
		Too clayey	1.00	Slope	1.00	Too clayey	1.00
		Slope	1.00			Slope	1.00
Rock outcrop	20	Not rated		Not rated		Not rated	
390:							
Banquito	90	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	1.00
		Seepage	1.00	Depth to bedrock	1.00	Seepage	0.52
395:							
Cabezon	60	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	1.00			Too clayey	1.00
Mcorreon	30	Somewhat limited		Not limited		Somewhat limited	
		Too clayey	0.50			Too clayey	0.50
400:							
Shoemaker	45	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
Stozuni	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
						Seepage	0.52
403:							
Valnor	50	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	1.00	Slope	0.01	Too clayey	1.00
		Slope	0.01			Slope	0.01
Techado	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	1.00	Slope	1.00	Too clayey	1.00
		Slope	1.00			Slope	1.00
404:							
Rock outcrop	35	Not rated		Not rated		Not rated	
Techado	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	1.00	Slope	1.00	Too clayey	1.00
		Slope	1.00			Slope	1.00
Stozuni	25	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.16	Slope	0.16	Seepage	0.52
						Slope	0.16
						Gravel content	0.04

Table 11b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
405:							
Fortwingate	50	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
Owlrock	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Content of large stones	1.00			Content of large stones	1.00
406:							
Polich	90	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Too clayey	0.50
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.25
		Too clayey	0.50				
407:							
Cinnadale	50	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.16	Slope	0.16	Gravel content	0.90
						Seepage	0.52
						Slope	0.16
Heckly	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	0.50			Gravel content	0.95
						Too clayey	0.50
408:							
Mirabal	50	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	1.00
		Slope	1.00	Depth to bedrock	1.00	Slope	1.00
		Seepage	1.00	Slope	1.00	Gravel content	0.99
		Content of large stones	0.01			Seepage	0.52
						Content of large stones	0.01
Zuni	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	0.50	Slope	0.01	Too clayey	0.50
		Slope	0.01			Gravel content	0.24
						Slope	0.01
409:							
Rauster	60	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00	Too clayey	1.00
		Too clayey	1.00	Depth to bedrock	0.08	Hard to compact	1.00
		Slope	1.00			Slope	1.00
						Depth to bedrock	0.08

Table 11b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
409:							
Rock outcrop	30	Not rated		Not rated		Not rated	
410:							
Montillo	50	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	1.00	Seepage	1.00	Too clayey	1.00
		Seepage	1.00	Slope	0.16	Hard to compact	1.00
		Slope	0.16			Slope	0.16
Tsoodzil	40	Very limited		Very limited		Very limited	
		Too clayey	1.00	Slope	1.00	Too clayey	1.00
		Slope	1.00			Hard to compact	1.00
						Slope	1.00
411:							
Ligocki	45	Not limited		Not limited		Not limited	
Robolata	35	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Seepage	0.52
		Seepage	1.00				
412:							
Rock outcrop	50	Not rated		Not rated		Not rated	
Rionutria	25	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Content of large stones	1.00	Slope	0.16	Content of large stones	1.00
		Too clayey	0.50			Too clayey	0.50
		Slope	0.16			Slope	0.16
Zaster	25	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	1.00
		Slope	1.00	Depth to bedrock	1.00	Slope	1.00
		Content of large stones	0.33	Slope	1.00	Content of large stones	0.33
						Gravel content	0.30
						Seepage	0.09
413:							
Morclay	85	Very limited		Not limited		Very limited	
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
414:							
Zunalei	50	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Seepage	1.00	Seepage	0.52
Corzuni	40	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Seepage	1.00	Seepage	0.52

Table 11b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
415:							
Tsoodzil	60	Very limited		Very limited		Very limited	
		Too clayey	1.00	Slope	1.00	Too clayey	1.00
		Slope	1.00			Slope	1.00
Rubble Land	20	Not rated		Not rated		Not rated	
416:							
Rock outcrop	70	Not rated		Not rated		Not rated	
Bluesky	20	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too sandy	1.00	Slope	0.16	Too sandy	1.00
		Slope	0.16			Seepage	1.00
						Slope	0.16
418:							
Asaayi	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	0.50	Slope	0.01	Too clayey	0.50
		Slope	0.01			Slope	0.01
Osoridge	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	1.00	Slope	0.01	Too clayey	1.00
		Slope	0.01			Hard to compact	1.00
						Slope	0.01
419:							
Fortwingate	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	0.50			Too clayey	0.50
Cinnadale	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Content of large stones	0.95	Slope	0.16	Content of large stones	0.95
		Slope	0.16			Seepage	0.52
						Slope	0.16
						Gravel content	0.10
Rock outcrop	20	Not rated		Not rated		Not rated	
420:							
Seco	85	Very limited		Somewhat limited		Very limited	
		Too clayey	1.00	Flooding	0.40	Too clayey	1.00
		Flooding	0.40			Hard to compact	1.00

Table 11b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
425:							
Montillo	50	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	1.00	Seepage	1.00	Too clayey	1.00
		Seepage	1.00			Hard to compact	1.00
		Content of large stones	0.01			Content of large stones	0.01
Canoneros	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
430:							
Montillo	80	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	1.00	Seepage	1.00	Too clayey	1.00
		Seepage	1.00			Hard to compact	1.00
435:							
Tsoodzil	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	0.50			Too clayey	0.50
						Gravel content	0.10
Amcec	40	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Gravel content	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
						Seepage	0.52
440:							
Chivato	90	Very limited		Very limited		Very limited	
		Too clayey	1.00	Ponding	1.00	Too clayey	1.00
		Ponding	1.00			Hard to compact	1.00
						Ponding	1.00
525:							
Silcat	85	Not limited		Not limited		Very limited	
						Hard to compact	1.00
550:							
Bryway	50	Very limited		Not limited		Very limited	
		Depth to bedrock	1.00			Depth to bedrock	1.00
Galzuni	35	Not limited		Not limited		Not limited	
555:							
Parkelei	45	Not limited		Not limited		Somewhat limited	
						Seepage	0.52
Evpark	35	Very limited		Not limited		Very limited	
		Depth to bedrock	1.00			Depth to bedrock	1.00

Table 11b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
560:							
Flugle	45	Not limited		Not limited		Somewhat limited	
						Seepage	0.52
Teczuni	35	Very limited		Not limited		Very limited	
		Too clayey	1.00			Too clayey	1.00
561:							
Flugle	50	Not limited		Not limited		Somewhat limited	
						Seepage	0.52
Plumasano	40	Not limited		Not limited		Somewhat limited	
						Seepage	0.52
565:							
Plumasano	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Seepage	0.52
Rock outcrop	20	Not rated		Not rated		Not rated	
566:							
Bamac	90	Very limited		Very limited		Very limited	
		Too sandy	1.00	Slope	1.00	Too sandy	1.00
		Slope	1.00			Seepage	1.00
						Gravel content	1.00
						Slope	1.00
575:							
Ramah	45	Not limited		Not limited		Somewhat limited	
						Too clayey	0.50
Pescado	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage	1.00	Seepage	1.00	Too clayey	0.50
		Too clayey	0.50				

Table 12a.--Construction Materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
8:					
Water	100	Not rated		Not rated	
10:					
Tsosie	35	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.04
Councelor	30	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.09
Blancot	20	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.09
		Thickest layer	0.00	Bottom layer	0.56
11:					
Doakum	60	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.04
		Thickest layer	0.00	Bottom layer	0.09
Betonnie	25	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.09
		Thickest layer	0.00	Thickest layer	0.14
12:					
Calladito	55	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.70
		Thickest layer	0.00	Thickest layer	0.70
Elias	30	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.03
13:					
Councelor	60	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.41
Calladito	30	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.49
		Thickest layer	0.00	Bottom layer	0.70

Table 12a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
14:					
Councelor	30	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.09
		Thickest layer	0.00	Thickest layer	0.09
Eslendo	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Calladito	25	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.49
		Thickest layer	0.00	Bottom layer	0.70
16:					
Starlake	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
22:					
Querencia	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Lavodnas	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
30:					
Orlie	45	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.03
Tinian	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
40:					
Nuffel	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
42:					
Suwanee	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
44:					
Suwanee	90	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.03
		Thickest layer	0.00	Bottom layer	0.09

Table 12a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
45:					
Nutreeah	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
47:					
Conchovar	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
49:					
Concho	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
51:					
Kwakina	90	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.33
		Thickest layer	0.00	Thickest layer	0.73
52:					
Zuniven	90	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.57
53:					
Hawaikuh	80	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.01
54:					
Venadito	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
55:					
Sparham	95	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
60:					
Redpen	90	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.03
100:					
Norkiki	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Kimnoli	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 12a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
110:					
Benally	60	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.03
		Thickest layer	0.00	Thickest layer	0.03
Fruitland	25	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.12
		Thickest layer	0.00	Thickest layer	0.62
111:					
Yelives	85	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.70
115:					
Razito	45	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.39
		Thickest layer	0.00	Thickest layer	0.39
Shiprock	40	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.08
		Thickest layer	0.00	Bottom layer	0.10
116:					
Fajada	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Huerfano	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Benally	25	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.03
118:					
Farb	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Chipeta	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop	25	Not rated		Not rated	
120:					
Doak	55	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.04
		Thickest layer	0.00	Bottom layer	0.09

Table 12a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
120:					
Shiprock	30	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.08
		Thickest layer	0.00	Bottom layer	0.10
121:					
Badland	90	Not rated		Not rated	
122:					
Farb	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop	45	Not rated		Not rated	
125:					
Sanfeco	75	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.56
130:					
Chipeta	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Badlands	30	Not rated		Not rated	
Moncisco	15	Fair		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.29	Thickest layer	0.00
150:					
Riverwash	65	Poor		Good	
		Bottom layer	0.00	Bottom layer	0.90
		Thickest layer	0.00		
Escawetter	25	Poor		Good	
		Bottom layer	0.00	Thickest layer	0.19
		Thickest layer	0.00		
160:					
Escawetter	40	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.66
		Thickest layer	0.00	Bottom layer	0.93
Riverwash	35	Poor		Good	
		Bottom layer	0.00	Bottom layer	0.90
		Thickest layer	0.00		

Table 12a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
160:					
Razito	15	Poor		Good	
		Bottom layer	0.00	Bottom layer	0.90
		Thickest layer	0.00		
205:					
Penistaja	45	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.04
		Thickest layer	0.00	Bottom layer	0.07
Tintero	40	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.09
		Thickest layer	0.00	Bottom layer	0.70
208:					
Marianolake	85	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.06
		Thickest layer	0.00	Bottom layer	0.56
210:					
Marianolake	50	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.08
Skyvillage	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
212:					
Rehobeth	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
215:					
Viuda	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Penistaja	30	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.04
		Thickest layer	0.00	Bottom layer	0.05
Rock outcrop	25	Not rated		Not rated	
220:					
Hagerwest	50	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.09
Bond	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 12a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
225:					
Aquima	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Hawaikuh	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
230:					
Sparank	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
San Mateo	35	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.04
Zia	20	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.09
		Thickest layer	0.00	Thickest layer	0.09
235:					
Notal	45	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.03
Hamburn	40	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.03
240:					
Breadsprings	35	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.08
Nahodish	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
241:					
Mentmore	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
242:					
Gish	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Mentmore	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 12a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
244:					
Buckle	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
245:					
Buckle	35	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.03
		Thickest layer	0.00	Bottom layer	0.08
Gapmesa	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Barboncito	25	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
250:					
Hospah	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Skyvillage	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop	25	Not rated		Not rated	
255:					
Farview	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop	35	Not rated		Not rated	
258:					
Eagleye	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Atchee	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop	20	Not rated		Not rated	
260:					
Quarries and Pits	95	Not rated		Not rated	

Table 12a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
261:					
Coal Mine Lands-----	100	Not rated		Not rated	
265:					
Uranium Mined Lands-	95	Not rated		Not rated	
270:					
Alesna----------	70	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop--------	20	Not rated		Not rated	
275:					
Eldado----------	85	Fair		Fair	
		Bottom layer	0.34	Thickest layer	0.30
		Thickest layer	0.34	Bottom layer	0.34
280:					
Azabache----------	85	Fair		Fair	
		Bottom layer	0.00	Bottom layer	0.08
		Thickest layer	0.23	Thickest layer	0.08
290:					
Rock outcrop--------	45	Not rated		Not rated	
Westmion----------	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Skyvillage----------	15	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
291:					
Rock outcrop--------	50	Not rated		Not rated	
Eagleye----------	25	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Atchee----------	15	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
300:					
Regracic----------	80	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.09

Table 12a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
305:					
Celavar	50	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.04
Atarque	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
308:					
Fikel	50	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.03
		Thickest layer	0.00	Thickest layer	0.03
Venzuni	40	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.03
310:					
Parkelei	80	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.03
312:					
Bluewater	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
315:					
Flugle	50	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.09
Fragua	40	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.09
		Thickest layer	0.00	Bottom layer	0.09
316:					
Royosa	80	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.65
		Thickest layer	0.00	Bottom layer	0.98
317:					
Highdye	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Evpark	30	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.03
Bryway	20	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 12a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
320:					
Parkelei	45	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.03
		Thickest layer	0.00	Bottom layer	0.08
Fraguni	40	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.08
		Thickest layer	0.00	Thickest layer	0.51
325:					
Venzuni	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
332:					
Evpark	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Arabrab	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
335:					
Venadito	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
336:					
Nuffel	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Venadito	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
338:					
Zyme	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Lockerby	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
345:					
Rock outcrop	40	Not rated		Not rated	
Tuces	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 12a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
350:					
Toldohn	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Vessilla	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop	20	Not rated		Not rated	
351:					
Rock outcrop	60	Not rated		Not rated	
351:					
Vessilla	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
352:					
Zia	80	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.09
		Thickest layer	0.00	Thickest layer	0.10
353:					
Mido	90	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.20
		Thickest layer	0.00	Bottom layer	0.70
354:					
Knifehill	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
355:					
Rizno	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Tekapo	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop	20	Not rated		Not rated	
357:					
Heshotauthla	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 12a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
360:					
Hosta	45	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.04
Concho	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
361:					
Monpark	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
365:					
Vessilla	55	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop	35	Not rated		Not rated	
366:					
Bosonoak	95	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
367:					
Chunkmonk	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
368:					
Simitarq	60	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Celavar	20	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.04
375:					
Todest	60	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Shadilto	25	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
376:					
Todest	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 12a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
380:					
Berryhill	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Casamero	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
385:					
Mcorreon	65	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
385:					
Rock outcrop	20	Not rated		Not rated	
390:					
Banquito	90	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.07
395:					
Cabezon	60	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Mcorreon	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
400:					
Shoemaker	45	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.04
Stozuni	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
403:					
Valnor	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Techado	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
404:					
Rock outcrop	35	Not rated		Not rated	

Table 12a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
404:					
Techado	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Stozuni	25	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
405:					
Fortwingate	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
405:					
Owlrock	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
406:					
Polich	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
407:					
Cinnadale	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Heckly	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
408:					
Mirabal	50	Fair		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.19	Thickest layer	0.08
Zuni	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
409:					
Rauster	60	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop	30	Not rated		Not rated	
410:					
Montillo	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 12a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
410:					
Tsoodzil	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
411:					
Ligocki	45	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.04
Robolata	35	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.03
		Bottom layer	0.38	Bottom layer	0.09
412:					
Rock outcrop	50	Not rated		Not rated	
Rionutria	25	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Zaster	25	Fair		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.14	Thickest layer	0.00
413:					
Morclay	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
414:					
Zunalei	50	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.08
		Thickest layer	0.00	Thickest layer	0.08
Corzuni	40	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.08
		Thickest layer	0.00	Thickest layer	0.08
415:					
Tsoodzil	60	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rubble Land	20	Not rated		Not rated	
416:					
Rock outcrop	70	Not rated		Not rated	
Bluesky	20	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 12a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
418:					
Asaayi	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Osoridge	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
419:					
Fortwingate	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Cinnadale	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop	20	Not rated		Not rated	
420:					
Seco	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
425:					
Montillo	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Canoneros	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
430:					
Montillo	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
435:					
Tsoodzil	50	Fair		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.38	Thickest layer	0.00
Amcec	40	Fair		Fair	
		Thickest layer	0.40	Thickest layer	0.09
		Bottom layer	0.43	Bottom layer	0.43
440:					
Chivato	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 12a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
525:					
Silcat	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
550:					
Bryway	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Galzuni	35	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.01
		Thickest layer	0.00	Bottom layer	0.03
555:					
Parkelei	45	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.03
		Thickest layer	0.00	Bottom layer	0.09
Evpark	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
560:					
Flugle	45	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.03
		Thickest layer	0.00	Bottom layer	0.08
Teczuni	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
561:					
Flugle	50	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.03
		Thickest layer	0.00	Bottom layer	0.08
Plumasano	40	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.04
		Thickest layer	0.00	Thickest layer	0.09
565:					
Plumasano	65	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.08
		Thickest layer	0.00	Thickest layer	0.09
Rock outcrop	20	Not rated		Not rated	
566:					
Bamac	90	Fair		Fair	
		Bottom layer	0.38	Bottom layer	0.43
		Thickest layer	0.38	Thickest layer	0.43

Table 12a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
575:					
Ramah	45	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.04
Pescado	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 12b.--Construction Materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
8:							
Water	100	Not rated		Not rated		Not rated	
10:							
Tsosie	35	Poor		Good		Poor	
		Sodium content	0.00			Sodium content	0.00
		Low content of organic matter	0.12				
		Water erosion	0.90				
Councelor	30	Fair		Good		Good	
		Low content of organic matter	0.32				
Blancot	20	Fair		Good		Good	
		Low content of organic matter	0.32				
		Droughty	0.86				
11:							
Doakum	60	Fair		Good		Good	
		Low content of organic matter	0.08				
Betonnie	25	Poor		Good		Fair	
		Too alkaline	0.00			Too sandy	0.01
		Too sandy	0.01				
		Low content of organic matter	0.50				
12:							
Calladito	55	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00				
		Low content of organic matter	0.50				
		Droughty	0.99				
Elias	30	Poor		Poor		Poor	
		Sodium content	0.00	Low strength	0.00	Sodium content	0.00
		Too alkaline	0.00			Salinity	0.50
		Low content of organic matter	0.24				

Table 12b.--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	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
13:							
Councelor	60	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Low content of organic matter	0.32				
		No water erosion limitation	0.99				
Calladito	30	Poor		Good		Poor	
		Wind erosion	0.00			Too sandy	0.00
		Too sandy	0.00				
		Low content of organic matter	0.50				
		Droughty	0.96				
14:							
Councelor	30	Fair		Good		Good	
		Low content of organic matter	0.32				
Eslendo	30	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Low strength	0.00	Slope	0.04
		Low content of organic matter	0.32	Shrink-swell	0.87	Too clayey	0.61
		Too clayey	0.98			Rock fragments	0.97
		No water erosion limitation	0.99				
Calladito	25	Poor		Good		Poor	
		Wind erosion	0.00			Too sandy	0.00
		Too sandy	0.00				
		Low content of organic matter	0.50				
		Droughty	0.93				
16:							
Starlake	85	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Sodium content	0.00	Shrink-swell	0.30	Sodium content	0.00
		Too alkaline	0.00			Salinity	0.50
		Low content of organic matter	0.92				
22:							
Querencia	50	Fair		Poor		Fair	
		Low content of organic matter	0.88	Low strength	0.00	Too clayey	0.66
		Too clayey	0.92	Shrink-swell	0.94		

Table 12b.--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	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
22:							
Lavodnas	35	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Shrink-swell	0.12		
		Low content of organic matter	0.82				
		No water erosion limitation	0.99				
30:							
Orlie	45	Fair		Fair		Good	
		Low content of organic matter	0.68	Shrink-swell	0.87		
		No water erosion limitation	0.99				
Tinian	40	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Too clayey	0.00
		Depth to bedrock	0.10	Low strength	0.00	Depth to bedrock	0.10
		Water erosion	0.37	Shrink-swell	0.87		
		Droughty	0.72				
		Low content of organic matter	0.88				
40:							
Nuffel	90	Fair		Fair		Good	
		Low content of organic matter	0.88	Low strength	0.78		
		Water erosion	0.90				
42:							
Suwanee	90	Fair		Poor		Fair	
		Low content of organic matter	0.68	Low strength	0.00	Too clayey	0.60
		Too clayey	0.88	Shrink-swell	0.98		
		Water erosion	0.90				
44:							
Suwanee	90	Fair		Fair		Fair	
		Too clayey	0.50	Shrink-swell	0.92	Too clayey	0.34
		Low content of organic matter	0.68				
45:							
Nutreeah	90	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Low content of organic matter	0.68	Shrink-swell	0.31		

Table 12b.--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	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
47:							
Conchovar	90	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Low content of organic matter	0.68	Shrink-swell	0.12	Salinity	0.50
49:							
Concho	85	Fair		Poor		Fair	
		Too clayey	0.50	Low strength	0.00	Too clayey	0.44
		Low content of organic matter	0.88	Shrink-swell	0.75		
51:							
Kwakina	90	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Salinity	0.88
		Low content of organic matter	0.88				
52:							
Zuniven	90	Poor		Poor		Good	
		Wind erosion	0.00	Low strength	0.00		
		Water erosion	0.90				
53:							
Hawaikuh	80	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Low content of organic matter	0.68	Shrink-swell	0.35		
54:							
Venadito	90	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Sodium content	0.60	Shrink-swell	0.12	Sodium content	0.60
		Low content of organic matter	0.88				
55:							
Sparham	95	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Low content of organic matter	0.88	Shrink-swell	0.22		
60:							
Redpen	90	Fair		Fair		Fair	
		Low content of organic matter	0.88	Shrink-swell	0.87	Too clayey	0.70
		Too clayey	0.98				

Table 12b.--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	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
100:							
Norkiki	45	Poor		Poor		Fair	
		Wind erosion	0.00	Depth to bedrock	0.00	Depth to bedrock	0.35
		Droughty	0.15	Shrink-swell	0.99		
		Low content of organic matter	0.24				
		Depth to bedrock	0.35				
Kimnoli	40	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00				
		Low content of organic matter	0.12				
110:							
Benally	60	Poor		Fair		Poor	
		Sodium content	0.00	Shrink-swell	0.87	Sodium content	0.00
		Too alkaline	0.00				
		Low content of organic matter	0.02				
Fruitland	25	Poor		Good		Fair	
		Wind erosion	0.00			Too sandy	0.78
		Too alkaline	0.00				
		Low content of organic matter	0.12				
		Too sandy	0.78				
111:							
Yelives	85	Fair		Good		Good	
		Low content of organic matter	0.18				
		No water erosion limitation	0.99				
115:							
Razito	45	Poor		Good		Fair	
		Wind erosion	0.00			Too sandy	0.02
		Too sandy	0.02				
		Low content of organic matter	0.18				
		Droughty	0.58				
Shiprock	40	Poor		Good		Good	
		Too alkaline	0.00				
		Low content of organic matter	0.05				

Table 12b.--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	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
116:							
Fajada	30	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Hard to reclaim	0.00
		Sodium content	0.00	Low strength	0.00	Sodium content	0.00
		Too alkaline	0.00	Shrink-swell	0.87	Salinity	0.00
		Low content of organic matter	0.18			Depth to bedrock	0.35
		Depth to bedrock	0.35			Too clayey	0.58
		Salinity	0.88				
		Too clayey	0.98				
Huerfano	30	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Sodium content	0.00
		Depth to bedrock	0.00	Low strength	0.00	Depth to bedrock	0.00
		Sodium content	0.00	Shrink-swell	0.87	Salinity	0.00
		Too alkaline	0.00			Too clayey	0.61
		Low content of organic matter	0.32				
		Salinity	0.88				
		Too clayey	0.98				
Benally	25	Poor		Fair		Poor	
		Sodium content	0.00	Depth to bedrock	0.16	Sodium content	0.00
		Too alkaline	0.00	Shrink-swell	0.87	Salinity	0.50
		Droughty	0.11				
		Low content of organic matter	0.24				
118:							
Farb	35	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00				
		Low content of organic matter	0.32				
Chipeta	30	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Salinity	0.00
		Depth to bedrock	0.00	Low strength	0.00	Depth to bedrock	0.00
		Too clayey	0.00	Shrink-swell	0.87	Too clayey	0.00
		Low content of organic matter	0.12			Sodium content	0.22
		Sodium content	0.22			Slope	0.37
		Salinity	0.50				
		Water erosion	0.90				
Rock outcrop	25	Not rated		Not rated		Not rated	
120:							
Doak	55	Fair		Fair		Good	
		Low content of organic matter	0.32				

Table 12b.--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	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
120:							
Shiprock	30	Poor		Good		Good	
		Wind erosion	0.00				
		Too alkaline	0.00				
		Low content of organic matter	0.05				
121:							
Badland	90	Not rated		Not rated		Not rated	
122:							
Farb	45	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00				
		Low content of organic matter	0.32				
Rock outcrop	45	Not rated		Not rated		Not rated	
125:							
Sanfeco	75	Poor		Fair		Poor	
		Too clayey	0.00	Shrink-swell	0.82	Too clayey	0.00
		Low content of organic matter	0.88				
130:							
Chipeta	40	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Low content of organic matter	0.00	Slope	0.98	Slope	0.00
		Depth to bedrock	0.00				
Badlands	30	Not rated		Not rated		Not rated	
Moncisco	15	Poor		Fair		Poor	
		Droughty	0.00	Slope	0.32	Rock fragments	0.00
		Low content of organic matter	0.08	Cobble content	0.75	Slope	0.00
		Stone content	0.97	Stone content	0.98	Salinity	0.50
150:							
Riverwash	65	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Droughty	0.00				
		Low content of organic matter	0.01				

Table 12b.--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	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
150:							
Escawetter	25	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00				
		Low content of organic matter	0.50				
		Droughty	0.55				
160:							
Escawetter	40	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00				
		Droughty	0.40				
		Low content of organic matter	0.50				
Riverwash	35	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Droughty	0.00				
		Low content of organic matter	0.01				
Razito	15	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00				
		Low content of organic matter	0.00				
		Droughty	0.36				
205:							
Penistaja	45	Fair		Good		Good	
		Low content of organic matter	0.88				
Tintero	40	Fair		Good		Good	
		Low content of organic matter	0.88				
208:							
Marianolake	85	Poor		Fair		Good	
		Low content of organic matter	0.00	Shrink-swell	0.99		
		No water erosion limitation	0.99				
210:							
Marianolake	50	Fair		Poor		Fair	
		Low content of organic matter	0.88	Low strength	0.00	Too clayey	0.70
		Too clayey	0.98	Shrink-swell	0.97		

Table 12b.--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	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
210:							
Skyvillage	30	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Shrink-swell	0.94	Rock fragments	0.88
		Low content of organic matter	0.32				
212:							
Rehobeth	90	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Low content of organic matter	0.24	Shrink-swell	0.12	Sodium content	0.40
		Sodium content	0.40				
		No water erosion limitation	0.99				
215:							
Viuda	35	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Low content of organic matter	0.00	Low strength	0.00	Too clayey	0.00
		Depth to bedrock	0.00	Shrink-swell	0.30	Rock fragments	0.88
		Too clayey	0.00				
Penistaja	30	Fair		Fair		Good	
		Low content of organic matter	0.88	Shrink-swell	0.94		
Rock outcrop	25	Not rated		Not rated		Not rated	
220:							
Hagerwest	50	Fair		Poor		Fair	
		Low content of organic matter	0.50	Depth to bedrock	0.00	Depth to bedrock	0.90
		Droughty	0.70				
		Depth to bedrock	0.90				
Bond	35	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00			Rock fragments	0.95
		Low content of organic matter	0.82				
225:							
Aquima	40	Fair		Fair		Fair	
		Low content of organic matter	0.50	Shrink-swell	0.89	Hard to reclaim	0.95
		Water erosion	0.90			Sodium content	0.98
		Sodium content	0.97				

Table 12b.--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	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
225:							
Hawaikuh	40	Fair		Poor		Fair	
		Too clayey	0.50	Low strength	0.00	Too clayey	0.34
		Low content of organic matter	0.68	Shrink-swell	0.98		
		Water erosion	0.90				
230:							
Sparank	40	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Low content of organic matter	0.88	Shrink-swell	0.12		
		No water erosion limitation	0.99				
San Mateo	35	Fair		Poor		Fair	
		Sodium content	0.60	Low strength	0.00	Sodium content	0.60
		Low content of organic matter	0.88	Shrink-swell	0.93		
Zia	20	Fair		Good		Good	
		Low content of organic matter	0.88				
235:							
Notal	45	Poor		Fair		Poor	
		Sodium content	0.00	Shrink-swell	0.89	Sodium content	0.00
		Too alkaline	0.00			Salinity	0.00
		Too clayey	0.50			Too clayey	0.41
		Salinity	0.97				
		No water erosion limitation	0.99				
Hamburn	40	Fair		Fair		Good	
		Low content of organic matter	0.08	Shrink-swell	0.86		
240:							
Breadsprings	35	Fair		Good		Good	
		Low content of organic matter	0.08				
		Water erosion	0.90				
Nahodish	35	Poor		Fair		Poor	
		Too clayey	0.00	Low strength	0.22	Too clayey	0.00
		Low content of organic matter	0.08	Shrink-swell	0.97	Sodium content	0.98
		Water erosion	0.90				
		Sodium content	0.97				

Table 12b.--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	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
241:							
Mentmore	85	Fair		Poor		Good	
		Low content of organic matter	0.12	Low strength	0.00		
		No water erosion limitation	0.99	Shrink-swell	0.78		
242:							
Gish	45	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Low content of organic matter	0.12	Shrink-swell	0.09		
Mentmore	35	Fair		Poor		Fair	
		Low content of organic matter	0.12	Low strength	0.00	Too clayey	0.53
		Too clayey	0.92	Shrink-swell	0.78		
244:							
Buckle	85	Poor		Poor		Good	
		Low content of organic matter	0.00	Low strength	0.00		
		No water erosion limitation	0.99	Shrink-swell	0.64		
245:							
Buckle	35	Poor		Fair		Good	
		Low content of organic matter	0.00	Shrink-swell	0.98		
Gapmesa	30	Fair		Poor		Fair	
		Low content of organic matter	0.50	Depth to bedrock	0.00	Too clayey	0.33
		Too clayey	0.50	Low strength	0.00	Depth to bedrock	0.65
		Depth to bedrock	0.65	Shrink-swell	0.94		
		Droughty	0.98				
		No water erosion limitation	0.99				
Barboncito	25	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Low strength	0.00	Too clayey	0.46
		Low content of organic matter	0.00	Shrink-swell	0.94		
		Too clayey	0.92				

Table 12b.--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	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
250:							
Hospah	35	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Too clayey	0.00
		Droughty	0.00	Low strength	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Shrink-swell	0.12	Slope	0.00
		Too alkaline	0.00	Slope	0.98	Sodium content	0.40
		Sodium content	0.40			Rock fragments	0.95
		Low content of organic matter	0.88				
Skyvillage	30	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00			Rock fragments	0.88
		Low content of organic matter	0.32				
Rock outcrop	25	Not rated		Not rated		Not rated	
255:							
Farview	50	Poor		Poor		Poor	
		Wind erosion	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Droughty	0.00				
		Depth to bedrock	0.00				
		Low content of organic matter	0.50				
Rock outcrop	35	Not rated		Not rated		Not rated	
258:							
Eagleye	40	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Too clayey	0.00
		Droughty	0.00	Slope	0.50	Depth to bedrock	0.00
		Depth to bedrock	0.00			Slope	0.00
		Low content of organic matter	0.50				
Atchee	35	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.00	Cobble content	0.01	Depth to bedrock	0.00
		Low content of organic matter	0.00	Shrink-swell	0.78		
		Cobble content	0.02				
Rock outcrop	20	Not rated		Not rated		Not rated	
260:							
Quarries and Pits	95	Not rated		Not rated		Not rated	

Table 12b.--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	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
261:							
Coal Mine Lands	100	Not rated		Not rated		Not rated	
265:							
Uranium Mined Lands	95	Not rated		Not rated		Not rated	
270:							
Alesna	70	Fair		Poor		Poor	
		Carbonate content	0.46	Low strength	0.00	Slope	0.00
		Low content of organic matter	0.50	Slope	0.00	Too clayey	0.33
		Too clayey	0.50	Shrink-swell	0.12	Carbonate content	0.46
				Depth to bedrock	0.74		
Rock outcrop	20	Not rated		Not rated		Not rated	
275:							
Eldado	85	Fair		Good		Poor	
		Too sandy	0.09			Hard to reclaim	0.00
		Carbonate content	0.16			Rock fragments	0.00
		Droughty	0.18			Too sandy	0.09
		Low content of organic matter	0.50			Carbonate content	0.16
280:							
Azabache	85	Poor		Good		Poor	
		Sodium content	0.00			Rock fragments	0.00
		Too alkaline	0.00			Sodium content	0.00
		Low content of organic matter	0.24			Salinity	0.00
		Droughty	0.57			Hard to reclaim	0.68
		Salinity	0.88				
290:							
Rock outcrop	45	Not rated		Not rated		Not rated	
Westmion	30	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Slope	0.00
		Droughty	0.00	Slope	0.00	Too clayey	0.00
		Depth to bedrock	0.00	Low strength	0.00	Depth to bedrock	0.00
		Low content of organic matter	0.32	Shrink-swell	0.12	Rock fragments	0.50
Skyvillage	15	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00			Rock fragments	0.88
		Low content of organic matter	0.32				

Table 12b.--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	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
291:							
Rock outcrop	50	Not rated		Not rated		Not rated	
Eagleye	25	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.00	Slope	0.00	Depth to bedrock	0.00
		Low content of organic matter	0.00	Low strength	0.00	Rock fragments	0.12
		Too clayey	0.50	Shrink-swell	0.78	Too clayey	0.25
		No water erosion limitation	0.99				
Atchee	15	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.00			Depth to bedrock	0.00
		Low content of organic matter	0.08			Slope	0.37
		Cobble content	0.68				
300:							
Regracic	80	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Carbonate content	0.46	Shrink-swell	0.31	Hard to reclaim	0.68
305:							
Celavar	50	Fair		Poor		Fair	
		Low content of organic matter	0.18	Depth to bedrock	0.00	Depth to bedrock	0.65
		Depth to bedrock	0.65				
		Droughty	0.67				
		No water erosion limitation	0.99				
Atarque	35	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00				
		Low content of organic matter	0.82				
308:							
Fikel	50	Poor		Fair		Poor	
		Too clayey	0.00	Shrink-swell	0.38	Too clayey	0.00
		Low content of organic matter	0.08				
Venzuni	40	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Low content of organic matter	0.88	Shrink-swell	0.08		
310:							
Parkelei	80	Fair		Fair		Good	
		Low content of organic matter	0.88	Shrink-swell	0.87		

Table 12b.--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	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
312:							
Bluewater	90	Fair		Poor		Fair	
		Carbonate content	0.80	Low strength	0.00	Too clayey	0.83
		Too clayey	0.88	Shrink-swell	0.76	Carbonate content	0.97
		No water erosion limitation	0.99				
315:							
Flugle	50	Fair		Good		Fair	
		Low content of organic matter	0.88			Too clayey	0.70
		Too clayey	0.98				
		No water erosion limitation	0.99				
Fragua	40	Poor		Good		Good	
		Wind erosion	0.00				
		Low content of organic matter	0.88				
316:							
Royosa	80	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00				
		Low content of organic matter	0.88				
317:							
Highdye	35	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Too clayey	0.00
		Droughty	0.00	Low strength	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Shrink-swell	0.12	Slope	0.63
		Low content of organic matter	0.88			Rock fragments	0.95
Evpark	30	Fair		Poor		Fair	
		Depth to bedrock	0.10	Depth to bedrock	0.00	Depth to bedrock	0.10
		Droughty	0.22	Shrink-swell	0.87		
		Low content of organic matter	0.88				
		No water erosion limitation	0.99				
Bryway	20	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Too clayey	0.00
		Droughty	0.03	Low strength	0.00	Depth to bedrock	0.05
		Depth to bedrock	0.05	Shrink-swell	0.12		
		Low content of organic matter	0.88				

Table 12b.--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	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
320:							
Parkelei	45	Fair		Fair		Good	
		Low content of organic matter	0.50	Shrink-swell	0.94		
Fraguni	40	Poor		Good		Poor	
		Too sandy	0.00			Hard to reclaim	0.00
		Wind erosion	0.00			Too sandy	0.00
		Low content of organic matter	0.12				
325:							
Venzuni	90	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Low content of organic matter	0.88	Shrink-swell	0.12		
332:							
Evpark	50	Fair		Poor		Fair	
		Low content of organic matter	0.68	Depth to bedrock	0.00	Too clayey	0.67
		Depth to bedrock	0.93	Low strength	0.00	Depth to bedrock	0.93
		Too clayey	0.98	Shrink-swell	0.87		
Arabrab	40	Poor		Poor		Poor	
		Depth to bedrock	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Low content of organic matter	0.00	Low strength	0.00	Rock fragments	0.18
		Droughty	0.00	Shrink-swell	0.94	Too clayey	0.46
		Too clayey	0.92				
335:							
Venadito	85	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Sodium content	0.60	Shrink-swell	0.12	Sodium content	0.60
		Low content of organic matter	0.68				
336:							
Nuffel	45	Fair		Poor		Fair	
		Low content of organic matter	0.88	Low strength	0.00	Too clayey	0.69
		Water erosion	0.90	Shrink-swell	0.96		
		Too clayey	0.95				
Venadito	35	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Sodium content	0.60	Shrink-swell	0.00	Sodium content	0.60
		Low content of organic matter	0.88				

Table 12b.--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	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
338:							
Zyme	50	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Too clayey	0.00
		Droughty	0.00	Low strength	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Shrink-swell	0.06	Slope	0.00
		Low content of organic matter	0.12	Slope	0.50	Rock fragments	0.88
Lockerby	40	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Too clayey	0.00
		Low content of organic matter	0.12	Low strength	0.00	Depth to bedrock	0.21
		Depth to bedrock	0.21	Shrink-swell	0.06	Slope	0.84
		Droughty	0.23				
		No water erosion limitation	0.99				
345:							
Rock outcrop	40	Not rated		Not rated		Not rated	
Tuces	40	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Slope	0.00
		Droughty	0.07	Low strength	0.00	Too clayey	0.00
		Depth to bedrock	0.10	Slope	0.00	Depth to bedrock	0.10
		Low content of organic matter	0.12	Shrink-swell	0.12		
350:							
Toldohn	35	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Too clayey	0.00
		Droughty	0.00	Low strength	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Shrink-swell	0.12	Slope	0.00
		Low content of organic matter	0.88	Slope	0.50		
Vessilla	30	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00			Rock fragments	0.95
		Low content of organic matter	0.88				
Rock outcrop	20	Not rated		Not rated		Not rated	
351:							
Rock outcrop	60	Not rated		Not rated		Not rated	
Vessilla	30	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00			Rock fragments	0.95
		Low content of organic matter	0.88				
352:							
Zia	80	Fair		Good		Good	
		Low content of organic matter	0.88				

Table 12b.--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	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
353:							
Mido	90	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00				
		Low content of organic matter	0.32				
354:							
Knifehill	80	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		No water erosion limitation	0.99	Shrink-swell	0.14		
355:							
Rizno	35	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00			Slope	0.84
		Low content of organic matter	0.88			Rock fragments	0.97
Tekapo	30	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Slope	0.00	Too clayey	0.00
		Too clayey	0.00			Slope	0.00
		Low content of organic matter	0.68				
Rock outcrop	20	Not rated		Not rated		Not rated	
357:							
Heshotauthla	85	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Sodium content	0.00	Shrink-swell	0.12	Sodium content	0.00
		Too alkaline	0.00			Salinity	0.00
		Low content of organic matter	0.68				
		Salinity	0.88				
360:							
Hosta	45	Fair		Poor		Fair	
		Too clayey	0.50	Low strength	0.00	Too clayey	0.36
		Low content of organic matter	0.88	Shrink-swell	0.45		
		No water erosion limitation	0.99				
Concho	40	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Low content of organic matter	0.88	Shrink-swell	0.12		

Table 12b.--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	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
361:							
Monpark	80	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Too clayey	0.00
		Depth to bedrock	0.29	Low strength	0.00	Depth to bedrock	0.29
		Droughty	0.33	Shrink-swell	0.12		
		Low content of organic matter	0.88				
365:							
Vessilla	55	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00				
		Low content of organic matter	0.88				
Rock outcrop	35	Not rated		Not rated		Not rated	
366:							
Bosonoak	95	Fair		Fair		Fair	
		Low content of organic matter	0.08	Low strength	0.78	Too clayey	0.52
		Too clayey	0.92				
		No water erosion limitation	0.99				
367:							
Chunkmonk	85	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00			Rock fragments	0.00
		Carbonate content	0.46			Carbonate content	0.80
		Low content of organic matter	0.50				
368:							
Simitarq	60	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Shrink-swell	0.12	Too clayey	0.00
		Too clayey	0.00			Rock fragments	0.88
		Low content of organic matter	0.18				
Celavar	20	Fair		Poor		Fair	
		Low content of organic matter	0.50	Depth to bedrock	0.00	Depth to bedrock	0.65
		Droughty	0.55				
		Depth to bedrock	0.65				

Table 12b.--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	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
375:							
Todest	60	Poor		Poor		Fair	
		Carbonate content	0.00	Depth to bedrock	0.00	Depth to bedrock	0.16
		Depth to bedrock	0.16			Carbonate content	0.46
		Droughty	0.17				
		Low content of organic matter	0.18				
		No water erosion limitation	0.99				
Shadilto	25	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Carbonate content	0.00
		Carbonate content	0.00			Depth to bedrock	0.00
		Depth to bedrock	0.00				
		Low content of organic matter	0.18				
376:							
Todest	80	Poor		Poor		Poor	
		Carbonate content	0.00	Depth to bedrock	0.00	Carbonate content	0.00
		Droughty	0.05			Depth to bedrock	0.10
		Depth to bedrock	0.10			Rock fragments	0.88
		Low content of organic matter	0.18				
380:							
Berryhill	50	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Low content of organic matter	0.24	Shrink-swell	0.12	Salinity	0.88
		Sodium content	0.97			Sodium content	0.98
Casamero	45	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Too clayey	0.00
		Droughty	0.00	Low strength	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Shrink-swell	0.12		
		Low content of organic matter	0.50				
385:							
Mcorreon	65	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Carbonate content	0.08	Slope	0.00	Slope	0.00
		Low content of organic matter	0.88	Shrink-swell	0.12	Carbonate content	0.08
		Too acid	0.99				
Rock outcrop	20	Not rated		Not rated		Not rated	

Table 12b.--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	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
390:							
Banquito	90	Fair		Poor		Fair	
		Carbonate content	0.08	Depth to bedrock	0.00	Carbonate content	0.08
		Low content of organic matter	0.24			Depth to bedrock	0.93
		Water erosion	0.37				
		Depth to bedrock	0.93				
		Droughty	0.96				
395:							
Cabezon	60	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Too clayey	0.00
		Droughty	0.00	Low strength	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Shrink-swell	0.86		
		Low content of organic matter	0.88				
Mcorreon	30	Fair		Poor		Fair	
		Carbonate content	0.08	Low strength	0.00	Carbonate content	0.08
		Too clayey	0.50	Shrink-swell	0.76	Too clayey	0.36
		Low content of organic matter	0.88				
400:							
Shoemaker	45	Poor		Poor		Fair	
		Wind erosion	0.00	Depth to bedrock	0.00	Depth to bedrock	0.35
		Droughty	0.31				
		Depth to bedrock	0.35				
		Low content of organic matter	0.88				
Stozuni	35	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00				
		Low content of organic matter	0.88				
403:							
Valnor	50	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Too clayey	0.00
		Depth to bedrock	0.84	Low strength	0.00	Depth to bedrock	0.84
		Low content of organic matter	0.88	Shrink-swell	0.12		
		Droughty	0.91				
Techado	30	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Too clayey	0.00
		Droughty	0.00	Low strength	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Shrink-swell	0.12	Slope	0.00
		Low content of organic matter	0.88				

Table 12b.--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	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
404:							
Rock outcrop	35	Not rated		Not rated		Not rated	
Techado	35	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Too clayey	0.00
		Droughty	0.00	Low strength	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Slope	0.00	Slope	0.00
		Low content of organic matter	0.88	Shrink-swell	0.12		
Stozuni	25	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00			Rock fragments	0.00
		Low content of organic matter	0.68			Slope	0.84
405:							
Fortwingate	50	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Too clayey	0.00
		Droughty	0.08	Low strength	0.00	Depth to bedrock	0.21
		Depth to bedrock	0.21	Shrink-swell	0.12		
		Low content of organic matter	0.88				
Owlrock	35	Poor		Poor		Poor	
		Cobble content	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Droughty	0.00	Cobble content	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Stone content	0.97		
		Stone content	0.97				
406:							
Polich	90	Fair		Poor		Fair	
		Too clayey	0.50	Low strength	0.00	Too clayey	0.44
		Water erosion	0.90	Shrink-swell	0.75	Depth to saturated zone	0.98
				Depth to saturated zone	0.98		
407:							
Cinnadale	50	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.00			Depth to bedrock	0.00
		Low content of organic matter	0.50			Slope	0.84
Heckly	35	Fair		Poor		Poor	
		Low content of organic matter	0.50	Depth to bedrock	0.00	Rock fragments	0.00
		Too clayey	0.50	Slope	0.00	Slope	0.00
		Droughty	0.89	Shrink-swell	0.77	Too clayey	0.33
		Depth to bedrock	0.99			Depth to bedrock	0.99

Table 12b.--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	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
408:							
Mirabal	50	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Low content of organic matter	0.50	Slope	0.50	Slope	0.00
		Depth to bedrock	0.54	Stone content	0.69	Depth to bedrock	0.54
		Stone content	0.71				
		Too acid	0.99				
Zuni	40	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Droughty	0.02	Shrink-swell	0.12	Too clayey	0.00
		Depth to bedrock	0.29	Low strength	0.78	Depth to bedrock	0.29
		Low content of organic matter	0.50				
409:							
Rauster	60	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Low content of organic matter	0.88	Shrink-swell	0.12	Slope	0.00
				Slope	0.50		
				Depth to bedrock	0.92		
Rock outcrop	30	Not rated		Not rated		Not rated	
410:							
Montillo	50	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Too clayey	0.00
		Droughty	0.36	Low strength	0.00	Depth to bedrock	0.71
		Depth to bedrock	0.71	Shrink-swell	0.12	Slope	0.84
		No water erosion limitation	0.99				
Tsoodzil	40	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Low content of organic matter	0.88	Shrink-swell	0.12	Slope	0.00
				Slope	0.50	Hard to reclaim	0.88
						Rock fragments	0.95
411:							
Ligocki	45	Poor		Fair		Poor	
		Too clayey	0.00	Shrink-swell	0.99	Too clayey	0.00
		Low content of organic matter	0.50				
Robolata	35	Fair		Fair		Poor	
		Too clayey	0.50	Shrink-swell	0.90	Hard to reclaim	0.00
		Low content of organic matter	0.88			Too clayey	0.36
		No water erosion limitation	0.99				

Table 12b.--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	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
412:							
Rock outcrop	50	Not rated		Not rated		Not rated	
Rionutria	25	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.10	Low strength	0.22	Too clayey	0.09
		Too clayey	0.12	Cobble content	0.54	Depth to bedrock	0.10
		Cobble content	0.30	Shrink-swell	0.87	Slope	0.84
		Low content of organic matter	0.88	Stone content	0.94		
		Stone content	0.95				
Zaster	25	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.29	Slope	0.00	Slope	0.00
		Low content of organic matter	0.50	Stone content	0.83	Depth to bedrock	0.29
		Stone content	0.84	No cobble limitation	0.99	Carbonate content	0.95
		Carbonate content	0.95				
413:							
Morclay	85	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Low content of organic matter	0.50	Shrink-swell	0.12		
414:							
Zunalei	50	Poor		Good		Good	
		Wind erosion	0.00				
		Low content of organic matter	0.50				
Corzuni	40	Poor		Good		Good	
		Wind erosion	0.00				
		Low content of organic matter	0.50				
415:							
Tsoodzil	60	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Low content of organic matter	0.88	Slope	0.00	Slope	0.00
		Too acid	0.99	Shrink-swell	0.12		
Rubble Land	20	Not rated		Not rated		Not rated	

Table 12b.--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	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
416:							
Rock outcrop	70	Not rated		Not rated		Not rated	
Bluesky	20	Poor		Poor		Poor	
		Too sandy	0.00	Depth to bedrock	0.00	Too sandy	0.00
		Wind erosion	0.00			Depth to bedrock	0.00
		Droughty	0.00			Slope	0.84
		Depth to bedrock	0.00				
		Low content of organic matter	0.50				
418:							
Asaayi	40	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Low strength	0.00	Too clayey	0.57
		Low content of organic matter	0.50	Shrink-swell	0.87	Rock fragments	0.97
		Too clayey	0.88				
Osoridge	35	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Too clayey	0.00
		Droughty	0.00	Low strength	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Shrink-swell	0.12		
		Low content of organic matter	0.50				
419:							
Fortwingate	35	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Too clayey	0.00
		Droughty	0.17	Low strength	0.00	Slope	0.00
		Depth to bedrock	0.21	Slope	0.00	Depth to bedrock	0.21
		Low content of organic matter	0.50	Shrink-swell	0.12		
Cinnadale	30	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.00	Stone content	0.41	Depth to bedrock	0.00
		Stone content	0.41			Slope	0.84
		Low content of organic matter	0.88				
		Cobble content	0.99				
Rock outcrop	20	Not rated		Not rated		Not rated	
420:							
Seco	85	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Low content of organic matter	0.88	Shrink-swell	0.12		

Table 12b.--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	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
425:							
Montillo	50	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Too clayey	0.00
		Droughty	0.13	Low strength	0.00	Rock fragments	0.00
		Low content of organic matter	0.88	Shrink-swell	0.12	Depth to bedrock	0.90
		Depth to bedrock	0.90	Cobble content	0.78		
Canoneros	35	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Low strength	0.00	Too clayey	0.41
		Too clayey	0.50	Shrink-swell	0.12	Rock fragments	0.88
430:							
Montillo	80	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Too clayey	0.00
		Droughty	0.89	Low strength	0.00	Depth to bedrock	0.99
		Depth to bedrock	0.99	Shrink-swell	0.12		
435:							
Tsoodzil	50	Poor		Poor		Poor	
		Too clayey	0.00	Slope	0.00	Too clayey	0.00
		Low content of organic matter	0.24	Shrink-swell	0.55	Hard to reclaim	0.00
						Slope	0.00
Amcec	40	Poor		Poor		Poor	
		Droughty	0.00	Slope	0.00	Hard to reclaim	0.00
		Low content of organic matter	0.18			Rock fragments	0.00
		Stone content	0.96			Slope	0.00
440:							
Chivato	90	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
				Shrink-swell	0.12		
525:							
Silcat	85	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
				Shrink-swell	0.12		
550:							
Bryway	50	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Too clayey	0.00
		Depth to bedrock	0.71	Low strength	0.00	Depth to bedrock	0.71
		Droughty	0.73	Shrink-swell	0.12		
		Low content of organic matter	0.88				
		No water erosion limitation	0.99				

Table 12b.--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	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
550:							
Galzuni	35	Poor		Fair		Poor	
		Too clayey	0.00	Shrink-swell	0.71	Too clayey	0.00
		Low content of organic matter	0.68				
		No water erosion limitation	0.99				
555:							
Parkelei	45	Fair		Good		Good	
		Low content of organic matter	0.88				
Evpark	35	Fair		Poor		Fair	
		Depth to bedrock	0.90	Depth to bedrock	0.00	Depth to bedrock	0.90
				Shrink-swell	0.87		
560:							
Flugle	45	Fair		Good		Good	
		Low content of organic matter	0.68				
Teczuni	35	Fair		Poor		Fair	
		Too clayey	0.12	Low strength	0.00	Too clayey	0.09
		Low content of organic matter	0.68	Shrink-swell	0.87		
		Carbonate content	0.80				
		No water erosion limitation	0.99				
561:							
Flugle	50	Fair		Good		Good	
		Low content of organic matter	0.68				
Plumasano	40	Fair		Good		Good	
		Low content of organic matter	0.68				
565:							
Plumasano	65	Fair		Poor		Poor	
		Low content of organic matter	0.68	Slope	0.00	Slope	0.00
Rock outcrop	20	Not rated		Not rated		Not rated	

Table 12b.--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	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
566:							
Bamac	90	Poor		Poor		Poor	
		Too sandy	0.00	Slope	0.00	Too sandy	0.00
		Droughty	0.00			Hard to reclaim	0.00
		Low content of organic matter	0.60			Rock fragments	0.00
						Slope	0.00
575:							
Ramah	45	Fair		Fair		Fair	
		Too clayey	0.50	Shrink-swell	0.99	Too clayey	0.34
		Low content of organic matter	0.68				
		Carbonate content	0.80				
Pescado	35	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Low strength	0.00		
		Low content of organic matter	0.68	Shrink-swell	0.87		

Table 13.--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. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
10:							
Tsosie	Moderate: seepage	Severe: excess sodium	Severe: no water	Limitation: deep to water	Limitation: excess sodium soil blowing	Limitation: erodes easily soil blowing	Limitation: erodes easily excess sodium too arid
Councelor	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: soil blowing	Limitation: soil blowing	Limitation: too arid
Blancot	Severe: seepage	Severe: excess sodium piping	Severe: no water	Limitation: deep to water	Limitation: excess sodium soil blowing droughty	Limitation: too sandy soil blowing	Limitation: excess sodium too arid droughty
11:							
Doakum	Severe: seepage	Moderate: piping thin layer	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: soil blowing	Limitation: too arid
Betonnie	Severe: seepage	Severe: excess sodium seepage piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing droughty	Limitation: too sandy soil blowing	Limitation: excess sodium too arid droughty
12:							
Calladito	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: fast intake slope droughty	Favorable	Limitation: droughty
Elias	Moderate: slope	Slight	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing droughty	Limitation: percs slowly soil blowing	Limitation: percs slowly droughty

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
13:							
Councelor	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: erodes easily soil blowing	Limitation: erodes easily too arid
Calladito	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: fast intake slope droughty	Favorable	Limitation: droughty
14:							
Councelor	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: soil blowing	Limitation: too arid
Eslendo	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope too arid
Calladito	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: fast intake slope droughty	Favorable	Limitation: droughty
16:							
Starlake	Slight	Severe: excess sodium	Severe: no water	Limitation: deep to water	Limitation: percs slowly slow intake droughty	Limitation: percs slowly	Limitation: excess sodium too arid droughty
22:							
Querencia	Moderate: slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: soil blowing	Limitation: too arid
Lavodnas	Severe: seepage slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope depth to rock

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
30:							
Orlie	Moderate: seepage slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: erodes easily soil blowing	Limitation: erodes easily too arid
Tinian	Moderate: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing depth to rock	Limitation: erodes easily soil blowing depth to rock	Limitation: erodes easily too arid depth to rock
40:							
Nuffel	Moderate: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily flooding	Limitation: erodes easily	Limitation: erodes easily too arid
42:							
Suwanee	Moderate: seepage	Slight	Severe: no water	Limitation: deep to water	Limitation: flooding	Limitation: erodes easily	Limitation: erodes easily too arid
44:							
Suwanee	Severe: seepage	Moderate: piping thin layer	Severe: no water	Limitation: deep to water	Limitation: flooding percs slowly slow intake	Favorable	Limitation: percs slowly too arid
45:							
Nutreeah	Slight	Severe: hard to pack	Severe: slow refill	Limitation: deep to water	Limitation: percs slowly	Limitation: percs slowly	Limitation: percs slowly
47:							
Conchovar	Slight	Moderate: hard to pack wetness	Severe: slow refill	Limitation: percs slowly	Limitation: excess salt percs slowly wetness	Limitation: percs slowly wetness	Limitation: percs slowly
49:							
Concho	Slight	Slight	Severe: no water	Limitation: deep to water	Limitation: percs slowly	Favorable	Limitation: percs slowly too arid

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
51:							
Kwakina	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: fast intake soil blowing droughty	Limitation: too sandy soil blowing	Limitation: too arid droughty
52:							
Zuniven	Severe: seepage	Moderate: piping thin layer	Severe: no water	Limitation: deep to water	Limitation: fast intake flooding soil blowing	Limitation: erodes easily soil blowing	Limitation: erodes easily too arid
53:							
Hawaikuh	Slight	Moderate: hard to pack	Severe: no water	Limitation: deep to water	Limitation: percs slowly	Limitation: percs slowly	Limitation: too arid
54:							
Venadito	Slight	Severe: hard to pack	Severe: slow refill	Limitation: deep to water	Limitation: flooding percs slowly slow intake	Limitation: percs slowly	Limitation: percs slowly
55:							
Sparham	Moderate: seepage	Moderate: hard to pack	Severe: no water	Limitation: deep to water	Limitation: flooding percs slowly	Limitation: percs slowly	Limitation: percs slowly too arid
60:							
Redpen	Moderate: seepage	Slight	Severe: no water	Limitation: deep to water	Favorable	Favorable	Limitation: too arid
100:							
Norkiki	Moderate: seepage slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: fast intake slope soil blowing	Limitation: soil blowing depth to rock	Limitation: too arid depth to rock
Kimnoli	Severe: depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing depth to rock	Limitation: soil blowing depth to rock	Limitation: depth to rock

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
110:							
Benally	Moderate: seepage slope	Severe: excess sodium	Severe: no water	Limitation: deep to water	Limitation: excess sodium slope soil blowing	Limitation: soil blowing	Limitation: excess sodium too arid
Fruitland	Severe: seepage	Severe: excess sodium piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: soil blowing	Limitation: excess sodium too arid
111:							
Yelives	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: soil blowing	Limitation: too arid
115:							
Razito	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: too sandy soil blowing	Limitation: too arid droughty
Shiprock	Severe: seepage	Severe: excess sodium piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: soil blowing	Limitation: excess sodium too arid
116:							
Fajada	Moderate: slope depth to rock	Severe: excess sodium thin layer excess gypsum	Severe: no water	Limitation: deep to water	Limitation: excess sodium excess gypsum depth to rock	Limitation: excess gypsum depth to rock	Limitation: erodes easily depth to rock droughty
Huerfano	Severe: depth to rock	Severe: excess sodium	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope droughty	Limitation: percs slowly depth to rock	Limitation: excess sodium too arid droughty
Benally	Moderate: depth to rock	Severe: excess sodium	Severe: no water	Limitation: deep to water	Limitation: excess sodium excess salt droughty	Favorable	Limitation: excess sodium too arid droughty

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
118:							
Farb	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing depth to rock	Limitation: slope soil blowing depth to rock	Limitation: slope too arid depth to rock
Chipeta	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope slow intake	Limitation: erodes easily slope depth to rock	Limitation: excess salt slope too arid
120:							
Doak	Severe: seepage	Moderate: piping thin layer	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: soil blowing	Limitation: too arid
Shiprock	Severe: seepage	Severe: excess sodium piping	Severe: no water	Limitation: deep to water	Limitation: fast intake slope soil blowing	Limitation: soil blowing	Limitation: excess sodium too arid
122:							
Farb	Severe: depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: depth to rock	Limitation: too arid depth to rock droughty
125:							
Sanfeco	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: percs slowly soil blowing	Limitation: too sandy soil blowing	Limitation: percs slowly too arid
130:							
Chipeta	Severe: Slope Depth to rock	Severe: thin layer	Severe no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: percs slowly slope	Limitation: slope too arid
Moncisco	Severe: seepage	Severe: seepage	Severe: seepage	Limitation: deep to water	Limitation: droughty	Limitation: depth to rock	Limitation: too arid
150:							
Escawetter	Severe: seepage	Severe: seepage	Severe: slow refill	Limitation: percs slowly	Limitation: flooding	Limitation: erodes easily	Limitation: erodes easily

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
160:							
Escawetter	Severe: seepage	Severe: seepage	Severe: slow refill	Limitation: percs slowly	Limitation: flooding	Limitation: erodes easily	Limitation: erodes easily
Razito	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: too sandy soil blowing	Limitation: too arid droughty
205:							
Penistaja	Severe: seepage	Slight	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: soil blowing	Limitation: too arid
Tintero	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: soil blowing	Limitation: too arid
208:							
Marianolake	Severe: seepage	Moderate: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: soil blowing	Limitation: too arid
210:							
Marianolake	Severe: seepage	Moderate: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: soil blowing	Limitation: too arid
Skyvillage	Severe: depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing depth to rock	Limitation: soil blowing depth to rock	Limitation: too arid depth to rock
212:							
Rehobeth	Slight	Moderate: hard to pack	Severe: no water	Limitation: deep to water	Limitation: erodes easily flooding percs slowly	Limitation: erodes easily percs slowly	Limitation: erodes easily percs slowly too arid

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
215:							
Viuda	Severe: depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: large stones depth to rock	Limitation: large stones too arid
Penistaja	Severe: seepage	Slight	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: soil blowing	Limitation: too arid
220:							
Hagerwest	Severe: seepage	Moderate: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing depth to rock	Limitation: soil blowing depth to rock	Limitation: too arid depth to rock
Bond	Severe: depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing depth to rock	Limitation: soil blowing depth to rock	Limitation: too arid depth to rock
225:							
Aquima	Moderate: seepage slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily	Limitation: erodes easily too arid
Hawaikuh	Severe: seepage	Moderate: thin layer	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily	Limitation: erodes easily too arid
230:							
Sparank	Slight	Moderate: hard to pack	Severe: no water	Limitation: deep to water	Limitation: erodes easily percs slowly	Limitation: erodes easily percs slowly	Limitation: erodes easily percs slowly too arid
San Mateo	Severe: seepage	Moderate: thin layer	Severe: no water	Limitation: deep to water	Limitation: flooding	Favorable	Limitation: too arid

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
230:							
Zia	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: soil blowing	Limitation: too arid
235:							
Notal	Slight	Moderate: excess salt hard to pack thin layer	Severe: no water	Limitation: deep to water	Limitation: erodes easily excess salt percs slowly	Limitation: erodes easily percs slowly	Limitation: erodes easily percs slowly too arid
Hamburn	Severe: seepage	Moderate: thin layer	Severe: no water	Limitation: deep to water	Limitation: flooding	Favorable	Limitation: too arid
240:							
Breadsprings	Severe: seepage	Moderate: piping thin layer	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: soil blowing	Limitation: too arid
Nahodish	Severe: seepage	Moderate: hard to pack thin layer	Severe: no water	Limitation: deep to water	Limitation: erodes easily flooding percs slowly	Limitation: erodes easily percs slowly	Limitation: erodes easily percs slowly too arid
241:							
Mentmore	Severe: seepage	Moderate: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: soil blowing	Limitation: too arid
242:							
Gish	---	---	---	---	---	---	---
Mentmore	Severe: seepage	Moderate: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: soil blowing	Limitation: too arid
244:							
Buckle	Severe: seepage	Slight	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: soil blowing	Limitation: too arid

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
245:							
Buckle	Severe: seepage	Moderate: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing depth to rock	Limitation: soil blowing depth to rock	Limitation: too arid depth to rock
Gapmesa	Severe: seepage	Moderate: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing depth to rock	Limitation: soil blowing depth to rock	Limitation: too arid depth to rock
Barboncito	Severe: depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing depth to rock	Limitation: soil blowing depth to rock	Limitation: too arid depth to rock
250:							
Hospah	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: large stones slope depth to rock	Limitation: large stones slope too arid
Skyvillage	Severe: depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: depth to rock	Limitation: too arid depth to rock
255:							
Farview	Severe: seepage slope depth to rock	Severe: seepage thin layer	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing depth to rock	Limitation: slope soil blowing depth to rock	Limitation: slope depth to rock
258:							
Eagleye	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: large stones slope depth to rock	Limitation: large stones slope too arid
Atchee	Severe: depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: depth to rock	Limitation: too arid
270:							
Alesna	Severe: slope	Moderate: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: slope	Limitation: percs slowly slope too arid

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
275:							
Eldado	Severe: seepage	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: slope droughty	Limitation: large stones too sandy	Limitation: large stones droughty
280:							
Azabache	Moderate: seepage slope	Severe: excess sodium	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope droughty	Favorable	Limitation: excess sodium too arid droughty
290:							
Westmion	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: percs slowly slope depth to rock	Limitation: slope too arid depth to rock
Skyvillage	Severe: slope depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing depth to rock	Limitation: slope soil blowing depth to rock	Limitation: slope too arid depth to rock
291:							
Eagleye	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: large stones slope depth to rock	Limitation: large stones slope too arid
Atchee	Severe: depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: depth to rock	Limitation: too arid
300:							
Regracic	Moderate: seepage slope	Moderate: hard to pack	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: percs slowly	Limitation: percs slowly too arid
305:							
Celavar	Moderate: seepage slope depth to rock	Moderate: thin layer	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope depth to rock	Limitation: erodes easily depth to rock	Limitation: erodes easily too arid depth to rock
Atarque	Severe: depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing depth to rock	Limitation: soil blowing depth to rock	Limitation: depth to rock

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
308:							
Fikel	Moderate: slope	Slight	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Favorable	Limitation: percs slowly
Venzuni	Moderate: seepage slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope slow intake	Limitation: percs slowly	Limitation: percs slowly too arid
310:							
Parkelei	Moderate: seepage slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: soil blowing	Limitation: too arid
312:							
Bluewater	Slight	Moderate: piping wetness	Severe: slow refill	Favorable	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily wetness	Limitation: erodes easily
315:							
Flugle	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily	Limitation: erodes easily too arid
Fragua	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: fast intake slope soil blowing	Limitation: soil blowing	Limitation: too arid
316:							
Royosa	Severe: seepage slope	Severe: seepage piping	Severe: no water	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: slope too sandy soil blowing	Limitation: slope droughty

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
317:							
Highdye	Severe: slope, depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly, slope, soil blowing	Limitation: large stones, slope, depth to rock	Limitation: large stones, slope, depth to rock
Evpark	Moderate: seepage, slope, depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: erodes easily, slope, depth to rock	Limitation: erodes easily, depth to rock	Limitation: erodes easily, too arid, depth to rock
Bryway	Moderate: slope, depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly, slope, soil blowing	Limitation: percs slowly, depth to rock	Limitation: too arid, depth to rock
320:							
Parkelei	Severe: seepage	Moderate: piping, thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing	Limitation: soil blowing	Limitation: too arid
Fraguni	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: fast intake, slope, soil blowing	Limitation: soil blowing	Limitation: rooting depth, too arid
325:							
Venzuni	Slight	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: percs slowly, slow intake	Limitation: percs slowly	Limitation: percs slowly, too arid
332:							
Evpark	Moderate: seepage, slope, depth to rock	Moderate: piping, thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: soil blowing, depth to rock	Limitation: too arid, depth to rock
Arabrab	Severe: depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: large stones, slope, droughty	Limitation: large stones, depth to rock	Limitation: large stones, droughty

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
335:							
Venadito	Slight	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: flooding percs slowly slow intake	Limitation: percs slowly	Limitation: percs slowly
336:							
Nuffel	Slight	Slight	Severe: no water	Limitation: deep to water	Limitation: erodes easily flooding percs slowly	Limitation: erodes easily	Limitation: erodes easily too arid
Venadito	Slight	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: flooding percs slowly slow intake	Limitation: percs slowly	Limitation: percs slowly
338:							
Zyme	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: percs slowly slope	Limitation: slope too arid
Lockerby	Severe: depth to rock	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope slow intake	Limitation: percs slowly depth to rock	Limitation: percs slowly depth to rock
345:							
Tuces	Severe: slope	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: percs slowly slope depth to rock	Limitation: slope too arid depth to rock
350:							
Toldohn	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: percs slowly slope depth to rock	Limitation: slope too arid depth to rock
Vessilla	Severe: seepage slope depth to rock	Severe: seepage thin layer	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing depth to rock	Limitation: slope soil blowing depth to rock	Limitation: slope depth to rock

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
351:							
Vessilla	Severe: seepage slope depth to rock	Severe: seepage thin layer	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing depth to rock	Limitation: slope soil blowing depth to rock	Limitation: slope depth to rock
352:							
Zia	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: soil blowing	Limitation: too arid
353:							
Mido	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: too sandy soil blowing	Limitation: too arid droughty
354:							
Knifehill	Moderate: slope	Moderate: hard to pack	Severe: no water	Limitation: deep to water	Limitation: erodes easily percs slowly slope	Limitation: erodes easily percs slowly	Limitation: erodes easily percs slowly
355:							
Rizno	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing depth to rock	Limitation: slope soil blowing depth to rock	Limitation: slope too arid depth to rock
Tekapo	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: slope depth to rock	Limitation: slope too arid depth to rock
357:							
Heshotauthla	Slight	Severe: excess sodium hard to pack	Severe: no water	Limitation: deep to water	Limitation: percs slowly slow intake droughty	Limitation: percs slowly	Limitation: excess sodium too arid droughty

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
360:							
Hosta	Moderate: seepage slope	Moderate: hard to pack	Severe: no water	Limitation: deep to water	Limitation: erodes easily percs slowly slope	Limitation: erodes easily percs slowly	Limitation: erodes easily percs slowly too arid
Concho	Slight	Moderate: hard to pack	Severe: no water	Limitation: deep to water	Limitation: percs slowly	Limitation: percs slowly	Limitation: percs slowly too arid
361:							
Monpark	Moderate: slope depth to rock	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope slow intake	Limitation: percs slowly depth to rock	Limitation: percs slowly too arid depth to rock
365:							
Vessilla	Severe: slope depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing depth to rock	Limitation: slope soil blowing depth to rock	Limitation: slope depth to rock
366:							
Bosonoak	Severe: seepage	Moderate: piping thin layer	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: soil blowing	Limitation: too arid
367:							
Chunkmonk	Severe: depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: large stones slope depth to rock	Limitation: large stones depth to rock	Limitation: large stones depth to rock
368:							
Simitarq	Severe: depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing depth to rock	Limitation: large stones soil blowing depth to rock	Limitation: large stones depth to rock
Celavar	Moderate: seepage slope depth to rock	Moderate: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing depth to rock	Limitation: soil blowing depth to rock	Limitation: depth to rock

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
375:							
Todest	Moderate: seepage slope depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing depth to rock	Limitation: erodes easily soil blowing depth to rock	Limitation: erodes easily too arid depth to rock
Shadilto	Severe: depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: depth to rock	Limitation: depth to rock droughty
376:							
Todest	Moderate: seepage slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing depth to rock	Limitation: soil blowing depth to rock	Limitation: too arid depth to rock
380:							
Berryhill	Moderate: slope	Moderate: hard to pack	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope slow intake	Limitation: percs slowly	Limitation: percs slowly too arid
Casamero	Severe: depth to rock	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope slow intake	Limitation: percs slowly depth to rock	Limitation: percs slowly depth to rock
385:							
Mcorreon	Severe: slope	Moderate: hard to pack	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: percs slowly slope	Limitation: percs slowly slope too arid
390:							
Banquito	Severe: seepage	Moderate: thin layer	Severe: no water	Limitation: deep to water	Limitation: erodes easily soil blowing depth to rock	Limitation: erodes easily soil blowing depth to rock	Limitation: erodes easily too arid depth to rock

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
395:							
Cabezon	Severe: depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: percs slowly depth to rock	Limitation: percs slowly depth to rock
Mcorreon	Moderate: slope	Slight	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Favorable	Limitation: percs slowly too arid
400:							
Shoemaker	Moderate: seepage slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: fast intake slope soil blowing	Limitation: soil blowing depth to rock	Limitation: depth to rock
Stozuni	Severe: depth to rock	Severe: seepage piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing depth to rock	Limitation: soil blowing depth to rock	Limitation: depth to rock
403:							
Valnor	Severe: slope	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: percs slowly slope depth to rock	Limitation: percs slowly slope depth to rock
Techado	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope slow intake	Limitation: percs slowly slope depth to rock	Limitation: percs slowly slope depth to rock
404:							
Techado	Severe: slope depth to rock	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: percs slowly slope depth to rock	Limitation: percs slowly slope depth to rock
Stozuni	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: slope depth to rock	Limitation: slope depth to rock droughty

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
405:							
Fortwingate	Moderate: slope, depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly, slope, depth to rock	Limitation: percs slowly, depth to rock	Limitation: percs slowly, depth to rock
Owlrock	Severe: depth to rock	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones, slope, depth to rock	Limitation: large stones, depth to rock	Limitation: large stones, depth to rock
406:							
Polich	Moderate: seepage	Severe: wetness	Severe: slow refill	Limitation: flooding	Limitation: erodes easily, percs slowly, wetness	Limitation: erodes easily, wetness	Limitation: erodes easily, wetness
407:							
Cinnadale	Severe: slope, depth to rock	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: large stones, slope, droughty	Limitation: large stones, slope, depth to rock	Limitation: large stones, slope, droughty
Heckly	Severe: slope	Moderate: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly, slope, depth to rock	Limitation: slope, depth to rock	Limitation: percs slowly, slope, depth to rock
408:							
Mirabal	Severe: seepage, slope	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: fast intake, slope, droughty	Limitation: large stones, slope, depth to rock	Limitation: large stones, slope, droughty
Zuni	Severe: slope	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly, slope, depth to rock	Limitation: percs slowly, slope, depth to rock	Limitation: percs slowly, slope, depth to rock

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
409:							
Rauster	Severe: slope	Moderate: hard to pack thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: percs slowly slope	Limitation: percs slowly slope
410:							
Montillo	Severe: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope depth to rock
Tsoodzil	Severe: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: percs slowly slope	Limitation: percs slowly slope
411:							
Ligocki	Moderate: seepage slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope soil blowing	Limitation: soil blowing	Limitation: percs slowly
Robolata	Severe: seepage	Moderate: piping thin layer	Severe: no water	Limitation: deep to water	Limitation: erodes easily percs slowly slope	Limitation: erodes easily	Limitation: erodes easily percs slowly
412:							
Rionutria	Severe: slope	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope depth to rock	Limitation: large stones slope depth to rock	Limitation: large stones slope depth to rock
Zaster	Severe: slope	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope droughty

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
413:							
Morclay	Moderate: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope slow intake	Limitation: percs slowly	Limitation: percs slowly
414:							
Zunalei	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: fast intake slope soil blowing	Limitation: soil blowing	Favorable
Corzuni	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: fast intake slope soil blowing	Limitation: soil blowing	Favorable
415:							
Tsoodzil	Severe: slope	Moderate: hard to pack	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: percs slowly slope	Limitation: percs slowly slope
416:							
Bluesky	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: slope soil blowing depth to rock	Limitation: slope depth to rock droughty
418:							
Asaayi	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
Osoridge	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: percs slowly slope depth to rock	Limitation: percs slowly slope depth to rock

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
419:							
Fortwingate	Severe: slope	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: slope depth to rock	Limitation: percs slowly slope depth to rock
Cinnadale	Severe: slope depth to rock	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope droughty
420:							
Seco	Moderate: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: percs slowly	Limitation: percs slowly
425:							
Montillo	Moderate: slope depth to rock	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones percs slowly depth to rock	Limitation: large stones depth to rock droughty
Canoneros	Severe: depth to rock	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: percs slowly depth to rock	Limitation: percs slowly depth to rock
430:							
Montillo	Moderate: slope depth to rock	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: percs slowly depth to rock	Limitation: percs slowly depth to rock
435:							
Tsoodzil	Severe: slope	Moderate: large stones	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: large stones slope	Limitation: large stones percs slowly slope
Amcec	Severe: seepage slope	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: slope droughty	Limitation: slope	Limitation: slope droughty

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
440:							
Chivato	Slight	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: flooding percs slowly slow intake	Limitation: percs slowly	Limitation: percs slowly
525:							
Silcat	Moderate: slope	Moderate: hard to pack	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: percs slowly	Limitation: percs slowly too arid
550:							
Bryway	Moderate: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: erodes easily percs slowly depth to rock	Limitation: erodes easily too arid depth to rock
Galzuni	Moderate: seepage slope	Slight	Severe: no water	Limitation: deep to water	Limitation: erodes easily percs slowly slope	Limitation: erodes easily	Limitation: erodes easily percs slowly too arid
555:							
Parkelei	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: soil blowing	Limitation: too arid
Evpark	Moderate: seepage slope depth to rock	Moderate: piping thin layer	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing depth to rock	Limitation: soil blowing depth to rock	Limitation: too arid depth to rock
560:							
Flugle	Severe: seepage	Moderate: piping thin layer	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: soil blowing	Limitation: too arid
Teczuni	Moderate: slope	Moderate: hard to pack	Severe: no water	Limitation: deep to water	Limitation: erodes easily percs slowly slope	Limitation: erodes easily percs slowly	Limitation: erodes easily percs slowly too arid

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
561:							
Flugle	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: soil blowing	Limitation: too arid
Plumasano	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: soil blowing	Limitation: too arid
565:							
Plumasano	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing droughty	Limitation: slope soil blowing	Limitation: slope too arid droughty
566:							
Bamac	Severe: seepage slope	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: slope droughty	Limitation: large stones slope too sandy	Limitation: large stones slope too arid
575:							
Ramah	Moderate: seepage	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: soil blowing	Limitation: soil blowing	Limitation: too arid
Pescado	Severe: depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing depth to rock	Limitation: soil blowing depth to rock	Limitation: depth to rock

Table 14.--Engineering Index Properties

(Absence of an entry indicates that the data were not estimated.)

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	
8:												
Water	---	---	---	---	---	---	---	---	---	---	---	---
10:												
Tsosie	0-2	Fine sandy loam	SC-SM, SC	A-2, A-4	0	0	100	100	90-100	30-50	15-25	4-10
	2-7	Fine sandy loam	SC-SM	A-2, A-4	0	0	100	100	85-100	30-50	15-25	4-7
	7-13	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	65-85	60-80	10-30	5-15
	13-35	Sandy clay loam	CL, SC	A-6	0	0	100	100	55-75	35-55	30-40	10-15
	35-47	Clay loam	CL	A-6	0	0	100	100	70-85	65-80	35-40	15-20
	47-65	Loam	CL	A-6	0	0	100	100	85-100	65-85	25-35	10-15
Councelor	0-2	Fine sandy loam	SC-SM	A-2-4, A-4	0	0	100	100	85-100	30-50	20-30	4-7
	2-20	Fine sandy loam	SC	A-2-4, A-4	0	0	100	100	85-100	30-50	20-30	7-10
	20-47	Sandy loam	SC, SC-SM, SM	A-2-4, A-4	0	0	100	100	60-75	20-50	10-30	1-10
	47-65	Silt loam	CL-ML	A-4	0	0	100	100	65-85	60-80	20-30	5-10
Blancot	0-3	Fine sandy loam	SC	A-2-4, A-4	0	0	100	100	85-100	30-50	20-30	7-10
	3-11	Clay loam	CL	A-6	0	0	100	100	70-85	65-80	35-40	15-20
	11-16	Sandy clay loam	CL, SC	A-6	0	0	100	100	50-80	40-65	30-40	10-20
	16-37	Sandy loam	SC	A-4	0	0	100	100	55-86	40-50	20-30	7-10
	37-65	Loamy sand	SC-SM, SM	A-2-4	0	0	100	100	50-80	25-30	10-20	NP-7
11:												
Doakum	0-2	Fine sandy loam	SC	A-2-4, A-4	0	0	100	100	75-95	30-50	15-25	7-10
	2-8	Sandy clay loam	CL, SC	A-6	0	0	100	100	50-70	45-65	30-35	10-15
	8-13	Sandy clay loam	CL, SC	A-6	0	0	100	100	50-70	45-65	30-35	10-15
	13-21	Sandy clay loam	SC, CL	A-6	0	0	100	100	50-70	45-65	30-35	10-15
	21-42	Sandy clay loam	CL, SC	A-6	0	0	100	100	50-70	45-65	30-35	10-15
	42-65	Sandy loam	SC-SM	A-4	0	0	100	100	65-85	40-60	15-30	4-7
Betonnie	0-3	Sandy loam	SC	A-2-4, A-4	0	0	100	100	70-90	20-40	15-25	7-10
	3-11	Sandy loam	SC	A-2-4, A-4	0	0	100	100	70-90	20-40	20-30	7-10
	11-21	Sandy loam	SC	A-2-4	0	0	100	100	70-90	15-35	20-30	7-10
	21-29	Loamy sand	SM	A-2-4	0	0	100	100	65-85	15-35	15-20	NP-4
	29-45	Loamy sand	SM	A-2-4	0	0	100	100	65-85	15-35	15-20	NP-4
	45-52	Loamy sand	SM	A-2-4	0	0	100	100	70-90	20-35	15-20	NP-4
	52-60	Sandy loam	SC	A-2-4	0	0	100	100	70-90	15-35	20-30	7-10
12:												
Calladito	0-2	Loamy fine sand	SM	A-2-4	0	0	100	100	70-90	20-35	10-15	1-4
	2-26	Loamy fine sand	SM	A-2-4	0	0	100	100	65-85	15-35	10-15	1-4
	26-65	Loamy fine sand	SM	A-2-4	0	0	100	100	70-90	20-35	10-15	1-4
Elias	0-1	Fine sandy loam	SC-SM	A-4	0	0	90-100	85-100	60-80	45-65	20-30	4-7
	1-3	Sandy clay loam	CL	A-6	0	0	95-100	90-100	60-80	50-70	30-40	10-15
	3-10	Sandy clay loam	CL	A-6	0	0	95-100	90-100	60-80	50-70	30-40	10-15
	10-18	Loamy fine sand	SM	A-2-4, A-4	0	0	95-100	90-100	70-90	30-50	10-20	NP-4
	18-33	Sandy clay loam	CL	A-6	0	0	95-100	90-100	60-80	50-70	30-40	10-15
	33-65	Clay loam	CL	A-6, A-7-6	0	0	95-100	90-100	80-100	70-90	35-45	15-20

Table 14.--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	
13:												
Councelor-------	0-2	Fine sandy loam	SC	A-2-4, A-4	0	0	100	100	85-100	30-50	20-30	7-10
	2-15	Fine sandy loam	SC	A-2-4, A-4	0	0	100	100	85-100	30-50	20-30	7-10
	15-19	Silty clay loam	CL	A-6	0	0	100	100	80-100	75-95	35-40	15-20
	19-42	Loamy fine sand	SM	A-2-4, A-4	0	0	100	100	70-90	20-40	15-20	1-4
	42-55	Loam	CL	A-6	0	0	100	100	80-100	70-90	30-35	7-15
	55-65	Loam	CL	A-6	0	0	100	100	80-100	70-90	30-35	7-15
Calladito-------	0-3	Loamy fine sand	SM	A-2-4	0	0	100	100	70-90	20-35	10-15	1-4
	3-37	Loamy sand	SM	A-2-4	0	0	100	100	65-85	15-35	10-15	1-4
	37-65	Loamy fine sand	SM	A-2-4	0	0	100	100	70-90	20-35	10-15	1-4
14:												
Councelor-------	0-4	Fine sandy loam	SC-SM	A-2-4, A-4	0	0	100	100	80-100	30-50	15-20	4-7
	4-16	Fine sandy loam	SC-SM	A-4	0	0	100	100	80-100	40-60	15-30	4-7
	16-65	Fine sandy loam	SC-SM	A-4	0	0	100	100	80-100	40-60	15-30	4-7
Eslendo---------	0-2	Loam	CL	A-6	0	0	80-100	75-100	65-85	60-80	25-35	10-15
	2-11	Silty clay loam, clay loam	CL	A-6	0	0	80-100	75-100	70-90	65-85	35-40	15-20
	11-20	Weathered bedrock			---	---	---	---	---	---	---	---
Calladito-------	0-3	Loamy fine sand	SM	A-2-4	0	0	100	100	70-90	20-35	10-15	1-4
	3-41	Loamy sand	SM	A-2-4	0	0	100	100	65-85	15-35	10-15	1-4
	41-65	Loamy fine sand	SM	A-2-4	0	0	100	100	70-90	20-35	10-15	1-4
16:												
Starlake--------	0-3	Clay	CH, CL	A-7-6	0	0	90-100	85-100	70-90	60-80	45-55	20-30
	3-12	Clay	CH, CL	A-7-6	0	0	95-100	90-100	80-100	75-95	45-60	20-30
	12-20	Clay loam	CL	A-6, A-7-6	0	0	95-100	90-100	65-85	55-75	35-45	15-20
	20-54	Clay	CH, CL	A-7-6	0	0	95-100	90-100	80-100	75-95	45-60	20-30
	54-65	Clay loam	CL	A-6, A-7-6	0	0	95-100	90-100	65-85	55-75	35-45	15-20
22:												
Querencia-------	0-2	Fine sandy loam	SC-SM	A-4	0	0	95-100	90-100	65-85	45-65	20-30	4-7
	2-9	Clay loam	CL	A-6	0	0	95-100	90-100	75-95	70-90	30-40	10-15
	9-15	Clay loam	CL	A-6	0	0	95-100	90-100	75-95	70-90	30-40	10-15
	15-65	Clay loam	CL	A-6	0	0	90-100	85-100	75-95	70-90	30-40	10-15
Lavodnas--------	0-3	Loam	CL	A-6	0	0	95-100	90-100	65-85	55-70	25-35	10-15
	3-9	Clay loam	CL	A-7-6	0	0	---	---	---	---	41-45	15-20
	9-13	Clay	CL	A-7-6	0	0	---	---	---	---	35-55	20-25
	13-20	Weathered bedrock			0	0	---	---	---	---	---	---
30:												
Orlie-----------	0-2	Fine sandy loam	SC-SM	A-4	0	0	100	95-100	80-100	45-65	20-30	4-7
	2-5	Loam	CL	A-6	0	0	100	95-100	80-100	70-90	25-35	10-15
	5-15	Clay loam	CL	A-6, A-7-6	0	0	100	95-100	60-80	50-70	35-45	15-20
	15-36	Sandy clay loam	CL, SC	A-6	0	0	100	95-100	65-85	45-65	30-40	10-20
	36-50	Silty clay loam	CL	A-6, A-7-6	0	0	100	95-100	75-95	75-95	35-45	15-20
	50-62	Clay loam	CL	A-6, A-7-6	0	0	100	95-100	60-80	50-70	35-45	15-20

Table 14.--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	
30:												
Tinian	0-3	Very fine sandy loam	SC-SM	A-4	0	0	100	100	90-100	55-75	20-30	4-7
	3-8	Clay loam	CL	A-6	0	0	100	100	90-100	65-85	35-40	15-20
	8-19	Clay	CH, CL	A-7-6	0	0	100	100	90-100	70-90	45-55	20-30
	19-24	Clay loam	CL	A-6	0	0	100	100	90-100	80-100	35-40	15-20
	24-40	Unweathered bedrock			---	---	---	---	---	---	---	---
40:												
Nuffel	0-2	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	80-100	75-95	20-35	5-15
	2-12	Silty clay loam	CL	A-6	0	0	100	100	80-100	80-100	35-40	15-20
	12-18	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	80-100	75-95	20-35	5-15
	18-26	Silty clay loam	CL	A-6	0	0	100	100	80-100	80-100	35-40	15-20
	26-65	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	80-100	75-95	20-35	5-15
42:												
Suwanee	0-4	Clay loam	CL	A-6, A-7-6	0	0	100	100	75-95	70-90	35-45	15-20
	4-34	Clay loam	CL	A-6	0	0	100	100	70-85	65-75	35-40	15-20
	34-48	Silt loam	CL	A-6	0	0	100	100	80-100	80-95	25-35	10-15
	48-65	Clay loam	CL	A-6	0	0	100	100	70-85	65-75	35-40	15-20
44:												
Suwanee	0-10	Clay	CH, CL	A-7-6	0	0	100	100	80-100	75-95	45-60	20-30
	10-17	Clay	CH, CL	A-7-6	0	0	100	100	80-100	75-95	45-60	20-30
	17-30	Clay loam	CL	A-6, A-7-6	0	0	100	100	70-90	65-85	35-45	15-20
	30-47	Sandy clay loam	CL	A-6	0	0	100	100	60-80	50-70	30-40	10-20
	47-65	Sandy loam	CL-ML, CL	A-4	0	0	100	100	70-90	40-60	20-25	5-10
45:												
Nutreeah	0-10	Clay loam	CL	A-6, A-7-6	0	0	100	100	80-100	70-90	35-45	15-20
	10-16	Clay loam	CL	A-6, A-7-6	0	0	100	100	80-100	70-90	35-45	15-20
	16-24	Clay	CL	A-7-6	0	0	100	100	80-100	75-95	45-50	20-25
	24-40	Clay	CH, CL	A-7-6	0	0	100	100	80-100	75-95	45-65	25-45
	40-65	Clay	CH, CL	A-7-6	0	0	100	100	80-100	75-95	45-65	25-45
47:												
Conchovar	0-3	Clay loam	CL	A-7-6	0	0	100	100	80-100	75-95	40-45	15-20
	3-9	Clay	CH, CL	A-7-6	0	0	100	100	80-100	75-95	45-65	20-40
	9-26	Clay, clay loam	CH, CL	A-7-6	0	0	100	100	80-100	75-95	40-60	15-35
	26-36	Clay	CH, CL	A-7-6	0	0	100	100	80-100	75-95	45-65	20-40
	36-54	Clay	CH, CL	A-7-6	0	0	100	100	80-100	75-95	45-65	20-40
	54-65	Sandy clay	CH, CL	A-7-6	0	0	100	100	80-100	55-75	45-60	20-35
49:												
Concho	0-4	Clay loam	CL	A-6, A-7-6	0	0	100	95-100	80-100	70-90	35-45	15-20
	4-28	Clay loam	CL	A-6, A-7-6	0	0	100	100	80-100	70-90	35-45	15-20
	28-38	Clay	CH, CL	A-7-6	0	0	100	100	80-100	75-95	45-60	20-35
	38-65	Clay loam	CL	A-6, A-7-6	0	0	100	100	80-100	70-90	35-45	15-20

Table 14.--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	
51:												
Kwakina	0-7	Loamy fine sand	SM	A-2-4, A-4	0	0	100	100	75-95	20-40	15-20	1-4
	7-11	Loamy fine sand	SM	A-2-4, A-4	0	0	100	100	75-95	20-40	15-20	1-4
	11-23	Fine sand, sand	SW-SM	A-2-4	0	0	100	100	80-100	0-25	0-15	NP-4
	23-33	Sandy loam, fine sandy loam, silt loam	CL-ML, SC-SM	A-4	0	0	100	100	65-85	40-60	20-30	4-7
	33-65	Loamy fine sand, loamy sand	SM	A-2-4, A-4	0	0	100	100	75-95	20-40	15-20	NP-4
52:												
Zuniven	0-12	Loamy fine sand	SM	A-2-4	0	0	100	100	90-100	15-30	15-20	NP-4
	12-42	Silty clay loam, silt loam	CL	A-6	0	0	100	100	95-100	85-95	25-40	10-20
	42-65	Loamy fine sand	SM	A-2-4	0	0	100	100	90-100	15-30	15-20	1-4
53:												
Hawaikuh	0-10	Clay loam	CL	A-6, A-7-6	0	0	95-100	90-100	80-100	70-90	35-45	15-20
	10-24	Sandy clay	CL	A-7-6	0	0	95-100	90-100	70-90	55-75	40-50	15-25
	24-32	Clay loam	CL	A-6, A-7-6	0	0	95-100	90-100	80-100	70-90	35-45	15-20
	32-42	Clay loam	CL	A-6, A-7-6	0	0	95-100	90-100	80-100	70-90	35-45	15-20
	42-65	Clay	CH, CL	A-7-6	0	0	95-100	90-100	80-100	75-95	45-55	20-30
54:												
Venadito	0-5	Clay	CH	A-7-6	0	0	100	100	70-85	60-80	60-75	40-55
	5-29	Clay	CH	A-7-6	0	0	100	100	70-85	60-80	65-75	45-55
	29-40	Sandy clay	CH, CL	A-7-6	0	0	100	100	65-85	50-70	45-60	25-40
	40-65	Clay	CH	A-7-6	0	0	100	100	70-85	60-80	65-75	45-55
55:												
Sparham	0-2	Clay loam	CL	A-7-6	0	0	100	100	80-100	70-90	40-45	15-20
	2-14	Clay	CH, CL	A-7-6	0	0	100	100	80-100	75-95	45-60	20-30
	14-18	Sandy clay loam	CL	A-6	0	0	100	100	75-95	60-80	30-40	10-15
	18-27	Clay	CH, CL	A-7-6	0	0	100	100	80-100	75-95	45-60	20-30
	27-31	Sandy clay loam	CL	A-6	0	0	100	100	60-80	55-75	30-40	10-20
	31-65	Clay	CH, CL	A-7-6	0	0	100	100	80-100	75-95	45-60	20-30
60:												
Redpen	0-4	Sandy clay loam	CL-ML, SC	A-4	0	0	95-100	90-100	50-70	40-60	25-30	5-10
	4-24	Sandy clay loam	SC	A-2-6, A-6	0	0	85-100	80-100	20-40	20-40	30-40	10-15
	24-52	Sandy clay loam	SC	A-2-6, A-6	0	0	85-100	80-100	20-40	20-40	30-40	10-15
	52-65	Clay loam	CL	A-6	0	0	85-100	80-100	60-80	55-75	30-40	10-15
100:												
Norkiki	0-3	Loamy sand	SM	A-2-4, A-4	0	0	95-100	90-100	40-60	30-50	15-20	1-4
	3-13	Sandy clay loam	CL	A-6	0	0	95-100	90-100	60-80	50-70	30-40	10-15
	13-19	Sandy loam	SC-SM	A-4	0	0	95-100	90-100	55-75	40-60	20-30	5-7
	19-28	Sandy clay loam	SC	A-6	0	0-10	95-100	90-100	60-80	40-50	30-40	10-15
	28-40	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--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	
100:												
Kimnoli	0-2	Fine sandy loam	SC	A-2-4, A-4	0	0	100	100	80-95	30-50	20-25	7-10
	2-7	Sandy loam	SC-SM	A-2-4, A-4	0	0	100	100	65-80	25-45	25-30	4-7
	7-14	Sandy clay loam	CL, SC	A-6	0	0-10	95-100	90-100	60-80	45-60	30-35	10-15
	14-20	Unweathered bedrock			---	---	---	---	---	---	---	---
110:												
Benally	0-2	Sandy clay loam	CL-ML, SC	A-4	0	0	80-100	75-100	65-85	45-65	20-30	5-10
	2-9	Sandy clay loam	SC	A-6	0	0	85-100	80-100	70-90	40-50	30-40	10-20
	9-25	Sandy clay loam	SC	A-6	0	0	85-100	80-100	70-90	40-50	30-40	10-20
	25-65	Sandy clay loam	SC	A-6	0	0	85-100	80-100	70-90	40-50	30-40	10-20
Fruitland	0-3	Loamy fine sand	SM	A-4	0	0	100	100	65-85	20-40	10-20	1-4
	3-10	Loamy fine sand	SM	A-4	0	0	100	100	65-85	30-50	20-25	1-4
	10-19	Loamy fine sand	SM	A-2-4	0	0	100	100	65-85	20-35	10-20	1-4
	19-29	Loamy fine sand	SM	A-4	0	0	100	100	65-85	30-50	10-20	1-4
	29-65	Fine sandy loam, loamy fine sand	SC-SM, SM	A-2-4, A-4	0	0	100	100	70-90	30-50	15-25	NP-7
111:												
Yelives	0-2	Fine sandy loam	SC	A-4	0	0	95-100	90-100	80-90	35-55	20-30	7-10
	2-12	Fine sandy loam	SC-SM, SC	A-4	0	0	100	100	80-100	35-55	15-30	4-10
	12-30	Loam	CL-ML, CL	A-4, A-6	0	0	100	100	85-100	40-60	20-30	5-15
	30-41	Loam	CL	A-4	0	0	100	100	85-100	45-65	15-25	5-15
	41-56	Loamy fine sand, loamy sand	SM	A-4	0	0	100	90-100	65-85	25-36	15-25	1-4
	56-80	Loamy fine sand	SM	A-4	0	0	95-100	90-100	80-100	25-36	15-25	1-4
115:												
Razito	0-4	Loamy sand	SM	A-2-4	0	0	100	100	30-50	20-40	15-20	1-4
	4-34	Loamy sand	SM	A-2-4	0	0	100	100	30-50	20-40	15-20	1-4
	34-65	Loamy sand	SM	A-2-4	0	0	100	100	30-50	20-40	15-20	1-4
Shiprock	0-3	Fine sandy loam	SC-SM, SC	A-4	0	0	100	95-100	65-85	30-50	15-25	4-10
	3-15	Fine sandy loam	SC-SM, SC	A-4	0	0	100	95-100	75-95	40-60	20-30	4-10
	15-37	Fine sandy loam	SC-SM, SC	A-4	0	0	100	95-100	75-95	40-60	20-30	4-10
	37-60	Fine sandy loam, loamy fine sand	SC-SM, SM	A-2-4, A-4	0	0	100	95-100	70-90	30-50	15-25	NP-7
116:												
Fajada	0-2	Gravelly sandy clay loam	SC	A-2-6, A-6	0	0	65-80	60-75	45-55	30-50	25-35	10-15
	2-6	Clay loam, sandy clay	CL	A-6, A-7-6	0	0	95-100	90-100	80-95	65-85	35-45	15-20
	6-12	Sandy clay loam	SC	A-6	0	0	95-100	90-100	60-75	40-50	25-40	10-20
	12-16	Sandy clay loam	SC	A-6	0	0	95-100	90-100	60-75	40-50	25-40	10-20
	16-28	Clay loam	CL	A-6	0	0	95-100	90-100	70-85	60-80	30-40	10-20
	28-40	Weathered bedrock			---	---	---	---	---	---	---	---

Table 14.--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	
116:												
Huerfano	0-2	Loam	CL	A-6	0	0	100	100	70-90	60-80	25-35	10-15
	2-17	Clay loam	CL	A-6	0	0	100	100	75-95	70-90	35-40	15-20
	17-20	Weathered bedrock			---	---	---	---	---	---	---	---
Benally	0-2	Sandy clay loam	CL, SC	A-6	0	0	80-100	75-100	50-70	40-60	30-35	10-15
	2-18	Sandy clay loam	SC	A-6	0	0	90-100	85-100	60-80	40-50	30-40	10-20
	18-45	Sandy clay loam	SC	A-6	0	0	90-100	85-100	60-80	40-50	30-40	10-20
	45-55	Weathered bedrock			---	---	---	---	---	---	---	---
118:												
Farb	0-2	Sandy loam	SC-SM	A-2-4, A-4	0	0	90-100	85-100	60-80	30-50	15-30	4-7
	2-9	Sandy loam	SC-SM	A-2-4, A-4	0	0	90-100	85-100	60-80	30-50	15-30	4-7
	9-20	Unweathered bedrock			---	---	---	---	---	---	---	---
Chipeta	0-2	Silty clay	CL	A-6, A-7	0	0	100	100	95-100	90-95	35-45	15-25
	2-12	Silty clay loam, silty clay, clay	CL	A-6, A-7	0	0	100	100	95-100	90-95	35-45	15-25
	12-20	Weathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop	0	Unweathered bedrock			---	---	---	---	---	---	---	---
120:												
Doak	0-2	Fine sandy loam	SC, SC-SM	A-4	0	0	100	100	80-100	40-60	20-25	4-10
	2-8	Sandy clay loam	CL, SC	A-6	0	0	100	100	60-80	40-60	30-35	10-15
	8-12	Sandy clay loam	CL, SC	A-6	0	0	100	100	60-80	40-60	30-35	10-15
	12-40	Sandy clay loam	CL, SC	A-6	0	0	100	100	60-80	40-60	30-35	10-15
	40-65	Sandy loam	SC, SC-SM	A-2-4, A-4	0	0	100	100	55-75	30-50	20-30	4-10
Shiprock	0-4	Loamy fine sand	SM	A-2-4, A-4	0	0	100	95-100	70-90	30-50	15-20	NP-4
	4-18	Fine sandy loam	SC-SM	A-4	0	0	100	95-100	75-95	40-60	20-30	4-7
	18-37	Fine sandy loam	SC-SM	A-4	0	0	100	95-100	75-95	40-60	20-30	4-7
	37-65	Fine sandy loam, loamy fine sand	SC-SM, SM	A-2-4, A-4	0	0	100	95-100	70-90	25-45	15-25	NP-7
121:												
Badland	0-2	Weathered bedrock	CH	A-7-6	0	0	100	100	100	90-100	55-65	25-35
	2-20	Bedrock			---	---	---	---	---	---	---	---
122:												
Farb	0-2	Very gravelly sandy loam	GC-GM, GM	A-1-a, A-1-b, A-2-4	0	0	25-45	20-40	15-35	5-25	15-25	NP-7
	2-5	Sandy loam	SC-SM	A-2-4, A-4	0	0	90-100	85-100	60-80	30-50	15-25	4-7
	5-20	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--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	
122:												
Rock outcrop----	0	Unweathered bedrock			---	---	---	---	---	---	---	---
125:												
Sanfeco---------	0-2	Fine sandy loam	SC	A-4	0	0	100	100	90-100	40-50	20-30	5-10
	2-10	Clay loam	CL	A-6, A-7-6	0	0	100	100	75-95	70-90	35-45	15-20
	10-27	Clay	CL	A-7-6	0	0	100	100	80-100	80-100	40-50	20-30
	27-35	Sandy clay	CL	A-6, A-7-6	0	0	100	100	65-85	50-70	35-50	15-30
	35-39	Sandy clay loam	SC	A-6	0	0	100	100	60-80	40-50	35-40	15-20
	39-65	Loamy coarse sand, loamy sand	SC-SM, SM	A-2-4, A-4	0	0-5	95-100	90-100	45-65	30-50	15-25	NP-10
130:												
Chipeta---------	0-3	Very gravelly silt loam	CL-ML	A-4	0	0	70-90	60-80	55-75	40-60	20-35	5-10
	3-6	Clay	CH	A-7-6	0	0	100	100	95-100	85-95	50-60	25-35
	6-14	Weathered bedrock			---	---	---	---	---	---	---	---
	14-20	Weathered bedrock			---	---	---	---	---	---	---	---
Badlands--------	0-2	Unweathered bedrock	CH	A-7-6	0	0	100	100	100	95-100	45-55	25-35
	2-20	Bedrock			0	0	100	100	100	---	50-60	25-35
Moncisco--------	0-3	Extremely channery sandy clay loam	GC	A-2	0	0-10	20-35	15-30	15-25	10-20	30-35	10-15
	3-13	Extremely channery sandy loam	GC, GC-GM	A-2	0-10	15-25	20-25	15-20	15-20	10-20	20-35	5-15
	13-27	Fragmental material	GW	A-1	0-15	15-40	0-5	0-5	0-5	0	0-0	NP
	27-39	Fragmental material	GW	A-1	0-15	15-40	0-5	0-5	0-5	0	0-0	NP
	39-59	Fragmental material	GW	A-1	0-15	15-40	0-5	0-5	0-5	0	0-0	NP
150:												
Riverwash-------	0-10	Sand	SW-SM	A-1	0	0	100	90-100	20-75	0-20	0-0	NP
	10-80	Stratified coarse sand	SW-SM	A-1	0	0	100	90-100	20-75	0-20	0-0	NP

Table 14.--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	
150:												
Escawetter	0-2	Loamy fine sand	SM	A-2-4	0	0	100	100	65-85	10-20	15-25	2-4
	2-8	Stratified loamy fine sand	SM	A-2-4	0	0	100	100	65-85	10-20	15-25	2-4
	8-25	Fine sand	SW-SM	A-2-4	0	0	100	100	60-80	0-15	0-0	NP
	25-32	Stratified silt loam, stratified very fine sand	SC-SM	A-2-4	0	0	100	100	70-90	13-20	15-25	4-7
	32-48	Fine sand	SW-SM	A-2-4	0	0	100	100	60-80	0-20	0-0	NP
	48-65	Fine sand	SW-SM	A-2-4	0	0	100	100	60-80	0-20	0-0	NP
160:												
Escawetter	0-1	Fine sand	SW-SM	A-2-4	0	0	100	100	65-85	0-20	0-0	NP
	1-7	Fine sand	SW-SM	A-2-4	0	0	100	100	65-85	0-20	0-0	NP
	7-16	Stratified very fine sand, stratified silt loam	SW-SM	A-2-4	0	0	100	100	60-80	5-35	0-0	NP
	16-22	Stratified very fine sand, stratified silt	SM	A-2-4	0	0	100	100	60-80	15-25	0-0	NP
	22-52	Fine sand	SW-SM	A-2-4	0	0	100	100	60-80	0-20	0-0	NP
	52-70	Coarse sand	SW-SM	A-2-4	0	0	100	100	60-80	0-15	0-0	NP
Riverwash	0-80	Stratified fine sand	SW-SM	A-3	0	0	100	100	20-55	0-30	0-0	NP
Razito	0-1	Fine sand	SW-SM	A-2-4	0	0	100	100	30-50	5-12	0-0	NP
	1-70	Stratified fine sand	SW-SM	A-2-4	0	0	100	100	30-50	5-12	0-0	NP
205:												
Penistaja	0-3	Sandy loam	SC-SM	A-4	0	0	95-100	90-100	65-85	45-65	20-30	4-7
	3-19	Sandy clay loam	SC	A-2-6, A-6	0	0	95-100	90-100	35-55	30-50	30-35	10-15
	19-65	Sandy clay loam, sandy loam	SC	A-2-6, A-6	0	0	95-100	90-100	30-50	25-45	30-35	10-15
Tintero	0-4	Fine sandy loam	SC-SM	A-2-4, A-4	0	0	100	100	75-95	30-50	15-25	4-7
	4-16	Fine sandy loam, sandy loam	SC-SM	A-4	0	0	100	100	80-100	45-65	20-25	4-7
	16-48	Fine sandy loam, sandy loam	SC-SM	A-4	0	0	100	100	80-100	45-65	20-25	4-7
	48-65	Loamy fine sand	SM	A-2-4, A-4	0	0	100	100	70-90	20-40	10-20	NP-4

Table 14.--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	
208:												
Marianolake-----	0-2	Fine sandy loam	SC	A-4	0	0	100	95-100	80-100	30-50	15-25	7-10
	2-8	Loam	CL	A-4	0	0	100	95-100	80-100	60-80	25-35	8-10
	8-14	Clay loam	CL	A-7-6	0	0	100	95-100	80-100	60-80	42-50	15-25
	14-24	Fine sandy loam	SC, SC-SM	A-4, A-2-4	0	0	100	95-100	70-90	30-50	15-25	5-10
	24-39	Fine sandy loam	SC	A-4	0	0	100	95-100	70-90	30-50	15-25	7-10
	39-70	Loamy sand	SM	A-2-4	0	0	100	95-100	65-85	12-20	10-20	NP-4
210:												
Marianolake-----	0-5	Fine sandy loam	SC-SM, SC	A-4	0	0	95-100	90-100	80-100	45-65	20-30	4-10
	5-11	Sandy clay loam	CL, SC	A-6	0	0	95-100	90-100	60-80	45-65	30-40	10-20
	11-47	Clay loam	CL	A-6	0	0	95-100	90-100	60-80	55-75	35-40	15-20
	47-65	Fine sandy loam	SC-SM, SC	A-4	0	0	95-100	90-100	80-100	45-65	20-30	4-10
Skyvillage------	0-2	Channery sandy loam	SC-SM, SM	A-2-4, A-4	0-5	0-15	50-70	45-65	30-50	20-40	15-25	NP-7
	2-5	Sandy loam	SC-SM	A-4	0	0	80-100	75-95	50-70	40-60	20-25	4-7
	5-9	Sandy clay loam	SC	A-6	0	0	80-100	75-95	55-75	45-65	30-35	10-15
	9-15	Sandy clay loam, channery sandy clay loam	SC	A-6	0	0	80-100	75-95	55-75	45-65	30-35	10-15
	15-20	Unweathered bedrock			---	---	---	---	---	---	---	---
212:												
Rehobeth--------	0-2	Silty clay loam	CH, CL	A-7-6	0	0	100	95-100	90-100	80-90	40-55	20-30
	2-5	Silty clay loam	CH, CL	A-7-6	0	0	100	95-100	90-100	80-90	40-55	20-30
	5-12	Clay	CH	A-7-6	0	0	100	95-100	90-100	80-90	50-65	30-40
	12-18	Clay	CH	A-7-6	0	0	100	95-100	90-100	80-90	50-65	30-40
	18-32	Clay	CH	A-7-6	0	0	100	95-100	90-100	80-90	50-65	30-40
	32-80	Clay	CH	A-7-6	0	0	100	95-100	90-100	80-90	50-65	30-40
215:												
Viuda-----------	0-3	Very cobbly fine sandy loam	GC-GM, SC-SM	A-1, A-2-4	0	25-45	55-70	50-65	45-60	20-35	20-30	4-7
	3-15	Clay, sandy clay	CH, CL	A-7-6	0	0-10	95-100	80-100	50-70	50-65	40-55	20-30
	15-17	Cobbly clay loam	CL	A-6	0	10-25	95-100	90-100	55-75	40-50	30-40	10-20
	17-20	Unweathered bedrock			---	---	---	---	---	---	---	---
Penistaja-------	0-2	Sandy loam	SC, SC-SM	A-4	0	0	95-100	90-100	65-85	45-65	20-30	4-10
	2-22	Sandy clay loam	SC	A-2-6, A-6	0	0	95-100	90-100	35-55	30-50	30-35	7-15
	22-65	Sandy clay loam, sandy loam	SC	A-2-6, A-6	0	0	95-100	90-100	30-50	25-45	30-35	7-15
Rock outcrop----	0	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--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	
220:												
Hagerwest	0-2	Fine sandy loam	SC-SM	A-4	0	0	95-100	90-100	80-90	35-55	20-30	4-7
	2-13	Sandy clay loam	SC	A-6	0	0	95-100	90-100	60-80	40-60	30-40	10-20
	13-19	Sandy clay loam	SC	A-6	0	0	95-100	90-100	60-80	40-60	30-40	10-20
	19-35	Sandy loam	SC-SM	A-2-4, A-4	0	0	95-100	90-100	50-70	30-50	20-30	4-7
	35-40	Unweathered bedrock			---	---	---	---	---	---	---	---
Bond	0-2	Fine sandy loam	SC-SM	A-4	0	0	95-100	90-100	80-90	35-55	20-30	4-7
	2-5	Fine sandy loam	SC-SM	A-4	0	0	95-100	90-100	80-90	35-55	20-30	4-7
	5-14	Sandy clay loam	SC	A-6	0	0-15	90-100	85-100	70-90	40-50	30-35	10-15
	14-20	Unweathered bedrock			---	---	---	---	---	---	---	---
225:												
Aquima	0-2	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	60-80	20-35	5-15
	2-11	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	20-35	5-15
	11-17	Sandy clay loam	CL, SC	A-6	0	0	90-100	85-100	70-90	40-60	30-40	10-15
	17-45	Silt loam, silty clay loam	CL-ML	A-4	0	0	90-100	85-100	80-100	50-70	25-40	4-7
	49-65	Gravelly clay loam, gravelly sandy clay	CL, SC	A-6	0	0-15	75-95	70-90	60-80	35-55	30-40	10-15
Hawaikuh	0-3	Silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	70-90	70-90	20-35	5-15
	3-12	Silty clay loam	CL	A-6, A-7-6	0	0	95-100	90-100	80-100	80-100	35-45	15-20
	12-29	Clay loam	CL	A-6, A-7-6	0	0	95-100	90-100	75-95	70-90	35-45	15-20
	29-39	Sandy clay loam	SC	A-2-6, A-6	0	0	95-100	90-100	30-50	25-45	30-35	10-15
	39-54	Sandy loam	CL-ML, SC	A-4	0	0	95-100	90-100	70-90	45-65	20-30	5-10
	54-65	Silty clay loam	CL	A-6, A-7-6	0	0	95-100	90-100	80-100	80-100	35-45	15-20
230:												
Sparank	0-2	Silty clay loam	CL	A-6, A-7-6	0	0	100	100	85-100	85-100	35-45	15-20
	2-25	Clay, clay loam	CH, CL	A-6, A-7-6	0	0	100	100	85-100	85-100	35-55	15-30
	25-65	Clay, silty clay	CH, CL	A-7-6	0	0	100	100	85-100	85-100	45-60	20-30
San Mateo	0-2	Clay loam	CL	A-6, A-7-6	0	0	100	100	75-95	65-85	35-45	15-20
	2-15	Clay loam	CL	A-6, A-7-6	0	0	100	100	75-95	65-85	35-45	15-20
	15-30	Sandy clay loam	SC	A-2-6, A-6	0	0	100	100	35-55	30-50	30-40	10-15
	30-39	Clay loam	CL	A-6, A-7-6	0	0	100	100	75-95	65-85	35-45	15-20
	39-45	Sandy loam	SC-SM	A-4	0	0	100	100	70-90	45-65	20-30	4-7
	45-65	Clay loam	CL	A-6, A-7-6	0	0	100	100	75-95	65-85	35-45	15-20
Zia	0-3	Fine sandy loam	SC-SM	A-4	0	0	100	100	80-100	40-60	15-30	4-7
	3-12	Fine sandy loam	SC-SM	A-4	0	0	100	100	85-100	40-60	15-25	4-7
	12-20	Fine sandy loam	SC-SM	A-4	0	0	100	100	85-100	40-60	15-25	4-7
	20-28	Sandy loam, loamy sand	SC-SM, SM	A-4	0	0	100	100	65-85	40-60	15-25	NP-7
	28-70	Fine sandy loam	SC-SM	A-4	0	0	95-100	90-100	80-100	40-60	15-25	4-7

Table 14.--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	
235:												
Notal	0-1	Loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	60-80	60-80	25-35	5-15
	1-3	Clay loam	CL	A-6	0	0	100	95-100	70-90	65-85	30-40	10-20
	3-13	Sandy clay loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0	100	95-100	50-70	45-65	20-30	5-15
	13-27	Clay loam	CL	A-6	0	0	100	95-100	80-100	75-95	30-40	10-20
	27-44	Silty clay	CH, CL	A-6, A-7-6	0	0	100	95-100	90-100	80-100	35-55	15-30
	44-65	Sandy clay loam	CL-ML, SC, SC-SM	A-4, A-6	0	0	100	95-100	50-70	40-60	20-30	5-15
Hamburn	0-3	Clay loam	CL	A-6	0	0	100	100	80-100	70-90	35-45	15-20
	3-8	Stratified clay loam	CL	A-6	0	0	100	100	80-100	70-90	35-45	15-20
	8-29	Sandy clay loam	SC	A-6	0	0	100	100	75-95	40-60	30-40	10-15
	29-52	Sandy clay loam	SC	A-6	0	0	100	100	75-95	40-60	30-40	10-15
	52-70	Clay loam	CL	A-6	0	0	100	100	80-100	70-90	35-45	15-20
240:												
Breadsprings	0-3	Loam	CL	A-6	0	0	100	100	80-100	60-80	25-35	10-15
	3-7	Loam	CL	A-6	0	0	100	100	80-100	60-80	25-35	10-15
	7-14	Stratified clay loam	CL	A-6	0	0	100	100	70-100	65-85	35-50	15-25
	14-22	Fine sandy loam	SC, SC-SM	A-2-4, A-4	0	0	100	100	80-100	30-50	15-25	4-10
	22-29	Stratified silt loam	CL-ML	A-4	0	0	100	100	85-100	75-85	15-25	4-7
	29-36	Stratified loam	CL	A-6	0	0	100	100	80-100	60-80	25-35	10-15
	36-70	Stratified silt loam	CL-ML	A-4	0	0	100	100	85-100	75-85	15-25	4-7
Nahodish	0-1	Silt loam	CL-ML, CL	A-4	0	0	100	100	80-100	75-85	15-25	5-10
	1-9	Silty clay loam	CL	A-6, A-7-6	0	0	100	100	85-100	85-95	35-55	15-25
	9-17	Silty clay	CH, CL	A-7-6	0	0	100	100	85-100	80-95	40-55	20-30
	17-31	Silty clay	CH, CL	A-7-6	0	0	100	100	85-100	80-95	40-55	25-30
	31-36	Clay loam	CL	A-7-6	0	0	100	100	80-100	70-90	40-50	25-30
	36-58	Silt loam	CL	A-4	0	0	100	100	85-100	75-85	30-40	8-10
	58-80	Clay	CL	A-7-6	0	0	100	100	85-100	75-95	40-50	25-35
241:												
Mentmore	0-1	Loam	CL	A-4, A-6	0	0	100	80-100	80-100	60-80	25-35	7-15
	1-2	Clay loam	CL	A-7-6	0	0	100	95-100	70-90	65-85	35-50	15-25
	2-7	Sandy clay loam	CL, SC	A-6	0	0	100	95-100	65-85	40-60	25-40	10-20
	7-13	Clay loam	CL	A-7-6	0	0	100	100	70-90	65-85	35-50	15-25
	13-22	Clay loam	CL	A-7-6	0	0	100	100	70-90	65-85	35-50	15-25
	22-70	Clay loam, sandy clay loam	CL	A-7-6	0	0	100	100	70-90	65-85	35-50	15-25
242:												
Gish	0-3	Clay loam	CL	A-7-6	0	0	100	100	70-90	65-85	35-50	15-25
	3-13	Clay	CH	A-7-6	0	0	100	100	80-90	75-85	50-60	25-35
	13-27	Clay	CH	A-7-6	0	0	100	100	80-90	75-85	50-60	25-35
	27-55	Clay	CH	A-7-6	0	0	100	100	80-90	75-85	50-60	25-35
	55-64	Clay loam	CL	A-7-6	0	0	100	100	70-90	65-85	35-50	15-25
	64-70	Clay	CH	A-7-6	0	0	100	100	80-90	75-85	50-60	25-35

Table 14.--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	
242:												
Mentmore	0-2	Fine sandy loam	SC	A-4	0	0	100	100	80-100	30-50	15-25	7-10
	2-4	Clay loam	CL	A-7-6	0	0	100	100	70-90	65-85	35-50	15-25
	4-13	Clay loam	CL	A-7-6	0	0	100	95-100	70-90	65-85	35-50	15-25
	13-24	Clay loam	CL	A-7-6	0	0	100	95-100	70-90	65-85	35-50	15-25
	24-44	Clay loam	CL	A-7-6	0	0	100	95-100	70-90	65-85	35-50	15-25
	44-62	Clay loam	CL	A-7-6	0	0	100	95-100	70-90	65-85	35-50	15-25
	62-70	Clay loam	CL	A-7-6	0	0	100	100	70-90	65-85	35-50	15-25
244:												
Buckle	0-4	Fine sandy loam	SC-SM	A-4	0	0	100	100	70-90	40-60	20-30	4-7
	4-14	Sandy clay loam	SC	A-6	0	0	100	100	75-95	40-60	30-40	10-20
	14-22	Sandy clay loam		A-6	0	0	100	100	80-100	40-50	30-40	10-20
	22-34	Loam	CL	A-6	0	0	100	100	80-100	70-90	30-40	10-20
	34-48	Clay loam	CL	A-6	0	0	100	100	80-100	70-90	35-50	15-25
	48-62	Clay loam	CL	A-7-6	0	0	100	100	80-100	70-90	35-50	15-25
	62-75	Clay loam	CL	A-7-6	0	0	100	100	80-100	70-90	35-50	15-25
245:												
Buckle	0-1	Loamy fine sand	SM	A-4	0	0	95-100	90-100	80-90	35-55	10-20	1-4
	1-7	Clay loam	CL	A-7-6, A-6	0	0	95-100	90-100	60-80	40-60	35-50	15-25
	7-25	Sandy clay loam	CL, SC	A-6	0	0	95-100	90-100	60-80	40-60	25-40	10-20
	25-35	Clay loam	CL	A-7-6, A-6	0	0	95-100	90-100	50-70	30-50	35-50	15-25
	35-80	Fine sandy loam	SC-SM, SC	A-4, A-2-4	0	0	95-100	90-100	50-70	30-50	15-25	5-10
Gapmesa	0-1	Fine sandy loam	SC-SM	A-2-4	0	0	100	95-100	70-90	25-35	20-35	4-7
	1-9	Loam	CL	A-6	0	0	100	100	85-100	65-85	25-35	10-15
	9-20	Loam	CL	A-6	0	0	100	100	85-100	65-85	25-35	10-15
	20-31	Clay loam	CL	A-7-6	0	0	100	95-100	80-100	70-90	40-50	25-35
	31-40	Unweathered bedrock			---	---	---	---	---	---	---	---
Barboncito	0-2	Loamy fine sand	SM	A-2-4	0	0	95-100	90-100	80-90	25-35	15-25	1-4
	2-6	Sandy clay loam	CL, SC	A-6	0	0	95-100	90-100	80-90	35-55	25-40	10-20
	6-11	Clay loam	CL	A-6, A-7-6	0	0-1	85-100	85-100	70-90	50-70	35-50	15-25
	11-20	Unweathered bedrock			---	---	---	---	---	---	---	---
250:												
Hospah	0-3	Extremely cobbly clay loam	GC, SC	A-6	10-45	10-45	50-60	25-40	20-40	10-36	35-45	15-20
	3-15	Clay	CH, CL	A-7-6	0	0-10	100	100	75-95	75-95	45-60	20-30
	15-20	Weathered bedrock			---	---	---	---	---	---	---	---
Skyvillage	0-1	Very channery sandy loam	SC-SM, SM	A-2-4, A-4	0-5	0-15	50-70	45-65	30-50	20-40	15-25	NP-7
	1-5	Sandy loam	SC-SM	A-2-4	0	0	80-100	75-95	50-70	25-34	20-25	4-7
	5-8	Channery sandy clay loam	CL, SC	A-6	0	0	80-100	75-95	55-75	45-65	30-35	10-15
	8-20	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--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	
250:												
Rock outcrop----	0	Unweathered bedrock			---	---	---	---	---	---	---	---
255:												
Farview---------	0-1	Loamy fine sand	SM	A-2-4	0	0	80-100	75-100	70-90	20-35	10-15	1-4
	1-10	Fine sandy loam	SC-SM	A-4	0	0	100	100	90-100	70-90	15-25	4-7
	10-17	Fine sandy loam	SC-SM	A-4	0	0	100	100	90-100	70-90	15-25	4-7
	17-20	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0	Unweathered bedrock			---	---	---	---	---	---	---	---
258:												
Eagleye---------	0-2	Gravelly clay loam	CL	A-7-6	0	0-5	90-100	80-95	70-90	60-80	35-50	15-25
	2-10	Clay	CH	A-7-6	0	0	100	95-100	80-95	70-90	45-55	25-35
	10-20	Weathered bedrock			---	---	---	---	---	---	---	---
Atchee----------	0-2	Fine sandy loam	SC-SM	A-2-4	0-1	0-5	100	80-90	25-45	5-25	15-25	4-7
	2-12	Extremely channery sandy clay loam	GC	A-2-4	0-1	35-85	50-75	45-65	25-45	5-25	25-35	7-10
	12-14	Extremely channery sandy clay loam	GC	A-2-4	0-1	35-85	50-75	45-65	25-45	5-25	25-35	7-10
	14-20	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0	Unweathered bedrock			---	---	---	---	---	---	---	---
260:												
Quarries And Pits----------	0	Unweathered bedrock			---	---	---	---	---	---	---	---
261:												
Coal Mine Lands-	0				---	---	---	---	---	---	---	---
265:												
Uranium Mined Lands----------	0	Variable			---	---	---	---	---	---	---	---
270:												
Alesna----------	0-1	Extremely cobbly loam	GC, GC-GM	A-1-b, A-2-4	0-10	30-55	20-40	15-35	15-25	15-20	25-35	5-15
	1-10	Gravelly clay loam	CL, GC, SC	A-7-6	0	0-15	60-80	55-75	50-70	40-60	40-50	15-25
	10-20	Very gravelly clay	GC	A-2-7, A-7-6	0-2	0-10	50-70	45-65	40-60	30-50	50-60	25-35
	20-26	Clay	CH, CL	A-7-6	0-2	0-10	90-100	85-95	70-90	65-85	45-60	25-35
	26-52	Clay loam	CL	A-7-6	0-2	0-10	100	90-100	60-80	55-75	40-50	15-25
	52-60	Weathered bedrock			---	---	---	---	---	---	---	---

Table 14.--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	
270:												
Rock outcrop----	0	Unweathered bedrock			---	---	---	---	---	---	---	---
275:												
Eldado----------	0-2	Gravelly fine sandy loam	GC, GC-GM, SC-SM	A-1, A-2-4	0-2	0-2	55-75	50-70	45-65	20-40	20-30	4-10
	2-9	Sandy clay loam	SC	A-6	0-2	0-10	100	90-100	55-75	40-60	30-40	7-15
	9-13	Sandy clay loam	SC	A-6	0-2	0-10	100	90-100	55-75	40-60	30-40	10-15
	13-25	Sandy clay loam	SC	A-6	0-2	0-10	100	90-100	55-75	40-60	30-40	10-15
	25-43	Extremely gravelly loamy coarse sand	GC-GM, GM, GW-GM	A-1-a	0-10	0-45	25-45	20-40	10-20	5-15	0-0	NP
	43-72	Extremely gravelly coarse sand	GC-GM, GM, GW-GM	A-1-a	0-10	0-45	25-45	20-40	10-20	5-15	0-0	NP
280:												
Azabache--------	0-1	Extremely gravelly clay loam	GC, GM	A-2-6	0-1	0-5	15-40	10-30	10-25	10-20	35-40	10-15
	1-5	Clay	CH, CL	A-7-6	0	0-5	90-100	85-95	80-90	75-90	45-55	20-30
	5-17	Gravelly sandy clay loam	SC	A-2-6	0	0-5	50-70	45-65	20-40	15-35	30-40	10-15
	17-32	Extremely gravelly sandy clay loam	GC	A-2-6	0	0-5	20-40	15-35	10-25	5-20	30-40	10-15
	32-50	Extremely gravelly fine sandy loam	GC-GM, GM	A-1-a	0	0-5	20-40	15-30	10-25	5-15	20-30	1-4
	50-62	Very gravelly fine sandy loam	GM, SC-SM	A-4	0	0-5	60-80	55-75	50-70	40-60	15-25	1-4
290:												
Rock outcrop----	0	Unweathered bedrock			---	---	---	---	---	---	---	---
Westmion--------	0-2	Gravelly clay loam	CL	A-6, A-7-6	0-10	0-15	100	80-100	40-60	35-55	35-45	15-20
	2-14	Clay	CH, CL	A-7-6	0	0-10	100	75-85	65-85	60-80	45-60	20-35
	14-20	Weathered bedrock			---	---	---	---	---	---	---	---
Skyvillage------	0-2	Sandy loam	SC-SM	A-1-b, A-2-4	0-15	0-10	100	90-100	30-50	20-40	15-20	4-7
	2-13	Sandy loam	SC-SM, SM	A-2-4, A-4	0	0-5	85-100	75-95	40-60	30-50	20-30	1-7
	13-20	Unweathered bedrock			---	---	---	---	---	---	---	---
291:												
Rock outcrop----	0				---	---	---	---	---	---	---	---

Table 14.--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	
291:												
Eagleye	0-2	Very gravelly silty clay loam	GC	A-7-6	0-10	0-10	50-70	45-65	40-60	35-55	35-50	15-25
	2-7	Silty clay loam	CL	A-7-6	0	0	70-90	65-85	65-85	60-80	35-50	15-25
	7-13	Silty clay loam	CL	A-7-6	0	0	70-90	65-85	65-85	60-80	35-50	15-25
	13-20	Weathered bedrock			---	---	---	---	---	---	---	---
Atchee	0-2	Very gravelly fine sandy loam	GM	A-2-4	0-15	0-10	50-65	30-55	20-45	5-25	15-25	1-4
	2-8	Very channery fine sandy loam	GM	A-2-4	0	35-55	50-65	30-55	20-45	5-25	15-25	1-4
	8-20	Unweathered bedrock			---	---	---	---	---	---	---	---
300:												
Regracic	0-2	Gravelly sandy clay loam	SC	A-2-6, A-6	0	0-1	50-70	45-70	30-50	20-40	30-40	10-15
	2-31	Clay, clay loam	CH, CL	A-7-6	0	0	95-100	90-100	80-100	75-95	40-55	15-25
	31-45	Very gravelly sandy clay	GC	A-2-7	0	0	35-55	30-50	20-40	15-35	40-50	15-25
	45-50	Clay loam	CL	A-6, A-7-6	0	0	95-100	90-100	70-90	60-80	35-45	15-20
	50-60	Stratified very gravelly sandy clay loam, stratified clay loam	SC	A-2-6	0	0	45-60	30-45	25-45	10-25	30-40	11-20
	60-80	Gravelly sandy loam	SM, SC-SM	A-4	0	0-1	60-80	55-75	50-70	40-60	15-30	1-7
305:												
Celavar	0-2	Loam	CL	A-4	0	0	95-100	90-100	80-90	45-60	20-25	7-10
	2-24	Sandy clay loam	SC	A-2-6	0	0	100	95-100	80-100	20-35	30-35	10-15
	24-31	Sandy clay loam	SC	A-2-6	0	0	100	95-100	80-100	20-35	30-35	10-15
	31-40	Unweathered bedrock			---	---	---	---	---	---	---	---
Atarque	0-3	Sandy loam	SC-SM	A-2-4, A-4	0	0	100	100	70-90	30-50	20-25	4-7
	3-14	Sandy clay loam, clay loam	CL, SC	A-2-6, A-6	0	0	100	100	30-50	30-50	25-40	7-20
	14-20	Unweathered bedrock			---	---	---	---	---	---	---	---
308:												
Fikel	0-3	Clay loam	CL	A-6	0	0	95-100	90-100	75-95	70-90	35-40	15-20
	3-14	Clay	CH, CL	A-7-6	0	0	95-100	90-100	80-100	75-95	45-55	20-30
	14-32	Clay	CH, CL	A-7-6	0	0	95-100	90-100	80-100	75-95	45-55	20-30
	32-50	Sandy clay loam	SC	A-6	0	0	95-100	90-100	55-85	40-50	25-35	10-20
	50-65	Clay	CL	A-7-6	0	0	95-100	90-100	55-85	50-70	40-50	20-25
	65-70	Sandy clay loam	SC	A-6	0	0	95-100	90-100	55-85	40-50	25-35	10-20

Table 14.--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	
308:												
Venzuni	0-7	Clay	CH	A-7-6	0	0	95-100	95-100	80-100	75-95	60-80	35-55
	7-22	Clay	CH	A-7-6	0	0	100	95-100	90-100	80-100	75-95	50-65
	22-42	Clay	CH	A-7-6	0	0	100	95-100	90-100	80-100	75-95	50-65
	42-56	Sandy clay	CH, CL	A-7-6	0	0	95-100	95-100	75-95	50-70	45-55	20-30
	56-75	Sandy clay loam	SC	A-6, A-7-6	0	0	95-100	95-100	75-95	40-50	35-45	15-20
310:												
Parkelei	0-2	Sandy loam	SC-SM, SM	A-2-4, A-4	0	0	90-100	85-100	70-90	30-50	20-30	NP-7
	2-21	Sandy clay loam	SC	A-6	0	0	90-100	85-100	60-80	40-50	30-40	10-20
	21-55	Sandy clay loam	SC	A-6	0	0	90-100	85-100	60-80	40-50	30-40	10-20
	55-65	Clay loam	CL	A-6, A-7-6	0	0	90-100	85-100	70-90	65-85	35-45	15-20
312:												
Bluewater	0-2	Loam	CL, CL-ML	A-4, A-6	0	0	100	100	60-80	50-70	25-35	4-15
	2-11	Clay loam	CL	A-6	0	0	100	100	65-85	60-80	30-40	10-20
	11-28	Clay loam	CL	A-6	0	0	100	100	65-85	60-80	30-40	10-20
	28-50	Clay loam	CL	A-6	0	0	100	90-100	65-85	60-80	30-40	10-20
	50-70	Clay	CH, CL	A-7-6	0	0	100	90-100	70-90	65-85	45-55	20-30
	70-80	Clay	CH, CL	A-7-6	0	0	100	90-100	70-90	65-85	45-55	20-30
315:												
Flugle	0-3	Loam	CL, CL-ML	A-4, A-6	0	0	100	100	75-95	65-85	20-30	4-15
	3-10	Sandy clay loam	SC	A-6	0	0	100	100	60-80	40-50	30-40	10-20
	10-28	Clay loam	CL	A-6	0	0	100	100	65-85	55-75	35-40	15-20
	28-65	Sandy loam	SC-SM	A-4	0	0	100	100	50-70	45-65	20-30	4-7
Fragua	0-2	Loamy fine sand	SM	A-2-4, A-4	0	0	100	100	80-100	30-50	15-25	1-4
	2-19	Sandy loam	SC-SM	A-4	0	0	100	100	65-85	40-60	20-30	4-7
	19-65	Sandy loam	SC-SM, SM	A-4	0	0	100	100	65-85	40-60	15-30	1-7
316:												
Royosa	0-2	Loamy fine sand	SM	A-2-4	0	0	100	100	75-90	15-35	10-20	NP-4
	2-6	Loamy fine sand	SM	A-2-4	0	0	100	100	75-90	15-35	10-20	NP-4
	6-65	Loamy fine sand, loamy sand, fine sand	SW-SM, SM	A-2-4	0	0	100	100	75-90	5-30	0-15	NP-4
317:												
Highdye	0-3	Fine sandy loam	CL-ML, SC-SM	A-4	0	0-30	100	75-95	70-85	45-65	20-30	4-7
	3-5	Clay loam	CL	A-6, A-7-6	0	0-15	85-100	80-100	75-95	70-90	35-45	15-20
	5-12	Clay, sandy clay	CH, CL	A-7-6	0	0-15	85-100	80-100	75-95	70-90	45-60	20-35
	12-20	Unweathered bedrock			---	---	---	---	---	---	---	---
Evpark	0-5	Loam	CL, CL-ML	A-4, A-6	0	0	90-100	85-100	75-95	70-90	20-35	5-15
	5-10	Clay loam	CL	A-6, A-7-6	0	0	100	100	75-95	40-50	35-45	15-20
	10-24	Sandy clay loam	SC	A-6, A-7-6	0	0	100	100	70-90	40-50	25-45	10-20
	24-40	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--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	
317:												
Bryway----------	0-4	Sandy loam	SC-SM	A-4	0	0	90-100	85-100	70-90	45-65	20-30	4-7
	4-10	Clay, clay loam	CH, CL	A-7-6	0	0	100	100	75-95	70-90	40-60	15-30
	10-23	Clay	CH, CL	A-7-6	0	0	100	100	80-100	75-95	45-60	20-30
	23-40	Unweathered bedrock			---	---	---	---	---	---	---	---
320:												
Parkelei--------	0-4	Fine sandy loam	SC-SM	A-4	0	0	100	95-100	50-70	40-60	15-25	4-7
	4-18	Sandy clay loam	SC	A-6, A-7-6	0	0	100	95-100	60-80	40-50	30-45	10-20
	18-28	Sandy clay loam	SC	A-6, A-7-6	0	0	100	95-100	60-80	40-50	30-45	10-20
	28-39	Sandy clay loam	SC	A-6, A-7-6	0	0	100	95-100	60-80	40-50	30-45	10-20
	39-52	Sandy clay loam	SC	A-6, A-7-6	0	0	100	95-100	60-80	40-50	30-45	10-20
	52-70	Fine sandy loam	SC-SM	A-4	0	0	100	95-100	50-70	40-60	15-25	4-7
Fraguni---------	0-4	Loamy fine sand	SM	A-2-4, A-4	0	0	100	100	75-95	20-40	15-20	1-4
	4-20	Fine sandy loam	SC-SM	A-4	0	0	100	100	55-75	40-60	20-30	4-7
	20-46	Loamy fine sand	SM	A-2-4, A-4	0	0	100	100	75-95	20-40	15-20	1-4
	46-58	Sandy clay loam	SC	A-6	0	0	100	100	75-95	40-50	30-40	10-20
	58-70	Fine sandy loam	SC, SC-SM	A-4	0	0	100	100	55-75	40-60	20-30	4-10
325:												
Venzuni---------	0-2	Silty clay	CH	A-7-6	0	0	100	100	95-100	90-100	50-60	30-40
	2-12	Silty clay	CH	A-7-6	0	0	100	100	95-100	90-100	50-60	30-40
	12-46	Clay	CH	A-7-6	0	0	100	100	100	95-100	65-85	45-65
	46-65	Clay	CH	A-7-6	0	0	100	100	100	95-100	65-85	45-65
332:												
Evpark----------	0-2	Fine sandy loam	SC	A-4	0	0	90-100	85-100	70-90	40-50	20-30	7-10
	2-9	Clay loam, loam	CL	A-6	0	0	100	100	80-100	70-90	35-40	15-20
	9-36	Clay loam	CL	A-6	0	0	100	100	80-100	70-90	35-40	15-20
	36-40	Unweathered bedrock			---	---	---	---	---	---	---	---
Arabrab---------	0-2	Gravelly fine sandy loam	SC-SM	A-2-4	0-10	0	100	80-100	55-75	30-35	20-25	4-7
	2-7	Sandy clay loam	SC	A-6	0	0	75-90	70-85	60-75	45-60	30-35	7-15
	7-12	Clay loam	CL	A-7-6	0	0	75-90	70-85	60-75	45-60	35-50	15-25
	12-17	Gravelly clay loam	CL	A-7-6	0	0	75-90	70-85	60-75	45-60	35-50	15-25
	17-20	Unweathered bedrock			---	---	---	---	---	---	---	---
335:												
Venadito--------	0-3	Clay	CH, CL	A-7-6	0	0	100	100	90-100	85-100	40-60	20-40
	3-30	Clay	CH	A-7-6	0	0	100	100	90-100	85-100	65-85	45-65
	30-65	Clay	CH	A-7-6	0	0	100	100	90-100	85-100	65-85	45-65
336:												
Nuffel----------	0-2	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	80-100	75-95	20-35	5-15
	2-10	Sandy loam	CL-ML, SC-SM	A-4	0	0	100	100	70-90	45-65	20-30	4-7
	10-17	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	75-95	75-95	20-35	5-15
	17-20	Loam	CL, CL-ML	A-4, A-6	0	0	100	100	70-90	60-80	20-35	5-15
	20-47	Silty clay loam	CL	A-6	0	0	100	100	80-100	80-100	35-40	15-20
	47-65	Silty clay	CH, CL	A-7-6	0	0	100	100	85-100	80-100	45-60	20-30

Table 14.--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	
336:												
Venadito	0-2	Clay	CH	A-7-6	0	0	100	100	85-100	80-100	55-65	30-40
	2-9	Clay	CH	A-7-6	0	0	100	100	85-100	80-100	75-95	50-65
	9-11	Silty clay	CH	A-7-6	0	0	100	100	85-100	80-100	55-65	30-40
	11-65	Clay	CH	A-7-6	0	0	100	100	85-100	80-100	75-95	50-65
338:												
Zyme	0-3	Channery silty clay loam	CL	A-7-6	0	0	100	80-100	75-95	60-80	35-50	15-25
	3-8	Silty clay	CL	A-7-6	0	0	100	75-95	70-85	60-80	40-50	25-35
	8-15	Channery clay	CH	A-7-6	0	0	100	75-95	70-85	60-80	50-60	25-35
	15-20	Weathered bedrock			---	---	---	---	---	---	---	---
Lockerby	0-1	Silty clay loam	CL	A-6	0	0	100	100	80-100	45-65	30-40	11-15
	1-11	Clay	CL	A-6	0	0	100	85-100	75-95	70-90	30-50	10-20
	11-15	Clay	CL, CH	A-7-6	0	0	100	100	75-95	70-90	40-60	15-30
	15-26	Clay	CL, CH	A-7-6	0	0	100	100	80-100	75-95	40-60	15-30
	26-40	Weathered bedrock			---	---	---	---	---	---	---	---
345:												
Rock outcrop	0	Unweathered bedrock			---	---	---	---	---	---	---	---
Tuces	0-1	Extremely gravelly clay loam	GC	A-2-6, A-2-7	0-25	10-30	25-45	20-40	20-35	20-30	35-45	15-20
	1-4	Clay	CH	A-7-6	0	0	95-100	90-100	75-95	70-90	50-60	25-30
	4-24	Clay	CH	A-7-6	0	0	95-100	90-100	75-95	70-90	50-60	25-30
	24-40	Weathered bedrock			---	---	---	---	---	---	---	---
350:												
Toldohn	0-4	Gravelly clay loam	CL	A-6, A-7-6	0-10	0-10	80-100	75-95	65-85	60-80	35-45	15-20
	4-11	Clay	CH, CL	A-7-6	0-10	0-10	100	100	70-90	70-90	45-60	20-30
	11-20	Weathered bedrock			---	---	---	---	---	---	---	---
Vessilla	0-2	Fine sandy loam	SC-SM	A-4	0	0-15	80-100	75-100	70-90	40-60	15-30	4-7
	2-11	Fine sandy loam	SC-SM	A-4	0	0-15	80-100	75-100	70-90	40-60	15-30	4-7
	11-20	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop	0	Unweathered bedrock			---	---	---	---	---	---	---	---
351:												
Rock outcrop	0	Unweathered bedrock			---	---	---	---	---	---	---	---
Vessilla	0-5	Fine sandy loam	SC-SM, SM	A-2-4, A-4	0	0-15	80-100	75-100	70-90	30-50	15-30	1-7
	5-20	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--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	
352:												
Zia	0-3	Sandy loam	SC-SM	A-4	0	0	100	100	70-90	45-65	20-30	4-7
	3-31	Sandy loam, loamy sand	SM, SC-SM	A-4	0	0	100	100	65-85	40-60	15-25	1-7
	31-65	Fine sandy loam	SC-SM	A-4	0	0	95-100	90-100	80-100	40-60	15-25	4-7
353:												
Mido	0-3	Loamy fine sand	SM	A-2-4	0	0	100	100	85-95	25-35	0-14	1-4
	3-65	Loamy fine sand	SM	A-2-4	0	0	100	100	80-95	20-35	5-15	1-4
354:												
Knifehill	0-2	Loam	CL	A-6	0	0	100	100	80-100	70-90	25-35	10-15
	2-6	Clay loam	CL	A-6, A-7-6	0	0	100	100	80-100	75-90	35-45	15-20
	6-11	Clay loam	CL	A-6, A-7-6	0	0	100	100	80-100	75-90	35-45	15-20
	11-26	Clay	CH, CL	A-7-6	0	0	100	100	85-100	80-95	45-55	20-30
	26-35	Clay	CH, CL	A-7-6	0	0	100	100	85-100	80-95	45-55	20-30
	35-65	Clay, clay loam	CH, CL	A-7-6	0	0	100	100	85-100	80-95	40-55	15-30
355:												
Rizno	0-3	Sandy loam	SC-SM	A-2-4, A-4	0	0	75-100	70-100	65-85	30-50	15-25	4-7
	3-8	Sandy loam, fine sandy loam, channery sandy loam	SC-SM	A-2-4, A-4	0	0	80-100	75-100	65-85	30-50	15-25	4-7
	8-20	Unweathered bedrock			---	---	---	---	---	---	---	---
Tekapo	0-2	Channery silty clay loam	CL	A-6, A-7-6	0	0	75-95	70-90	65-85	60-80	35-45	15-20
	2-10	Silty clay, silty clay loam	CH, CL	A-7-6	0	0	90-100	85-100	80-100	75-95	40-55	20-30
	10-20	Weathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop	0	Unweathered bedrock			---	---	---	---	---	---	---	---
357:												
Heshotauthla	0-3	Clay	CH, CL	A-7-6	0	0	100	100	90-100	80-90	45-55	20-30
	3-18	Clay	CH	A-7-6	0	0	100	100	90-100	80-90	50-65	30-45
	18-65	Clay	CH	A-7-6	0	0	100	100	90-100	80-90	50-65	30-45
360:												
Hosta	0-2	Loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	70-90	65-85	20-35	5-15
	2-4	Clay loam	CL	A-6, A-7-6	0	0	95-100	90-100	80-100	70-90	35-45	15-20
	4-24	Clay loam	CL	A-6, A-7-6	0	0	95-100	90-100	80-100	70-90	35-45	15-20
	24-51	Clay	CH, CL	A-7-6	0	0	100	100	80-100	75-95	45-60	20-30
	51-65	Sandy clay loam	CL, SC	A-6	0	0	95-100	90-100	50-70	45-65	30-35	10-15
Concho	0-1	Clay loam	CL	A-6, A-7-6	0	0	100	95-100	80-100	70-90	35-45	15-20
	1-5	Clay	CH, CL	A-7-6	0	0	100	100	80-100	75-95	45-60	20-35
	5-32	Clay	CH, CL	A-7-6	0	0	100	100	80-100	75-95	45-60	20-35
	32-51	Clay	CH, CL	A-7-6	0	0	100	100	80-100	75-95	45-60	20-35
	51-65	Clay	CH, CL	A-7-6	0	0	100	100	80-100	75-95	45-60	20-35

Table 14.--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	
361:												
Monpark	0-4	Silty clay	CH, CL	A-7-6	0	0	100	100	80-100	75-95	45-60	25-35
	4-7	Silty clay, silty clay loam	CH, CL	A-7-6	0	0	100	100	80-100	75-95	40-60	20-40
	7-27	Clay	CH, CL	A-7-6	0	0	100	100	80-100	75-95	45-65	25-45
	27-40	Weathered bedrock			---	---	---	---	---	---	---	---
365:												
Vessilla	0-2	Fine sandy loam	SC-SM	A-4	0	0	80-100	75-95	50-70	40-60	20-30	4-7
	2-6	Fine sandy loam	SC-SM	A-4	0	0	90-100	85-100	60-80	45-65	20-30	4-7
	6-15	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-4	0	0	90-100	85-100	60-80	45-65	20-30	NP-10
	15-20	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop	0	Unweathered bedrock			---	---	---	---	---	---	---	---
366:												
Bosonoak	0-2	Loam	CL	A-6	0	0	100	95-100	80-100	60-80	25-35	10-15
	2-5	Clay loam	CL	A-6	0	0	100	95-100	60-80	50-70	35-45	15-20
	5-28	Clay loam	CL	A-6	0	0	100	95-100	60-80	50-70	35-45	15-20
	28-40	Loam	CL	A-6	0	0	100	95-100	80-100	60-80	25-35	10-15
	40-63	Loam	CL	A-6	0	0	100	95-100	80-100	60-80	25-35	10-15
	63-80	Silt loam	CL-ML	A-4	0	0	100	95-100	80-100	75-95	20-30	4-7
367:												
Chunkmonk	0-1	Very gravelly fine sandy loam	GM	A-1-b, A-2-4, A-4	0	5-15	35-55	30-50	25-45	20-40	10-20	1-4
	1-4	Very cobbly loam	GC-GM, GC	A-2-4, A-4	0	30-60	50-70	45-65	35-55	30-50	15-30	7-10
	4-8	Gravelly loam	SC	A-4	0	5-15	60-80	55-75	50-70	40-60	15-30	7-10
	8-10	Gravelly loam	SC	A-4	0	5-15	60-80	55-75	50-70	40-60	15-30	7-10
	10-20	Unweathered bedrock			---	---	---	---	---	---	---	---
368:												
Simitarq	0-1	Sandy loam	SC-SM, SM	A-2-4, A-4	0	0-10	75-95	70-90	40-60	30-50	15-25	1-7
	1-6	Sandy clay loam	CL, SC	A-6	0	0-10	80-100	75-95	50-70	45-65	30-40	10-15
	6-14	Sandy clay	CL, SC	A-7-6	0	0-10	80-100	75-95	40-60	35-55	40-50	15-25
	14-20	Unweathered bedrock			---	---	---	---	---	---	---	---
Celavar	0-1	Slightly decomposed plant material			---	---	---	---	---	---	---	---
	1-2	Sandy loam	SC, SC-SM	A-2-4	0	0	95-100	90-100	80-90	15-25	20-25	5-10
	2-11	Sandy clay loam	SC	A-2-6	0	0	100	95-100	80-95	20-35	30-35	10-15
	11-27	Sandy clay loam	SC	A-2-6	0	0	100	95-100	80-90	15-35	30-35	10-15
	27-31	Sandy clay loam	SC	A-2-6	0	0	95-100	90-100	80-90	15-35	35-40	15-20
	31-40	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--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	
375:												
Todest	0-1	Fine sandy loam	SC-SM	A-2-4, A-4	0	0	95-100	85-100	65-85	30-50	20-25	4-7
	1-3	Fine sandy loam	SC-SM, SC	A-4	0	0	100	95-100	70-90	35-55	20-30	4-10
	3-10	Sandy clay loam	SC	A-4	0	0	100	95-100	70-90	35-55	30-40	7-15
	10-18	Sandy clay loam	SC	A-4	0	0	100	95-100	70-90	35-55	30-40	7-15
	18-25	Loam	CL	A-4	0	0	95-100	90-100	75-85	55-75	20-30	7-10
	25-40	Unweathered bedrock			---	---	---	---	---	---	---	---
Shadilto	0-1	Very gravelly sandy loam	GC-GM, GM	A-2-4	0	0-15	30-50	25-45	15-35	5-25	15-25	1-7
	1-9	Sandy loam	SC-SM, SM	A-2-4, A-4	0	0	85-100	80-100	50-70	30-50	15-25	1-7
	9-13	Sandy loam	SC-SM, SM	A-2-4, A-4	0	0-10	80-100	75-95	45-65	30-50	15-25	1-7
	13-15	Sandy loam	SC-SM, SM	A-2-4, A-4	0	0-10	80-100	75-95	45-65	30-50	15-25	1-7
	15-20	Unweathered bedrock			---	---	---	---	---	---	---	---
376:												
Todest	0-1	Fine sandy loam	SC-SM	A-2-4, A-4	0	0	90-100	85-100	60-80	30-50	20-30	4-7
	1-8	Sandy clay loam	SC	A-6	0	0	95-100	90-100	70-90	40-50	30-40	10-15
	8-14	Sandy clay loam	SC	A-6	0	0-5	95-100	90-100	70-90	40-50	30-40	10-15
	14-24	Cobbly sandy clay loam	CL, SC	A-6	0	0-15	80-100	75-95	60-80	40-60	30-40	10-15
	24-40	Unweathered bedrock			---	---	---	---	---	---	---	---
380:												
Berryhill	0-2	Clay	CH, CL	A-7-6	0	0	90-100	80-100	80-100	75-95	45-55	20-30
	2-12	Clay	CH	A-7-6	0	0	100	100	90-100	80-100	50-65	25-40
	12-26	Clay	CH	A-7-6	0	0	100	100	90-100	80-100	50-65	25-40
	26-39	Clay	CH	A-7-6	0	0	100	100	90-100	80-100	50-65	25-40
	39-70	Clay	CH	A-7-6	0	0	100	100	90-100	80-100	50-65	25-40
Casamero	0-3	Clay	CH	A-7-6	0	0	90-100	85-100	75-95	70-90	60-75	35-50
	3-11	Clay	CH	A-7-6	0	0	100	100	90-100	80-100	65-85	40-60
	11-18	Clay	CH	A-7-6	0	0	100	100	90-100	80-100	65-85	40-60
	18-20	Weathered bedrock			---	---	---	---	---	---	---	---
385:												
Mcorreon	0-2	Extremely cobbly loam	GC	A-2-6	0-2	30-50	25-45	20-40	20-40	15-35	25-35	10-15
	2-5	Clay loam	CL	A-6, A-7-6	0	0-2	90-100	85-100	70-90	60-80	35-45	15-20
	5-16	Clay	CH, CL	A-7-6	0	0-2	100	95-100	80-100	75-95	45-65	20-40
	16-22	Clay	CH, CL	A-7-6	0	0-2	100	95-100	80-100	75-95	45-65	20-40
	22-70	Clay	CH, CL	A-7-6	0	0-2	90-100	85-100	75-95	70-90	45-65	20-40
	70-74	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop	0	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--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	
390:												
Banquito	0-2	Very fine sandy loam	CL-ML, SC-SM	A-4	0	0-5	80-100	75-95	70-90	45-55	20-30	4-7
	2-9	Clay loam	CL	A-6	0	0-10	95-100	90-100	55-75	55-75	30-40	10-20
	9-17	Loam	CL, SC	A-6	0	0-10	85-100	80-100	50-70	45-65	30-35	10-15
	17-22	Sandy clay loam	SC	A-2-6, A-6	0	0-10	85-100	80-100	40-60	25-45	30-40	10-15
	22-36	Sandy loam	SC-SM	A-2-4, A-4	0	0-10	85-100	80-100	35-55	20-40	20-30	4-7
	36-40	Unweathered bedrock			---	---	---	---	---	---	---	---
395:												
Cabezon	0-2	Very cobbly loam	GC	A-2-6	0-20	20-40	30-50	20-45	20-40	15-35	25-35	10-15
	2-6	Clay loam	CL	A-6, A-7-6	0	0-2	90-100	85-95	70-90	60-80	35-45	15-20
	6-14	Clay	CH, CL	A-7-6	0	0	90-100	85-95	75-95	10-90	45-65	20-40
	14-17	Weathered bedrock			---	---	---	---	---	---	---	---
	17-20	Unweathered bedrock			---	---	---	---	---	---	---	---
Mcorreon	0-2	Loam	CL	A-6	0-2	0-10	80-100	75-95	60-80	55-75	25-35	10-15
	2-13	Clay	CH, CL	A-7-6	0	0-2	85-100	80-100	80-100	75-95	45-65	20-40
	13-19	Clay	CH, CL	A-7-6	0	0-2	85-100	80-100	80-100	75-95	45-65	20-40
	19-27	Clay loam	CL	A-6, A-7-6	0	0-2	85-100	80-100	70-90	60-80	35-45	15-20
	27-70	Clay loam	CL	A-6, A-7-6	0	0-2	85-100	80-100	70-90	60-80	35-45	15-20
	70-80	Unweathered bedrock			---	---	---	---	---	---	---	---
400:												
Shoemaker	0-2	Loamy fine sand	SC-SM, SM	A-2-4	0	0-10	90-100	85-100	70-90	20-35	15-25	1-7
	2-7	Fine sandy loam	SC-SM	A-2-4, A-4	0	0-10	90-100	85-100	70-90	25-45	20-30	4-7
	7-20	Sandy clay loam	SC	A-6	0	0-10	90-100	85-100	55-80	40-60	25-35	7-15
	20-28	Sandy clay loam	SC	A-6	0	0-10	90-100	85-100	55-80	40-60	30-40	7-15
	28-40	Unweathered bedrock			---	---	---	---	---	---	---	---
Stozuni	0-2	Sandy loam	SC-SM, SM	A-2-4	0	0	100	100	55-75	15-35	15-30	1-7
	2-10	Fine sandy loam	SC-SM	A-2-4	0	0	100	100	70-90	15-35	15-30	4-7
	10-15	Fine sandy loam	SC-SM	A-2-4	0	0	100	100	70-90	15-35	15-30	4-7
	15-20	Unweathered bedrock			---	---	---	---	---	---	---	---
403:												
Valnor	0-2	Clay loam	CL	A-6	0	0	90-100	85-100	55-75	55-75	35-40	15-20
	2-4	Clay loam	CL	A-6	0	0	100	95-100	60-80	60-80	35-40	15-20
	4-20	Clay	CH, CL	A-7-6	0	0	100	100	90-100	85-100	45-60	20-30
	20-34	Clay	CH, CL	A-7-6	0	0	100	100	90-100	85-100	45-60	20-30
	34-40	Weathered bedrock			---	---	---	---	---	---	---	---
Techado	0-3	Gravelly clay	CH, CL	A-7-6	0	0-10	65-80	60-75	55-75	55-75	45-60	20-30
	3-13	Clay	CH, CL	A-7-6	0	0	100	100	90-100	85-100	45-60	20-30
	13-20	Weathered bedrock			---	---	---	---	---	---	---	---

Table 14.--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	
404:												
Rock outcrop----	0	Unweathered bedrock			---	---	---	---	---	---	---	---
Techado----------	0-5	Channery clay loam	CL	A-6, A-7-6	0	0-10	65-80	60-75	50-70	50-70	35-45	15-20
	5-8	Clay	CH, CL	A-7-6	0	0	100	100	90-100	85-100	45-65	25-45
	8-17	Clay	CH, CL	A-7-6	0	0	100	100	90-100	85-100	45-65	25-45
	17-20	Weathered bedrock			---	---	---	---	---	---	---	---
Stozuni----------	0-1	Gravelly sandy loam	SC-SM, SM	A-2-4, A-4	0	0-15	65-80	60-75	50-70	30-50	15-30	1-7
	1-7	Gravelly sandy loam	SC-SM	A-2-4, A-4	0	0-10	70-80	65-75	50-70	30-50	15-30	4-7
	7-20	Unweathered bedrock			---	---	---	---	---	---	---	---
405:												
Fortwingate-----	0-1	Slightly decomposed plant material			---	---	---	---	---	---	---	---
	1-4	Loam	CL, CL-ML	A-4, A-6	0	0-10	75-95	70-90	60-80	50-70	25-35	5-15
	4-9	Clay loam	CH, CL	A-7-6	0	0	100	90-100	70-90	60-80	45-55	25-35
	9-26	Clay	CH	A-7-6	0	0	100	95-100	80-100	75-95	55-65	35-40
	26-40	Unweathered bedrock			---	---	---	---	---	---	---	---
Owlrock----------	0-1	Very gravelly loam	GC-GM	A-1-b, A-2-4	0-10	15-35	30-50	25-45	20-40	15-35	20-30	5-10
	1-6	Very cobbly loam	CL, GC, SC	A-6	5-15	55-75	60-80	55-75	45-65	40-60	30-35	10-15
	6-13	Very cobbly loam	SC, CL, GC	A-6	5-15	55-75	60-80	55-75	45-65	40-60	30-35	10-15
	13-20	Unweathered bedrock			---	---	---	---	---	---	---	---
406:												
Polich----------	0-13	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	80-100	75-95	25-35	5-15
	13-23	Loam	CL	A-6	0	0	100	95-100	85-95	60-90	25-35	10-15
	23-40	Clay loam	CL	A-6, A-7-6	0	0	100	95-100	90-100	75-95	35-45	15-20
	40-48	Clay loam	CL	A-6, A-7-6	0	0	100	95-100	80-95	75-90	35-45	15-20
	48-58	Clay loam	CH, CL	A-6, A-7-6	0	0	100	95-100	80-100	75-95	35-55	15-30
	58-70	Loam, silt loam	CL	A-6	0	0	100	95-100	85-95	60-90	25-35	10-15

Table 14.--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	
407:												
Cinnadale-------	0-2	Very channery fine sandy loam	GC-GM, GM	A-1-b, A-2-4	0	0-10	40-60	35-55	25-45	15-30	15-25	1-7
	2-9	Very channery fine sandy loam, very gravelly fine sandy loam	GC-GM, GM	A-1-b, A-2-4	0-5	10-30	40-60	35-55	25-45	15-30	15-25	1-7
	9-15	Very channery fine sandy loam	GC-GM, GM	A-1-b, A-2-4	0	10-30	40-60	35-55	25-45	15-30	15-25	1-7
	15-20	Unweathered bedrock			---	---	---	---	---	---	---	---
Heckly----------	0-3	Extremely channery sandy loam	GC-GM	A-1, A-2-4	0-10	10-25	20-40	15-35	10-30	5-25	20-30	5-10
	3-15	Channery clay	CH, CL, GC, SC	A-7-6	0	0	60-80	55-75	45-65	40-60	45-55	25-35
	15-38	Very channery silty clay loam	GC	A-2-7, A-7-6	0	0	45-65	40-60	30-50	25-45	40-50	15-25
	38-40	Unweathered bedrock			---	---	---	---	---	---	---	---
408:												
Mirabal---------	0-1	Slightly decomposed plant material			---	---	---	---	---	---	---	---
	1-2	Extremely gravelly loamy sand	GC-GM, GM	A-1-a	15-30	15-30	15-35	10-30	5-25	5-15	15-20	1-4
	2-6	Gravelly sandy loam	GC-GM, SC-SM	A-2-4	0	5-10	65-85	40-50	20-40	20-40	15-20	4-7
	6-13	Very gravelly sandy loam	GC-GM, SC-SM	A-1, A-2-4	0-5	5-15	40-60	35-55	15-35	5-25	15-20	4-7
	13-30	Extremely gravelly sandy loam	GC-GM	A-1-a, A-2-4	10-25	10-25	15-35	10-30	5-25	5-15	15-20	4-7
	30-40	Unweathered bedrock			---	---	---	---	---	---	---	---
Zuni------------	0-1	Slightly decomposed plant material			---	---	---	---	---	---	---	---
	1-3	Gravelly sandy loam	SC-SM, SM	A-1-b	0	0-5	55-75	50-70	15-35	10-20	15-20	1-7
	3-18	Gravelly sandy clay	GC, SC	A-2-7, A-7-6	0	0-5	60-80	55-75	40-60	30-50	50-65	30-40
	18-27	Gravelly sandy clay	GC, SC	A-2-7, A-7-6	0	0	60-80	55-75	40-60	30-50	50-65	30-40
	27-40	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--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	
409:												
Rauster	0-1	Clay loam	CL	A-7-6	0	0	90-100	85-100	80-100	60-80	25-50	10-25
	1-5	Clay	CH	A-7-6	0	0	100	100	80-100	70-90	55-65	30-40
	5-28	Clay	CH	A-7-6	0	0	100	100	80-100	75-95	55-65	30-40
	28-55	Clay	CH	A-7-6	0	0	100	100	80-100	75-95	55-65	30-40
	55-60	Weathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop	0	Unweathered bedrock			---	---	---	---	---	---	---	---
410:												
Montillo	0-3	Very gravelly loam	CL, SC	A-6	0-2	0-15	65-85	60-80	50-70	40-60	30-40	10-20
	3-8	Silty clay loam	CH, CL	A-7-6	0	0-10	85-100	80-100	75-95	70-90	40-55	30-35
	8-15	Silty clay	CH	A-7-6	0	0-10	85-100	80-100	80-100	75-95	55-75	30-50
	15-27	Clay	CH	A-7-6	0	0-10	85-100	80-100	80-100	75-95	65-85	40-60
	27-32	Very gravelly clay	CH, GC	A-2-7, A-7-6	0	0-10	50-70	45-65	40-60	30-55	55-75	30-50
	32-40	Unweathered bedrock			---	---	---	---	---	---	---	---
Tsoodzil	0-3	Very gravelly silt loam	GM	A-2-4	0	0	40-55	25-45	25-35	10-20	20-30	4-7
	3-10	Silty clay loam	CL	A-6, A-7-6	0	5-20	95-100	90-100	80-100	75-95	35-45	15-25
	10-21	Clay	CH	A-7-6	0	0-2	95-100	90-100	85-100	80-100	60-70	45-55
	21-46	Clay	CH	A-7-6	0	5-10	95-100	90-100	85-100	80-100	65-75	45-55
	46-70	Gravelly clay loam, gravelly clay	CH, CL	A-7-6	0-2	5-15	80-100	75-95	75-95	70-90	40-60	20-40
411:												
Ligocki	0-2	Fine sandy loam	SC-SM	A-4	0	0	100	100	70-90	35-55	20-25	4-7
	2-8	Fine sandy loam	SC-SM	A-4	0	0	100	100	70-90	35-55	20-25	4-7
	8-21	Clay	CH, CL	A-7-6	0	0	100	100	80-100	70-90	45-55	20-30
	21-30	Clay loam	CL	A-6, A-7-6	0	0	95-100	95-100	75-95	65-85	35-45	15-25
	30-41	Gravelly sandy clay loam	SC	A-2-6, A-6	0	0	80-100	75-95	55-75	20-40	30-35	10-15
	41-70	Sandy clay loam	SC	A-6	0	0	100	100	75-95	40-60	30-35	7-15
Robolata	0-6	Loam	CL	A-6	0	0	100	100	80-100	60-80	25-30	10-15
	6-12	Loam	CL	A-6	0	0	100	100	80-100	60-80	30-35	10-15
	12-20	Clay	CH, CL	A-7-6	0	0	100	100	80-100	75-95	45-55	20-30
	20-30	Clay loam	CL	A-6, A-7-6	0	0	100	100	80-100	70-90	35-45	15-20
	30-50	Sandy clay loam	CL, SC	A-6	0	0	95-100	90-100	65-85	35-55	30-40	10-15
	50-70	Very gravelly sandy loam	GM	A-1-a, A-1-b	0	0	30-40	15-25	10-25	5-15	15-25	1-4
412:												
Rock outcrop	0	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--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	
412:												
Rionutria	0-3	Very gravelly loam	CL	A-2-6, A-6	10-25	15-30	45-65	40-65	34-60	34-60	25-35	10-15
	3-12	Very cobbly clay loam	GC, SC	A-2-7, A-7-6	5-15	30-50	50-70	45-65	35-50	30-45	40-50	20-25
	12-24	Very cobbly clay loam	CL, GC, SC	A-7-6	5-15	35-55	70-90	65-85	50-70	40-60	40-50	20-25
	24-40	Unweathered bedrock			---	---	---	---	---	---	---	---
Zaster	0-3	Extremely gravelly loam	GC-GM, GC	A-1-a, A-1-b, A-2-4	10-20	20-30	15-35	10-30	10-25	10-20	20-30	4-10
	3-11	Gravelly loam	CL, SC-SM	A-4	0-5	5-15	70-90	65-85	50-70	40-60	20-30	4-10
	11-27	Extremely gravelly loam	GC	A-1-b, A-2-4	10-20	20-40	35-45	20-40	15-30	15-25	20-30	4-10
	27-40	Unweathered bedrock			---	---	---	---	---	---	---	---
413:												
Morclay	0-1	Silty clay	CH	A-7-6	0	0	100	100	85-100	80-95	55-75	35-50
	1-5	Clay	CH	A-7-6	0	0	100	100	80-100	75-95	55-75	35-50
	5-48	Clay	CH	A-7-6	0	0	100	100	80-100	75-95	55-75	35-50
	48-56	Clay	CH	A-7-6	0	0	100	100	80-100	75-95	55-75	35-50
	56-70	Clay	CH	A-7-6	0	0	100	100	80-100	75-95	55-75	35-50
	70-80	Weathered bedrock			---	---	---	---	---	---	---	---
414:												
Zunalei	0-1	Loamy fine sand	SM	A-2-4, A-4	0	0	100	100	65-85	20-40	10-15	1-4
	1-6	Fine sandy loam	SC-SM	A-4	0	0	100	100	70-90	40-60	15-20	4-7
	6-20	Sandy clay loam	SC	A-6	0	0	100	100	75-95	45-65	30-40	10-20
	20-50	Fine sandy loam	SC-SM	A-4	0	0	100	100	70-90	40-60	15-25	4-7
	50-70	Fine sandy loam	SC-SM	A-4	0	0	100	100	70-90	40-60	15-25	4-7
Corzuni	0-1	Slightly decomposed plant material			---	---	---	---	---	---	---	---
	1-8	Loamy fine sand	SM	A-2-4, A-4	0	0	100	100	65-85	20-40	10-15	1-4
	8-29	Fine sandy loam	SC-SM	A-4	0	0	100	100	70-90	40-60	15-25	4-7
	29-45	Fine sandy loam	SC-SM	A-4	0	0	100	100	70-90	40-60	15-25	4-7
	45-70	Fine sandy loam	SC-SM	A-4	0	0	100	100	70-90	40-60	15-25	4-7
415:												
Tsoodzil	0-3	Very cobbly loam	GC, GC-GM	A-2-4, A-4	0-5	30-50	55-75	50-70	40-60	30-50	25-35	5-10
	3-7	Clay loam	CL	A-6, A-7-6	0	0-10	95-100	90-100	70-90	60-80	35-45	15-25
	7-22	Gravelly clay	CH, CL	A-7-6	0	0-10	80-100	75-100	75-95	70-90	45-65	20-40
	22-65	Clay	CH, CL	A-7-6	0	0-10	95-100	90-100	80-100	75-95	45-65	20-40
Rubble Land	0				---	---	---	---	---	---	---	---

Table 14.--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	
416:												
Rock outcrop----	0	Unweathered bedrock			---	---	---	---	---	---	---	---
Bluesky----------	0-5	Fine sand	SW-SM	A-2-4	0	0	90-100	85-100	65-85	10-30	0-0	NP
	5-8	Fine sand	SW-SM	A-2-4	0	0	90-100	85-100	65-85	10-30	0-0	NP
	8-20	Unweathered bedrock			---	---	---	---	---	---	---	---
418:												
Asaayi-----------	0-1	Slightly decomposed plant material			---	---	---	---	---	---	---	---
	1-3	Very gravelly fine sandy loam	GC-GM, SC-SM	A-2-4, A-4	0-5	0-10	70-90	65-85	55-75	30-50	15-20	4-7
	3-5	Fine sandy loam	SC	A-4	0-5	0-10	85-95	70-90	55-75	30-50	15-25	7-10
	5-16	Clay loam	CL	A-7-6	0	0	85-100	80-95	70-80	60-80	40-45	20-25
	16-20	Unweathered bedrock			---	---	---	---	---	---	---	---
Osoridge---------	0-2	Very gravelly clay loam	SC	A-2-7, A-7-6	0-10	0-10	50-70	45-65	35-55	30-50	45-55	25-35
	2-6	Clay	CH	A-7-6	0	0-5	90-100	85-100	70-90	65-85	55-65	35-40
	6-18	Clay	CH	A-7-6	0	0	100	100	80-100	75-95	55-65	35-40
	18-20	Unweathered bedrock			---	---	---	---	---	---	---	---
419:												
Fortwingate------	0-5	Very cobbly loam	GC-GM, GC	A-2-4, A-4	20-40	10-30	70-90	65-85	35-55	30-50	20-25	5-10
	5-13	Clay	CH	A-7-6	0	0	90-100	85-100	70-90	65-85	50-55	25-30
	13-21	Clay loam	CL	A-7-6	0	0	95-100	90-100	80-90	70-90	40-50	20-25
	21-26	Clay loam, clay	CH, CL	A-7-6	0	0	90-100	85-100	70-90	60-80	45-55	20-30
	26-40	Unweathered bedrock			---	---	---	---	---	---	---	---
Cinnadale--------	0-6	Extremely stony sandy loam	GC-GM, GM	A-1-b, A-2-4	25-40	25-40	35-55	30-50	20-40	10-30	10-25	1-7
	6-11	Very gravelly fine sandy loam	GC-GM, GM	A-1-b, A-2-4	0-5	10-30	40-60	35-55	25-45	15-30	10-25	1-7
	11-20	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0	Unweathered bedrock			---	---	---	---	---	---	---	---
420:												
Seco-------------	0-3	Clay loam	CL	A-7-6	0	0	100	100	80-100	70-90	40-45	15-20
	3-11	Clay	CH	A-7-6	0	0	100	100	90-100	80-100	60-70	40-50
	11-23	Clay	CH	A-7-6	0	0	100	100	90-100	80-100	65-75	45-55
	23-58	Clay	CH	A-7-6	0	0	100	100	90-100	80-100	65-75	45-55
	58-70	Clay	CH	A-7-6	0	0	100	100	90-100	80-100	65-75	45-55

Table 14.--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	
425:												
Montillo	0-2	Gravelly loam	CL	A-6	0-2	0-10	95-100	80-100	60-80	50-70	30-40	10-20
	2-8	Clay	CH	A-7-6	0	0-10	95-100	90-100	75-95	70-90	55-65	30-40
	8-18	Gravelly clay	CL	A-7-6	0	0-10	70-90	65-85	60-80	50-70	41-50	20-30
	18-35	Very cobbly clay	CH, GC, SC	A-7-6	0-10	35-55	60-80	55-75	50-70	40-60	65-75	40-50
	35-40	Unweathered bedrock			---	---	---	---	---	---	---	---
Canoneros	0-2	Very cobbly loam	CL, GC, SC	A-6	0-10	0-40	70-90	65-85	50-70	45-65	25-40	10-25
	2-8	Clay loam	CH, CL	A-7-6	0	0-10	80-100	75-95	60-80	50-70	45-55	25-35
	8-13	Clay	CH	A-7-6	0	0-10	80-100	75-95	70-90	60-80	60-75	35-50
	13-20	Unweathered bedrock			---	---	---	---	---	---	---	---
430:												
Montillo	0-4	Gravelly loam	CL	A-6	0-2	0-10	95-100	80-100	60-80	50-70	30-40	10-20
	4-13	Clay	CH, CL	A-7-6	0	0-10	95-100	90-100	75-95	70-90	45-55	20-25
	13-31	Clay	CH	A-6	0	0	90-100	85-100	80-100	75-95	30-55	20-30
	31-38	Gravelly clay	CH	A-7-6	0	0-10	70-90	65-85	60-80	50-70	55-65	30-40
	38-40	Unweathered bedrock			---	---	---	---	---	---	---	---
435:												
Tsoodzil	0-3	Very gravelly loam	GC, GC-GM	A-2-4, A-4	0-2	10-20	50-70	40-60	35-55	30-50	25-35	5-10
	3-11	Clay	CH, CL	A-7-6	0	0-10	90-100	85-100	75-95	70-90	45-55	20-30
	11-25	Clay	CH	A-7-6	0	0-10	90-100	85-100	80-100	75-95	65-75	45-55
	25-32	Gravelly clay	CH, CL	A-7-6	0-5	10-20	85-100	80-100	75-95	70-90	45-65	20-40
	32-65	Extremely gravelly clay loam	GC	A-2-6, A-2-7	0-5	15-25	25-45	20-40	20-40	15-30	35-45	15-20
Amcec	0-4	Extremely gravelly loam	GC	A-1-a, A-2-4	0-2	10-15	20-30	15-25	15-25	13-20	25-35	5-10
	4-16	Very gravelly loam, very gravelly clay loam	GC	A-2-6, A-6	0	5-15	40-60	35-55	25-45	25-45	25-35	10-15
	16-39	Extremely gravelly coarse sandy loam	GM	A-1-a	0	5-15	20-30	15-25	15-25	13-20	20-30	1-4
	39-53	Extremely gravelly loamy coarse sand	GM	A-1-a	5-10	5-15	20-30	15-25	15-25	13-20	15-25	1-4
	53-70	Extremely gravelly loamy coarse sand	GM	A-1-a	10-30	10-30	20-30	15-25	15-25	13-20	15-25	1-4
440:												
Chivato	0-2	Clay	CH	A-7-6	0	0	100	100	100	95-100	50-60	25-35
	2-13	Clay	CH	A-7-6	0	0	100	100	100	95-100	60-75	40-55
	13-40	Clay	CH	A-7-6	0	0	100	100	100	95-100	60-75	40-55
	40-52	Clay	CH	A-7-6	0	0	100	100	100	95-100	60-75	40-55
	52-65	Clay	CH	A-7-6	0	0	100	100	100	95-100	60-75	40-55

Table 14.--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	
525:												
Silcat	0-2	Clay loam	CL	A-6, A-7-6	0	0	95-100	90-100	85-100	60-70	35-45	15-20
	2-38	Clay	CH	A-7-6	0	0	100	95-100	95-100	80-90	50-60	25-35
	38-65	Clay	CH, CL	A-7-6	0	0	100	95-100	95-100	85-95	45-60	25-35
550:												
Bryway	0-2	Loam	CL, CL-ML	A-4, A-6	0	0	90-100	85-100	75-95	70-90	20-35	5-15
	2-6	Clay, clay loam	CH, CL	A-7-6	0	0	100	100	75-95	70-90	40-60	15-30
	6-32	Clay	CH, CL	A-7-6	0	0	100	100	80-100	75-95	45-60	20-30
	32-40	Unweathered bedrock			---	---	---	---	---	---	---	---
Galzuni	0-2	Loam	CL	A-6	0	0	90-100	85-100	80-100	70-90	25-35	10-15
	2-4	Clay	CH, CL	A-7-6	0	0	100	100	80-100	75-95	45-60	20-30
	4-23	Clay	CH, CL	A-7-6	0	0	100	100	80-100	75-95	45-60	20-30
	23-32	Clay loam	CL	A-6, A-7-6	0	0	100	100	80-100	70-90	35-45	15-20
	32-52	Sandy clay	CL, SC	A-7-6	0	0	100	100	40-60	35-55	40-50	15-25
	52-65	Sandy clay loam	SC	A-6	0	0	100	100	70-90	40-50	25-40	10-20
555:												
Parkelei	0-3	Fine sandy loam	SC-SM	A-4	0	0	100	100	75-95	50-70	20-30	4-7
	3-12	Clay loam	CL	A-6	0	0	100	100	70-90	65-85	35-40	15-20
	12-21	Sandy clay loam	SC	A-6	0	0	100	100	70-90	40-50	30-40	15-20
	21-65	Sandy loam	SC-SM	A-4	0	0	100	100	70-90	50-70	20-30	4-7
Evpark	0-3	Fine sandy loam	SC-SM	A-4	0	0	90-100	85-100	70-90	50-70	20-30	4-7
	3-16	Clay loam, loam	CL	A-6	0	0	100	100	80-100	70-90	35-40	15-20
	16-20	Clay loam	CL	A-6	0	0	100	100	80-100	70-90	35-40	15-20
	20-29	Sandy clay loam	SC	A-6	0	0	100	100	70-90	40-50	30-40	10-20
	29-35	Sandy clay loam	CL	A-6	0	0	100	100	70-90	55-75	30-40	10-20
	35-40	Unweathered bedrock			---	---	---	---	---	---	---	---
560:												
Flugle	0-3	Fine sandy loam	SC-SM	A-4	0	0	100	100	45-65	40-60	20-30	4-7
	3-35	Sandy clay loam	SC	A-6	0	0	100	100	60-80	45-65	30-40	10-20
	35-65	Fine sandy loam	SC-SM	A-4	0	0	100	100	45-65	40-60	20-30	4-7
Teczuni	0-2	Loam	CL	A-6	0	0	100	95-100	70-90	65-85	25-35	10-15
	2-16	Clay loam	CL	A-6, A-7-6	0	0	100	100	75-95	65-85	35-45	15-20
	16-33	Clay loam	CL	A-7-6	0	0	100	100	85-100	75-90	40-45	15-20
	33-65	Clay	CH, CL	A-7-6	0	0	100	100	80-100	75-95	45-55	20-30
561:												
Flugle	0-3	Fine sandy loam	SC-SM	A-4	0	0	100	100	45-65	40-60	20-30	4-7
	3-17	Sandy clay loam	SC	A-6	0	0	100	100	60-80	45-65	30-40	10-20
	17-65	Fine sandy loam	SC-SM	A-4	0	0	100	100	45-65	40-60	20-30	4-7
Plumasano	0-2	Sandy loam	SC-SM	A-4	0	0	100	95-100	65-85	40-60	20-30	4-7
	2-11	Sandy loam	SC-SM	A-4	0	0	100	95-100	65-85	40-60	20-30	4-7
	11-27	Sandy loam	SC-SM	A-4	0	0	100	95-100	65-85	40-60	20-30	4-7
	27-43	Fine sandy loam	SC-SM	A-4	0	0	100	95-100	75-95	45-65	20-30	4-7
	43-53	Fine sandy loam	SC-SM	A-4	0	0	100	95-100	75-95	45-65	20-30	4-7
	53-65	Sandy clay loam	SC	A-6	0	0	100	95-100	45-65	40-60	30-40	10-15

Table 14.--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	
565:												
Plumasano	0-3	Sandy loam	SC-SM	A-4	0	0	100	95-100	65-85	40-60	20-30	4-7
	3-24	Sandy loam	SC-SM	A-4	0	0	100	95-100	65-85	40-60	20-30	4-7
	24-36	Loamy sand	SM	A-2, A-4	0	0	100	95-100	60-80	30-50	10-20	1-4
	36-65	Fine sandy loam	SC-SM	A-4	0	0	100	95-100	65-85	40-60	20-30	4-7
Rock outcrop	0	Unweathered bedrock			---	---	---	---	---	---	---	---
566:												
Bamac	0-2	Extremely gravelly sandy loam	GC-GM	A-2-4	0	0-10	20-40	15-35	10-30	5-25	15-25	4-7
	2-8	Gravelly sandy loam	SC-SM, SM	A-2-4, A-4	0	0-10	60-80	55-75	35-55	20-45	15-25	NP-7
	8-30	Extremely gravelly coarse sand	GW-GM, GM	A-1-a	0	0-10	25-45	20-40	10-20	5-15	0-0	NP
	30-63	Very cobbly coarse sand	GW-GM, GM	A-1-a	0	15-30	25-45	20-40	10-20	5-15	0-0	NP
575:												
Ramah	0-3	Sandy loam	SC-SM	A-4	0	0	100	100	70-90	50-70	20-30	4-7
	3-8	Sandy clay loam	SC	A-6	0	0	100	100	70-90	40-50	30-40	10-15
	8-15	Clay loam	CL	A-7-6	0	0	100	100	75-95	65-85	40-45	15-20
	15-33	Clay loam	CL	A-6, A-7-6	0	0	100	100	75-95	65-85	35-45	15-20
	33-41	Clay loam	CL	A-6, A-7-6	0	0	100	100	75-95	65-85	35-45	15-20
	41-62	Sandy clay loam	CL, SC	A-6	0	0	100	100	45-65	40-60	30-35	10-15
Pescado	0-3	Fine sandy loam	SC-SM	A-2, A-4	0	0	90-100	85-100	70-90	30-50	20-30	4-7
	3-10	Sandy clay loam	SC	A-6	0	0	95-100	90-100	70-90	40-60	30-40	10-20
	10-16	Clay loam	CL	A-6	0	0	95-100	90-100	60-80	50-70	35-40	15-20
	16-20	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 15.--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. Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
8:												
Water	---	---	---	---	---	---	---	---	---	-	---	---
10:												
Tsosie	0-2	10-20	1.45-1.55	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28	5	3	86
	2-7	10-20	1.45-1.55	2.00-6.00	0.13-0.15	0.0-2.9	0.0-0.5	.28	.28			
	7-13	10-25	1.25-1.35	0.60-2.00	0.19-0.21	0.0-2.9	0.0-0.5	.43	.43			
	13-35	20-30	1.35-1.45	0.60-2.00	0.14-0.16	0.0-2.9	0.0-0.5	.32	.32			
	35-47	27-35	1.35-1.45	0.20-0.60	0.19-0.21	3.0-5.9	0.0-0.5	.32	.32			
	47-65	18-27	1.35-1.45	0.60-2.00	0.16-0.18	0.0-2.9	0.0-0.5	.37	.37			
Councelor	0-2	10-20	1.45-1.55	2.00-6.00	0.13-0.15	0.0-2.9	0.2-0.6	.28	.28	5	3	86
	2-20	10-20	1.45-1.55	2.00-6.00	0.13-0.15	0.0-2.9	0.2-0.6	.28	.28			
	20-47	5-20	1.45-1.55	2.00-6.00	0.11-0.13	0.0-2.9	0.2-0.6	.24	.24			
	47-65	10-20	1.25-1.35	0.60-2.00	0.19-0.21	0.0-2.9	0.2-0.6	.43	.43			
Blancot	0-3	10-20	1.45-1.55	2.00-6.00	0.13-0.15	0.0-2.9	0.5-0.9	.28	.28	4	3	86
	3-11	27-35	1.40-1.50	0.20-0.60	0.10-0.11	3.0-5.9	0.5-0.9	.32	.32			
	11-16	20-35	1.40-1.50	0.60-2.00	0.07-0.08	0.0-2.9	0.5-0.9	.32	.32			
	16-37	10-20	1.45-1.55	2.00-6.00	0.06-0.07	0.0-2.9	0.2-0.6	.24	.24			
	37-65	5-15	1.45-1.55	6.00-20.00	0.06-0.08	0.0-2.9	0.2-0.6	.17	.17			
11:												
Doakum	0-2	5-15	1.45-1.55	2.00-6.00	0.13-0.15	0.0-2.9	0.8-1.0	.28	.28	5	3	86
	2-8	20-30	1.40-1.50	0.60-2.00	0.14-0.16	0.0-2.9	0.5-1.0	.32	.32			
	8-13	20-30	1.40-1.50	0.60-2.00	0.14-0.16	0.0-2.9	0.0-0.5	.32	.32			
	13-21	20-30	1.40-1.50	0.60-2.00	0.14-0.16	0.0-2.9	0.0-0.5	.32	.32			
	21-42	20-30	1.40-1.50	0.60-2.00	0.14-0.16	0.0-2.9	0.0-0.5	.32	.32			
	42-65	5-20	1.45-1.55	2.00-6.00	0.11-0.13	0.0-2.9	0.0-0.3	.24	.24			
Betonnie	0-3	5-15	1.55-1.65	2.00-6.00	0.11-0.13	0.0-2.9	1.0-2.0	.24	.24	5	3	86
	3-11	10-20	1.60-1.70	2.00-6.00	0.11-0.13	0.0-2.9	0.5-1.0	.24	.24			
	11-21	10-20	1.55-1.65	2.00-6.00	0.11-0.13	0.0-2.9	0.0-0.5	.24	.24			
	21-29	5-10	1.55-1.65	6.00-20.00	0.06-0.08	0.0-2.9	0.0-0.5	.17	.17			
	29-45	5-10	1.55-1.65	6.00-20.00	0.06-0.08	0.0-2.9	0.0-0.5	.17	.17			
	45-52	10-20	1.55-1.65	2.00-6.00	0.11-0.13	0.0-2.9	0.0-0.5	.24	.24			
	52-60	10-20	1.60-1.70	2.00-6.00	0.11-0.13	0.0-2.9	0.0-0.5	.24	.24			
12:												
Calladito	0-2	2-10	1.45-1.55	6.00-20.00	0.09-0.10	0.0-2.9	0.5-1.0	.20	.20	5	2	134
	2-26	2-10	1.55-1.65	6.00-20.00	0.06-0.08	0.0-2.9	0.0-0.5	.17	.17			
	26-65	2-10	1.45-1.55	6.00-20.00	0.09-0.10	0.0-2.9	0.0-0.5	.20	.20			
Elias	0-1	10-20	1.50-1.60	2.00-6.00	0.13-0.15	0.0-2.9	0.3-0.7	.28	.28	5	3	86
	1-3	20-35	1.45-1.55	0.20-0.60	0.11-0.12	0.0-2.9	0.3-0.7	.32	.32			
	3-10	20-35	1.45-1.55	0.20-0.60	0.11-0.12	0.0-2.9	0.3-0.7	.32	.32			
	10-18	2-10	1.60-1.70	2.00-6.00	0.07-0.08	0.0-2.9	0.2-0.5	.20	.20			
	18-33	20-35	1.55-1.65	0.20-0.60	0.07-0.08	0.0-2.9	0.2-0.5	.32	.32			
	33-65	30-40	1.55-1.65	0.06-0.20	0.10-0.11	3.0-5.9	0.2-0.5	.32	.32			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
13:												
Councelor	0-2	10-20	1.50-1.60	2.00-6.00	0.13-0.15	0.0-2.9	0.2-0.6	.28	.28	5	3	86
	2-15	10-20	1.50-1.60	2.00-6.00	0.13-0.15	0.0-2.9	0.2-0.6	.28	.28			
	15-19	27-35	1.45-1.55	0.20-0.60	0.19-0.21	3.0-5.9	0.2-0.6	.37	.37			
	19-42	5-10	1.50-1.60	6.00-20.00	0.09-0.10	0.0-2.9	0.2-0.6	.20	.20			
	42-55	20-30	1.45-1.55	0.60-2.00	0.16-0.18	0.0-2.9	0.2-0.6	.37	.37			
	55-65	20-30	1.45-1.55	0.60-2.00	0.16-0.18	0.0-2.9	0.2-0.6	.37	.37			
Calladito	0-3	2-10	1.45-1.55	6.00-20.00	0.09-0.10	0.0-2.9	0.5-1.0	.20	.20	5	2	134
	3-37	2-10	1.55-1.65	6.00-20.00	0.06-0.08	0.0-2.9	0.5-0.5	.17	.17			
	37-65	2-10	1.45-1.55	6.00-20.00	0.09-0.10	0.0-2.9	0.5-0.5	.20	.20			
14:												
Councelor	0-4	5-10	1.50-1.60	2.00-6.00	0.13-0.15	0.0-2.9	0.2-0.6	.28	.28	5	3	86
	4-16	5-20	1.50-1.60	2.00-6.00	0.13-0.15	0.0-2.9	0.2-0.6	.28	.28			
	16-65	5-20	1.50-1.60	2.00-6.00	0.13-0.15	0.0-2.9	0.2-0.6	.28	.28			
Eslendo	0-2	18-27	1.20-1.30	0.60-2.00	0.16-0.18	0.0-2.9	0.2-0.6	.37	.37	2	5	56
	2-11	27-35	1.40-1.50	0.20-0.60	0.19-0.21	3.0-5.9	0.2-0.6	.37	.37			
	11-20	---	---	0.00-0.20	---	---	---	---	---			
Calladito	0-3	2-10	1.45-1.55	6.00-20.00	0.09-0.10	0.0-2.9	0.5-1.0	.20	.20	5	2	134
	3-41	2-10	1.55-1.65	6.00-20.00	0.06-0.08	0.0-2.9	0.5-0.5	.17	.17			
	41-65	2-10	1.45-1.55	6.00-20.00	0.09-0.10	0.0-2.9	0.5-0.5	.20	.20			
16:												
Starlake	0-3	40-50	1.35-1.45	0.06-0.20	0.11-0.12	6.0-8.9	0.6-1.0	.20	.20	5	4	86
	3-12	40-60	1.30-1.40	0.01-0.06	0.11-0.12	6.0-8.9	0.6-1.0	.20	.20			
	12-20	30-40	1.30-1.40	0.20-0.60	0.10-0.11	3.0-5.9	0.6-1.0	.32	.32			
	20-54	40-60	1.30-1.40	0.06-0.06	0.07-0.08	6.0-8.9	0.6-1.0	.20	.20			
	54-65	30-40	1.30-1.40	0.20-0.60	0.07-0.08	3.0-5.9	0.6-1.0	.32	.32			
22:												
Querencia	0-2	10-20	1.45-1.55	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.28	.28	5	3	86
	2-9	28-35	1.40-1.50	0.20-0.60	0.19-0.21	3.0-5.9	0.5-1.0	.32	.32			
	9-15	28-35	1.40-1.50	0.20-0.60	0.19-0.21	3.0-5.9	0.5-1.0	.32	.32			
	15-65	28-35	1.40-1.50	0.20-0.60	0.19-0.21	3.0-5.9	0.5-1.0	.32	.32			
Lavodnas	0-3	15-27	1.25-1.35	0.60-2.00	0.12-0.14	0.0-2.9	0.5-0.9	.37	.37	2	4L	86
	3-9	27-35	1.25-1.35	0.20-0.60	0.14-0.16	3.0-5.9	0.5-0.9	.32	.32			
	9-13	40-50	1.45-1.55	0.06-0.06	0.11-0.12	6.0-8.9	0.5-0.9	.20	.20			
	13-20	---	---	0.00-0.20	---	---	---	---	---			
30:												
Orlie	0-2	10-20	1.40-1.50	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28	5	3	86
	2-5	15-27	1.15-1.25	2.00-6.00	0.16-0.18	0.0-2.9	0.2-1.0	.37	.37			
	5-15	27-40	1.35-1.45	0.20-0.60	0.19-0.21	3.0-5.9	0.2-1.0	.32	.32			
	15-36	20-35	1.45-1.55	0.60-2.00	0.14-0.16	3.0-5.9	0.2-1.0	.32	.32			
	36-50	27-40	1.35-1.45	0.20-0.60	0.19-0.21	3.0-5.9	0.2-1.0	.37	.37			
	50-62	27-40	1.45-1.55	0.20-0.60	0.19-0.21	3.0-5.9	0.2-1.0	.32	.32			
Tinian	0-3	10-20	1.30-1.40	0.60-2.00	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55	2	3	86
	3-8	27-35	1.30-1.40	0.20-0.60	0.19-0.21	3.0-5.9	0.5-1.0	.32	.32			
	8-19	40-50	1.25-1.35	0.20-0.60	0.19-0.21	3.0-5.9	0.5-1.0	.20	.20			
	19-24	27-35	1.30-1.40	0.20-0.60	0.19-0.21	3.0-5.9	0.5-1.0	.32	.32			
	24-40	---	---	0.00-0.20	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
40:												
Nuffel	0-2	10-27	1.20-1.30	0.60-2.00	0.19-0.21	0.0-2.9	0.5-1.0	.43	.43	5	4L	86
	2-12	27-35	1.35-1.45	0.20-0.60	0.19-0.21	3.0-5.9	0.5-1.0	.32	.32			
	12-18	10-27	1.20-1.30	0.60-2.00	0.19-0.21	0.0-2.9	0.5-1.0	.43	.43			
	18-26	27-35	1.35-1.45	0.20-0.60	0.19-0.21	3.0-5.9	0.5-1.0	.32	.32			
	26-65	10-27	1.20-1.30	0.60-2.00	0.19-0.21	0.0-2.9	0.5-1.0	.43	.43			
42:												
Suwanee	0-4	30-40	1.20-1.30	0.20-0.60	0.19-0.21	3.0-5.9	1.0-2.0	.32	.32	5	4L	86
	4-34	30-35	1.40-1.50	0.20-0.60	0.19-0.21	3.0-5.9	0.2-1.0	.32	.32			
	34-48	18-25	1.20-1.30	0.60-2.00	0.19-0.21	0.0-2.9	0.2-1.0	.43	.43			
	48-65	30-35	1.40-1.50	0.20-0.60	0.19-0.21	3.0-5.9	0.2-1.0	.32	.32			
44:												
Suwanee	0-10	40-55	1.30-1.40	0.06-0.20	0.14-0.16	6.0-8.9	0.5-1.0	.20	.20	5	4	86
	10-17	40-55	1.35-1.45	0.06-0.20	0.14-0.16	6.0-8.9	0.2-1.0	.20	.20			
	17-30	30-40	1.40-1.50	0.20-0.60	0.19-0.21	3.0-5.9	0.2-1.0	.32	.32			
	30-47	25-35	1.35-1.45	0.60-2.00	0.14-0.16	3.0-5.9	0.2-1.0	.32	.32			
	47-65	10-20	1.45-1.55	2.00-6.00	0.11-0.13	0.0-2.9	0.2-1.0	.24	.24			
45:												
Nutreeah	0-10	30-40	1.25-1.35	0.20-0.60	0.19-0.21	3.0-5.9	2.0-3.0	.32	.32	5	4	86
	10-16	30-40	1.25-1.35	0.20-0.60	0.19-0.21	3.0-5.9	1.0-2.0	.32	.32			
	16-24	35-40	1.35-1.45	0.06-0.20	0.14-0.16	3.0-5.9	0.2-1.0	.20	.20			
	24-40	40-60	1.30-1.40	0.01-0.06	0.14-0.16	6.0-8.9	0.2-1.0	.20	.20			
	40-65	40-60	1.30-1.40	0.01-0.06	0.14-0.16	6.0-8.9	0.2-1.0	.20	.20			
47:												
Conchovar	0-3	35-40	1.30-1.40	0.20-0.60	0.19-0.21	3.0-5.9	1.0-2.0	.32	.32	5	4L	86
	3-9	40-60	1.30-1.40	0.01-0.06	0.14-0.16	6.0-8.9	1.0-2.0	.20	.20			
	9-26	35-55	1.30-1.40	0.01-0.06	0.10-0.12	6.0-8.9	0.2-1.0	.20	.20			
	26-36	40-60	1.30-1.40	0.01-0.06	0.10-0.12	6.0-8.9	0.2-1.0	.20	.20			
	36-54	40-60	1.30-1.40	0.01-0.06	0.14-0.16	6.0-8.9	0.2-1.0	.20	.20			
	54-65	40-55	1.30-1.40	0.06-0.20	0.14-0.16	6.0-8.9	0.2-1.0	.32	.32			
49:												
Concho	0-4	30-40	1.25-1.35	0.20-0.60	0.19-0.21	3.0-5.9	2.0-3.0	.32	.32	5	4	86
	4-28	30-40	1.40-1.50	0.20-0.60	0.19-0.21	3.0-5.9	1.0-2.0	.32	.32			
	28-38	40-55	1.30-1.40	0.06-0.20	0.14-0.16	6.0-8.9	0.5-1.0	.20	.24			
	38-65	30-40	1.45-1.55	0.20-0.60	0.19-0.21	3.0-5.9	0.5-1.0	.32	.32			
51:												
Kwakina	0-7	5-12	1.35-1.45	6.00-20.00	0.09-0.10	0.0-2.9	0.5-1.0	.20	.20	4	2	134
	7-11	5-12	1.50-1.60	6.00-20.00	0.09-0.10	0.0-2.9	0.5-1.0	.20	.20			
	11-23	2-10	1.35-1.45	6.00-20.00	0.05-0.07	0.0-2.9	0.5-1.0	.17	.17			
	23-33	10-18	1.35-1.45	2.00-6.00	0.11-0.13	0.0-2.9	0.5-1.0	.24	.24			
	33-65	5-12	1.35-1.45	6.00-20.00	0.09-0.10	0.0-2.9	0.5-1.0	.20	.20			
52:												
Zuniven	0-12	5-10	1.15-1.25	6.00-20.00	0.09-0.10	0.0-2.9	0.5-2.0	.20	.20	5	2	134
	12-42	20-35	1.20-1.30	0.20-0.60	0.19-0.21	0.0-2.9	0.5-2.0	.43	.43			
	42-65	5-10	1.15-1.25	6.00-20.00	0.09-0.10	0.0-2.9	0.5-2.0	.20	.20			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
53:												
Hawaikuh	0-10	30-40	1.40-1.50	0.20-0.60	0.19-0.21	3.0-5.9	0.5-1.0	.32	.32	5	4L	86
	10-24	35-45	1.45-1.55	0.20-0.60	0.15-0.17	6.0-8.9	0.2-1.0	.32	.32			
	24-32	30-40	1.45-1.55	0.20-0.60	0.19-0.21	6.0-8.9	0.2-1.0	.32	.32			
	32-42	30-40	1.45-1.55	0.20-0.60	0.19-0.21	3.0-8.9	0.2-1.0	.32	.32			
	42-65	40-50	1.50-1.60	0.06-0.20	0.14-0.16	6.0-8.9	0.2-1.0	.20	.20			
54:												
Venadito	0-5	55-70	1.25-1.35	0.06-0.20	0.14-0.16	6.0-8.9	1.0-3.0	.20	.20	5	4	86
	5-29	60-70	1.20-1.30	0.00-0.06	0.10-0.12	6.0-8.9	0.5-1.0	.20	.20			
	29-40	40-55	1.25-1.35	0.20-0.60	0.11-0.13	6.0-8.9	0.5-1.0	.32	.32			
	40-65	60-70	1.20-1.30	0.00-0.06	0.07-0.08	6.0-8.9	0.5-1.0	.20	.20			
55:												
Sparham	0-2	35-40	1.35-1.45	0.20-0.60	0.19-0.21	3.0-5.9	1.0-2.0	.32	.32	5	4	86
	2-14	40-60	1.30-1.40	0.06-0.20	0.14-0.16	6.0-8.9	0.5-1.0	.20	.20			
	14-18	25-35	1.40-1.50	0.20-2.00	0.14-0.21	3.0-5.9	0.5-1.0	.32	.32			
	18-27	40-60	1.30-1.40	0.06-0.20	0.14-0.17	6.0-8.9	0.5-1.0	.20	.20			
	27-31	25-35	1.40-1.50	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.32	.32			
	31-65	40-60	1.30-1.40	0.01-0.06	0.14-0.16	6.0-8.9	0.5-1.0	.20	.20			
60:												
Redpen	0-4	20-25	1.30-1.40	0.60-2.00	0.14-0.16	0.0-2.9	1.0-2.0	.32	.32	5	5	56
	4-24	27-35	1.30-1.40	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.32	.32			
	24-52	27-35	1.30-1.40	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.32	.32			
	52-65	27-35	1.30-1.40	0.20-0.60	0.19-0.21	3.0-5.9	0.5-1.0	.32	.32			
100:												
Norkiki	0-3	5-10	1.60-1.70	6.00-20.00	0.06-0.08	0.0-2.9	0.2-0.5	.17	.17	2	2	134
	3-13	20-35	1.25-1.35	0.60-2.00	0.14-0.16	3.0-5.9	0.2-0.5	.32	.32			
	13-19	10-20	1.50-1.60	2.00-6.00	0.11-0.13	0.0-2.9	0.2-0.5	.24	.24			
	19-28	20-35	1.25-1.35	0.60-2.00	0.14-0.16	3.0-5.9	0.2-0.5	.32	.32			
	28-40	---	---	0.00-0.20	---	---	---	---	---			
Kimnoli	0-2	10-15	1.45-1.55	2.00-6.00	0.13-0.15	0.0-2.9	0.2-0.6	.28	.28	1	3	86
	2-7	15-20	1.45-1.55	2.00-6.00	0.11-0.13	0.0-2.9	0.0-0.5	.24	.24			
	7-14	20-30	1.50-1.60	0.60-2.00	0.13-0.15	0.0-2.9	0.0-0.5	.32	.37			
	14-20	---	---	0.00-0.20	---	---	---	---	---			
110:												
Benally	0-2	10-20	1.45-1.55	2.00-6.00	0.12-0.14	0.0-2.9	0.3-0.8	.28	.28	5	3	86
	2-9	20-35	1.45-1.55	0.20-0.60	0.13-0.15	3.0-5.9	0.2-0.5	.32	.32			
	9-25	20-35	1.50-1.60	0.20-0.60	0.13-0.15	3.0-5.9	0.2-0.5	.32	.32			
	25-65	20-35	1.50-1.60	0.60-2.00	0.13-0.15	3.0-5.9	0.0-0.2	.32	.32			
Fruitland	0-3	5-10	1.40-1.55	6.00-20.00	0.09-0.11	0.0-2.9	0.5-1.0	.20	.20	5	2	134
	3-10	5-10	1.40-1.55	6.00-20.00	0.09-0.11	0.0-2.9	0.0-0.5	.20	.20			
	10-19	5-10	1.40-1.55	6.00-20.00	0.09-0.11	0.0-2.9	0.0-0.5	.20	.20			
	19-29	5-10	1.40-1.55	6.00-20.00	0.09-0.11	0.0-2.9	0.0-0.5	.20	.20			
	29-65	10-15	1.35-1.50	2.00-6.00	0.11-0.13	0.0-2.9	0.0-0.5	.28	.28			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
111:												
Yelives	0-2	10-20	1.45-1.55	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28	5	3	86
	2-12	10-20	1.45-1.55	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28			
	12-30	10-25	1.35-1.45	0.60-2.00	0.16-0.18	0.0-2.9	0.0-0.5	.37	.37			
	30-41	2-10	1.55-1.65	6.00-20.00	0.09-0.11	0.0-2.9	0.0-0.5	.20	.20			
	41-56	2-10	1.55-1.65	6.00-20.00	0.09-0.11	0.0-2.9	0.0-0.5	.20	.20			
	56-80	2-10	1.55-1.65	6.00-20.00	0.09-0.11	0.0-2.9	0.0-0.5	.20	.20			
115:												
Razito	0-4	5-10	1.45-1.65	6.00-20.00	0.06-0.08	0.0-2.9	0.1-0.5	.17	.17	5	2	134
	4-34	5-10	1.45-1.65	6.00-20.00	0.06-0.08	0.0-2.9	0.1-0.5	.17	.17			
	34-65	5-10	1.45-1.65	6.00-20.00	0.06-0.08	0.0-2.9	0.1-0.5	.17	.17			
Shiprock	0-3	5-15	1.45-1.55	2.00-6.00	0.13-0.15	0.0-2.9	0.5-0.6	.28	.28	5	3	86
	3-15	10-20	1.50-1.60	2.00-6.00	0.13-0.15	0.0-2.9	0.1-0.2	.28	.28			
	15-37	10-20	1.50-1.60	2.00-6.00	0.13-0.15	0.0-2.9	0.1-0.2	.28	.28			
	37-60	5-15	1.50-1.60	2.00-20.00	0.13-0.15	0.0-2.9	0.1-0.2	.28	.28			
116:												
Fajada	0-2	20-30	1.50-1.55	0.60-2.00	0.11-0.12	0.0-2.9	0.5-1.0	.15	.32	3	6	48
	2-6	30-40	1.50-1.60	0.06-0.20	0.07-0.10	3.0-5.9	0.2-0.8	.32	.32			
	6-12	20-35	1.65-1.75	0.20-0.60	0.06-0.08	3.0-5.9	0.2-0.8	.32	.32			
	12-16	27-35	1.75-1.85	0.20-0.60	0.06-0.08	3.0-5.9	0.2-0.8	.32	.32			
	16-28	27-35	1.65-1.75	0.20-0.60	0.06-0.10	3.0-5.9	0.1-0.5	.32	.32			
	28-40	---	---	0.00-0.20	---	---	---	---	---			
Huerfano	0-2	15-27	1.25-1.35	0.20-0.60	0.10-0.12	0.0-2.9	0.2-0.6	.28	.37	2	5	56
	2-17	27-35	1.55-1.65	0.06-0.20	0.08-0.10	3.0-5.9	0.2-0.6	.28	.32			
	17-20	---	---	0.00-0.20	---	---	---	---	---			
Benally	0-2	20-30	1.25-1.35	0.20-0.60	0.10-0.12	0.0-2.9	0.5-0.8	.32	.32	4	5	56
	2-18	20-35	1.50-1.60	0.20-0.60	0.07-0.08	3.0-5.9	0.2-0.5	.32	.32			
	18-45	20-35	1.50-1.60	0.20-0.60	0.07-0.08	3.0-5.9	0.2-0.5	.32	.32			
	45-55	---	---	0.00-0.20	---	---	---	---	---			
118:												
Farb	0-2	5-20	1.45-1.55	2.00-6.00	0.11-0.13	0.0-2.9	0.2-0.6	.24	.24	1	3	86
	2-9	5-20	1.45-1.55	2.00-6.00	0.11-0.13	0.0-2.9	0.2-0.6	.24	.24			
	9-20	---	---	0.20-2.00	---	---	---	---	---			
Chipeta	0-2	40-47	1.15-1.25	0.06-0.20	0.11-0.16	3.0-5.9	0.5-2.0	.43	.43	2	4	86
	2-12	35-45	1.15-1.25	0.06-0.20	0.11-0.16	3.0-5.9	0.0-0.5	.43	.43			
	12-20	---	---	0.00-0.06	---	---	---	---	---			
Rock outcrop	0	---	---	0.00-0.20	---	---	---	---	---	-	---	---
120:												
Doak	0-2	10-15	1.50-1.60	2.00-6.00	0.13-0.15	0.0-2.9	0.2-0.6	.28	.28	5	3	86
	2-8	20-30	1.45-1.55	0.60-2.00	0.14-0.16	3.0-5.9	0.2-0.6	.32	.32			
	8-12	20-30	1.45-1.55	0.60-2.00	0.14-0.16	3.0-5.9	0.2-0.6	.32	.32			
	12-40	20-30	1.45-1.55	0.60-2.00	0.14-0.16	3.0-5.9	0.2-0.6	.32	.32			
	40-65	10-20	1.50-1.60	2.00-6.00	0.11-0.13	0.0-2.9	0.2-0.6	.24	.24			
Shiprock	0-4	5-10	1.45-1.55	6.00-20.00	0.09-0.10	0.0-2.9	0.2-0.3	.20	.20	5	2	134
	4-18	10-20	1.50-1.60	2.00-6.00	0.13-0.15	0.0-2.9	0.1-0.2	.28	.28			
	18-37	10-20	1.50-1.60	2.00-6.00	0.13-0.15	0.0-2.9	0.1-0.2	.28	.28			
	37-65	5-15	1.50-1.60	2.00-20.00	0.13-0.15	0.0-2.9	0.1-0.2	.28	.28			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
121:												
Badland	0-2	50-60	1.15-1.30	0.01-0.06	0.00-0.12	6.0-8.9	0.0-0.0	.20	.20	1	4	86
	2-20	---	---	0.00-0.06	---	---	---	---	---			
122:												
Farb	0-2	5-15	1.50-1.60	2.00-6.00	0.07-0.08	0.0-2.9	0.2-0.6	.10	.24	1	4L	86
	2-5	5-15	1.50-1.60	2.00-6.00	0.10-0.12	0.0-2.9	0.2-0.6	.24	.24			
	5-20	---	---	0.00-0.20	---	---	---	---	---			
Rock outcrop	0	---	---	0.00-0.06	---	---	---	---	---	-	---	---
125:												
Sanfeco	0-2	10-20	1.45-1.55	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28	5	3	86
	2-10	30-40	1.40-1.50	0.20-0.60	0.19-0.21	3.0-5.9	0.5-1.0	.32	.32			
	10-27	40-50	1.40-1.50	0.06-0.20	0.14-0.16	6.0-8.9	0.5-1.0	.20	.20			
	27-35	35-50	1.50-1.60	0.20-0.60	0.15-0.17	6.0-8.9	0.5-1.0	.32	.32			
	35-39	25-35	1.40-1.50	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.32	.32			
	39-65	5-15	1.50-1.70	6.00-20.00	0.06-0.08	0.0-2.9	0.5-1.0	.15	.15			
130:												
Chipeta	0-3	20-27	1.25-1.35	0.60-2.00	0.19-0.21	3.0-5.9	0.0-0.5	.15	.43	1	6	48
	3-6	40-50	1.25-1.35	0.06-0.20	0.14-0.16	6.0-8.9	0.0-1.2	.20	.20			
	6-14	---	---	0.06-0.06	---	---	---	---	---			
	14-20	---	---	0.06-0.06	---	---	---	---	---			
Badlands	0-2	40-60	1.15-1.30	0.01-0.06	0.00-0.12	6.0-8.9	0.0-0.0	.20	.20	1	4	86
	2-20	50-60	1.15-1.30	0.01-0.06	0.00-0.12	6.0-8.9	0.0-0.0	.20	.20			
Moncisco	0-3	20-25	1.20-1.30	0.60-2.00	0.04-0.06	3.0-5.9	0.0-1.0	.05	.32	2	8	0
	3-13	10-25	1.20-1.30	0.60-2.00	0.02-0.04	0.0-2.9	0.0-0.5	.05	.24			
	13-27	0-1	1.45-1.55	6.00-20.00	0.00-0.00	0.0-0.0	0.0-0.0	.02	.02			
	27-39	0-1	1.45-1.55	6.00-20.00	0.00-0.00	0.0-0.0	0.0-0.0	.02	.02			
	39-59	0-1	1.45-1.55	6.00-20.00	0.00-0.00	0.0-0.0	0.0-0.0	.02	.02			
150:												
Riverwash	0-10	0-3	1.40-1.70	20.00-20.00	0.01-0.02	0.0-2.9	0.0-0.1	.10	.02	5	8	0
	10-80	0-3	1.40-1.70	20.00-20.00	0.01-0.02	0.0-2.9	0.0-0.1	.10	.02			
Escawetter	0-2	3-6	1.45-1.55	6.00-20.00	0.09-0.11	0.0-2.9	0.0-0.5	.20	.20	5	1	310
	2-8	2-4	1.45-1.55	6.00-20.03	0.09-0.11	0.0-2.9	0.0-0.5	.20	.20			
	8-25	2-4	1.45-1.55	6.00-20.03	0.05-0.07	0.0-2.9	0.0-0.5	.17	.17			
	25-32	5-15	1.45-1.55	6.00-20.03	0.09-0.11	0.0-2.9	0.0-0.5	.20	.20			
	32-48	2-5	1.45-1.55	6.00-20.03	0.05-0.07	0.0-2.9	0.0-0.5	.17	.17			
	48-65	2-4	1.45-1.55	6.00-20.03	0.05-0.07	0.0-2.9	0.0-0.5	.17	.17			
160:												
Escawetter	0-1	1-5	1.45-1.55	6.00-20.00	0.06-0.08	0.0-2.9	0.0-0.5	.20	.20	5	1	310
	1-7	1-5	1.45-1.55	6.00-20.00	0.06-0.08	0.0-2.9	0.0-0.5	.20	.20			
	7-16	1-5	1.45-1.55	6.00-20.00	0.05-0.07	0.0-2.9	0.0-0.5	.17	.17			
	16-22	5-15	1.30-1.40	6.00-20.00	0.05-0.07	0.0-2.9	0.0-0.5	.17	.17			
	22-52	1-5	1.45-1.55	6.00-20.00	0.05-0.07	0.0-2.9	0.0-0.5	.17	.17			
	52-70	1-5	1.45-1.55	6.00-20.00	0.05-0.07	0.0-2.9	0.0-0.5	.17	.17			
Riverwash	0-80	1-3	1.45-1.55	20.00-20.00	0.01-0.02	0.0-1.9	0.0-1.0	.17	.17	5	1	310
Razito	0-1	0-5	1.45-1.55	6.00-20.00	0.05-0.07	0.0-2.9	0.0-0.1	.17	.17	5	2	134
	1-70	0-5	1.45-1.55	6.00-20.00	0.05-0.07	0.0-2.9	0.0-0.1	.17	.17			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
205:												
Penistaja	0-3	10-20	1.40-1.50	2.00-6.00	0.11-0.13	0.0-2.9	1.0-2.0	.24	.24	5	3	86
	3-19	20-30	1.45-1.55	0.60-2.00	0.14-0.16	0.0-2.9	0.5-1.0	.32	.32			
	19-65	15-30	1.45-1.55	0.60-6.00	0.11-0.16	0.0-2.9	0.5-1.0	.32	.32			
Tintero	0-4	5-15	1.45-1.55	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28	5	3	86
	4-16	10-18	1.45-1.55	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28			
	16-48	10-18	1.45-1.55	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28			
	48-65	2-10	1.45-1.55	6.00-20.00	0.09-0.10	0.0-2.9	0.5-1.0	.20	.20			
208:												
Marianolake	0-2	10-20	1.45-1.55	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28	5	3	86
	2-8	18-30	1.35-1.45	0.60-2.00	0.16-0.18	3.0-5.9	0.0-0.5	.37	.37			
	8-14	27-35	1.35-1.45	0.20-0.60	0.19-0.21	3.0-5.9	0.0-0.5	.32	.32			
	14-24	15-25	1.45-1.55	2.00-6.00	0.13-0.15	3.0-5.9	0.0-0.5	.28	.28			
	24-39	15-25	1.45-1.55	2.00-6.00	0.13-0.15	3.0-5.9	0.0-0.5	.28	.28			
	39-70	5-15	1.55-1.65	6.00-20.00	0.09-0.10	0.0-2.9	0.0-0.5	.20	.20			
210:												
Marianolake	0-5	10-20	1.35-1.45	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.28	.28	5	3	86
	5-11	20-35	1.50-1.60	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.32	.32			
	11-47	27-35	1.55-1.65	0.20-0.60	0.19-0.21	3.0-5.9	0.5-1.0	.32	.32			
	47-65	10-20	1.60-1.70	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.32	.32			
Skyvillage	0-2	5-15	1.35-1.45	2.00-6.00	0.07-0.09	0.0-2.9	0.5-1.0	.15	.24	1	4	86
	2-5	10-15	1.45-1.55	2.00-6.00	0.11-0.13	0.0-2.9	0.2-0.6	.24	.24			
	5-9	20-25	1.45-1.55	0.60-2.00	0.14-0.16	3.0-5.9	0.2-0.6	.32	.32			
	9-15	20-25	1.45-1.55	0.60-2.00	0.14-0.16	3.0-5.9	0.2-0.6	.32	.32			
	15-20	---	---	0.20-2.00	---	---	---	---	---			
212:												
Rehobeth	0-2	30-40	1.25-1.35	0.20-0.60	0.18-0.20	6.0-8.9	0.5-1.0	.37	.37	5	4L	86
	2-5	30-40	1.25-1.35	0.20-0.60	0.18-0.20	6.0-8.9	0.5-1.0	.37	.37			
	5-12	40-55	1.40-1.50	0.06-0.20	0.13-0.15	6.0-8.9	0.5-1.0	.20	.20			
	12-18	40-55	1.40-1.50	0.06-0.20	0.13-0.15	6.0-8.9	0.5-1.0	.20	.20			
	18-32	40-55	1.40-1.50	0.06-0.20	0.13-0.15	6.0-8.9	0.2-0.5	.20	.20			
	32-80	40-55	1.40-1.50	0.06-0.20	0.13-0.15	6.0-8.9	0.2-0.5	.20	.20			
215:												
Viuda	0-3	10-20	1.30-1.40	2.00-6.00	0.07-0.09	0.0-2.9	0.5-0.9	.10	.37	1	6	48
	3-15	35-50	1.40-1.45	0.06-0.20	0.14-0.17	6.0-8.9	0.0-0.0	.20	.20			
	15-17	20-35	1.45-1.50	0.60-2.00	0.15-0.17	3.0-5.9	0.0-0.0	.15	.32			
	17-20	---	---	0.00-0.20	---	---	---	---	---			
Penistaja	0-2	10-20	1.40-1.50	2.00-6.00	0.11-0.13	0.0-2.9	1.0-2.0	.24	.24	5	3	86
	2-22	20-30	1.45-1.55	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.32	.32			
	22-65	15-30	1.45-1.55	0.60-6.00	0.11-0.16	3.0-5.9	0.5-1.0	.32	.32			
Rock outcrop	0	---	---	0.00-0.20	---	---	---	---	---	-	---	---
220:												
Hagerwest	0-2	10-20	1.20-1.25	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28	2	3	86
	2-13	20-35	1.35-1.45	0.60-2.00	0.14-0.16	3.0-5.9	0.2-0.8	.32	.32			
	13-19	20-35	1.35-1.45	0.60-6.00	0.14-0.16	3.0-5.9	0.2-0.8	.32	.32			
	19-35	10-20	1.50-1.60	2.00-6.00	0.11-0.13	0.0-2.9	0.2-0.8	.24	.24			
	35-40	---	---	0.00-0.20	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
220:												
Bond	0-2	10-20	1.45-1.55	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.28	.28	1	3	86
	2-5	10-20	1.45-1.55	2.00-6.00	0.13-0.15	0.0-2.9	0.5-0.9	.28	.28			
	5-14	20-30	1.45-1.55	0.60-2.00	0.13-0.15	0.0-2.9	0.5-0.9	.32	.32			
	14-20	---	---	0.00-0.20	---	---	---	---	---			
225:												
Aquima	0-2	10-27	1.25-1.35	0.60-2.00	0.19-0.21	0.0-2.9	0.5-1.0	.43	.43	5	4L	86
	2-11	10-27	1.40-1.60	0.20-2.00	0.14-0.21	0.0-2.9	0.1-0.9	.43	.43			
	11-17	20-30	1.30-1.50	0.60-2.00	0.14-0.16	3.0-5.9	0.1-0.9	.32	.32			
	17-45	18-35	1.20-1.40	0.20-2.00	0.19-0.21	3.0-5.9	0.1-0.9	.43	.43			
	49-65	30-40	1.20-1.30	0.20-2.00	0.12-0.18	3.0-5.9	0.1-0.9	.15	.32			
Hawaikuh	0-3	10-27	1.20-1.30	0.60-2.00	0.19-0.21	0.0-2.9	0.5-1.0	.43	.43	5	6	48
	3-12	30-40	1.25-1.35	0.20-0.60	0.19-0.21	3.0-5.9	0.2-1.0	.37	.37			
	12-29	30-40	1.35-1.45	0.20-0.60	0.19-0.21	3.0-5.9	0.2-1.0	.32	.32			
	29-39	20-30	1.40-1.50	0.60-2.00	0.14-0.16	3.0-5.9	0.2-1.0	.32	.32			
	39-54	10-20	1.45-1.55	2.00-6.00	0.11-0.13	0.0-2.9	0.2-1.0	.24	.24			
	54-65	30-40	1.30-1.40	0.20-0.60	0.19-0.21	3.0-5.9	0.2-1.0	.37	.37			
230:												
Sparank	0-2	30-40	1.35-1.45	0.20-0.60	0.19-0.21	3.0-5.9	1.0-2.0	.37	.37	5	4	86
	2-25	35-50	1.35-1.45	0.06-0.60	0.14-0.21	6.0-8.9	0.5-1.0	.20	.20			
	25-65	40-60	1.35-1.45	0.01-0.06	0.14-0.17	6.0-8.9	0.5-1.0	.20	.20			
San Mateo	0-2	27-40	1.20-1.30	0.20-0.60	0.19-0.21	3.0-5.9	1.0-2.0	.32	.32	5	4	86
	2-15	27-40	1.35-1.45	0.20-0.60	0.19-0.21	3.0-5.9	0.5-1.0	.32	.32			
	15-30	20-30	1.35-1.45	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.32	.32			
	30-39	27-40	1.35-1.45	0.20-0.60	0.19-0.21	3.0-5.9	0.5-1.0	.32	.32			
	39-45	10-20	1.40-1.50	2.00-6.00	0.11-0.13	0.0-2.9	0.5-1.0	.24	.24			
	45-65	27-40	1.35-1.45	0.20-0.60	0.19-0.21	3.0-5.9	0.5-1.0	.32	.32			
Zia	0-3	5-20	1.40-1.50	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.28	.28	5	3	86
	3-12	8-18	1.45-1.55	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28			
	12-20	8-18	1.45-1.55	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28			
	20-28	8-18	1.45-1.55	2.00-20.00	0.06-0.13	0.0-2.9	0.5-1.0	.24	.24			
	28-70	8-18	1.45-1.55	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28			
235:												
Notal	0-1	20-27	1.35-1.45	0.60-2.00	0.15-0.17	0.0-2.9	0.5-2.0	.37	.37	5	6	48
	1-3	30-40	1.35-1.45	0.20-0.60	0.17-0.19	3.0-5.9	0.5-2.0	.32	.32			
	3-13	20-35	1.35-1.45	0.20-0.60	0.13-0.14	0.0-2.9	0.5-2.0	.32	.32			
	13-27	30-40	1.35-1.45	0.20-0.60	0.17-0.19	3.0-5.9	0.5-2.0	.32	.32			
	27-44	40-50	1.25-1.35	0.01-0.06	0.14-0.15	6.0-8.9	0.5-2.0	.24	.24			
	44-65	20-35	1.35-1.45	0.20-0.60	0.13-0.14	0.0-2.9	0.5-2.0	.32	.32			
Hamburn	0-3	27-40	1.25-1.35	0.20-0.60	0.19-0.21	3.0-5.9	1.0-2.0	.32	.32	5	4	86
	3-8	27-40	1.25-1.35	0.20-0.60	0.19-0.21	3.0-5.9	0.2-0.5	.32	.32			
	8-29	25-35	1.25-1.35	0.20-0.60	0.14-0.16	3.0-5.9	0.2-0.5	.32	.32			
	29-52	25-35	1.25-1.35	0.20-0.60	0.14-0.16	3.0-5.9	0.2-0.5	.32	.32			
	52-70	27-40	1.25-1.35	0.20-0.60	0.19-0.21	3.0-5.9	0.2-0.5	.32	.32			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
240:												
Breadsprings	0-3	15-25	1.35-1.45	0.60-2.00	0.16-0.18	0.0-2.9	0.2-0.5	.37	.37	5	4L	86
	3-7	15-25	1.35-1.45	0.60-2.00	0.16-0.18	3.0-5.9	0.2-0.5	.37	.37			
	7-14	10-35	1.35-1.45	0.20-0.60	0.19-0.21	3.0-5.9	0.2-0.5	.32	.32			
	14-22	10-19	1.45-1.55	2.00-6.00	0.14-0.16	0.0-2.9	0.2-0.5	.28	.28			
	22-29	15-25	1.25-1.35	0.60-2.00	0.15-0.17	0.0-2.9	0.2-0.5	.43	.43			
	29-36	15-27	1.35-1.45	0.60-2.00	0.16-0.18	3.0-5.9	0.2-0.5	.37	.37			
	36-70	15-25	1.25-1.35	0.60-2.00	0.15-0.17	0.0-2.9	0.2-0.5	.43	.43			
Nahodish	0-1	15-25	1.25-1.35	0.60-2.00	0.19-0.21	0.0-2.9	0.5-1.0	.43	.43	5	4L	86
	1-9	30-40	1.25-1.35	0.20-0.60	0.19-0.21	3.0-5.9	0.5-1.0	.24	.37			
	9-17	40-55	1.25-1.35	0.06-0.20	0.15-0.17	3.0-5.9	0.2-0.5	.24	.24			
	17-31	40-55	1.25-1.35	0.06-0.20	0.15-0.17	3.0-5.9	0.2-0.5	.24	.24			
	31-36	30-40	1.35-1.45	0.20-0.60	0.19-0.21	3.0-5.9	0.2-0.5	.32	.20			
	36-58	15-25	1.25-1.35	0.60-2.00	0.19-0.21	0.0-2.9	0.2-0.5	.43	.43			
	58-80	40-50	1.25-1.35	0.06-0.20	0.14-0.16	6.0-8.9	0.2-0.5	.20	.20			
241:												
Mentmore	0-1	18-25	1.35-1.45	0.60-2.00	0.16-0.18	3.0-5.9	0.5-1.0	.37	.37	5	5	56
	1-2	28-35	1.35-1.45	0.20-0.60	0.19-0.21	3.0-5.9	0.5-1.0	.32	.32			
	2-7	25-35	1.35-1.45	0.60-2.00	0.14-0.16	3.0-5.9	0.0-0.5	.32	.32			
	7-13	28-35	1.35-1.45	0.20-0.60	0.19-0.21	3.0-5.9	0.0-0.5	.32	.32			
	13-22	28-35	1.35-1.45	0.20-0.60	0.19-0.21	3.0-5.9	0.0-0.5	.32	.32			
	22-70	28-35	1.35-1.45	0.20-0.60	0.19-0.21	3.0-5.9	0.0-0.5	.32	.32			
242:												
Gish	0-3	30-35	1.35-1.45	0.20-0.60	0.19-0.21	3.0-5.9	0.0-0.5	.32	.32	5	---	---
	3-13	40-50	1.25-1.35	0.06-0.20	0.14-0.16	6.0-8.9	0.0-0.5	.20	.20			
	13-27	40-50	1.25-1.35	0.06-0.20	0.14-0.16	6.0-8.9	0.0-0.5	.20	.20			
	27-55	40-50	1.25-1.35	0.06-0.20	0.14-0.16	6.0-8.9	0.0-0.5	.20	.20			
	55-64	30-40	1.35-1.45	0.20-0.60	0.19-0.21	3.0-5.9	0.0-0.5	.32	.32			
	64-70	40-50	1.25-1.35	0.06-0.20	0.14-0.16	6.0-8.9	0.0-0.5	.20	.20			
Mentmore	0-2	14-19	1.45-1.55	2.00-6.00	0.13-0.15	0.0-2.9	0.0-0.5	.28	.28	5	---	---
	2-4	30-40	1.35-1.45	0.20-0.60	0.19-0.21	3.0-5.9	0.0-0.5	.32	.32			
	4-13	30-35	1.35-1.45	0.20-0.60	0.19-0.21	3.0-5.9	0.0-0.5	.32	.32			
	13-24	30-35	1.35-1.45	0.20-0.60	0.19-0.21	3.0-5.9	0.0-0.5	.32	.32			
	24-44	30-35	1.35-1.45	0.20-0.60	0.19-0.21	3.0-5.9	0.0-0.5	.32	.32			
	44-62	30-35	1.35-1.45	0.20-0.60	0.19-0.21	3.0-5.9	0.0-0.5	.32	.32			
	62-70	30-35	1.35-1.45	0.20-0.60	0.19-0.21	3.0-5.9	0.0-0.5	.32	.32			
244:												
Buckle	0-4	10-20	1.35-1.45	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.28	.28	5	3	86
	4-14	20-30	1.25-1.35	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.32	.32			
	14-22	20-30	1.25-1.35	0.60-2.00	0.14-0.16	3.0-5.9	0.0-0.5	.32	.32			
	22-34	20-27	1.25-1.35	0.60-2.00	0.16-0.18	3.0-5.9	0.0-0.5	.37	.37			
	34-48	30-35	1.25-1.35	0.20-0.60	0.19-0.21	6.0-8.9	0.0-0.5	.32	.32			
	48-62	30-35	1.25-1.35	0.20-0.60	0.19-0.21	6.0-8.9	0.0-0.5	.32	.32			
	62-75	30-35	1.25-1.35	0.20-0.60	0.19-0.21	6.0-8.9	0.0-0.5	.32	.32			
245:												
Buckle	0-1	10-20	1.55-1.65	2.00-6.00	0.09-0.11	0.0-2.9	0.5-1.0	.20	.20	5	3	86
	1-7	27-35	1.35-1.45	0.20-0.60	0.19-0.21	3.0-5.9	0.0-0.5	.32	.32			
	7-25	20-35	1.25-1.35	0.60-2.00	0.14-0.16	3.0-5.9	0.0-0.5	.32	.32			
	25-35	27-35	1.35-1.45	0.20-0.60	0.19-0.21	3.0-5.9	0.0-0.5	.32	.32			
	35-80	10-25	1.45-1.55	2.00-6.00	0.13-0.15	0.0-2.9	0.0-0.5	.28	.28			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
245:												
Gapmesa	0-1	10-15	1.35-1.45	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28	2	5	56
	1-9	20-27	1.25-1.35	0.60-2.00	0.16-0.18	3.0-5.9	0.5-1.0	.37	.37			
	9-20	20-27	1.25-1.35	0.60-2.00	0.16-0.18	3.0-5.9	0.0-0.5	.37	.37			
	20-31	30-40	1.25-1.35	0.20-0.60	0.19-0.21	3.0-5.9	0.0-0.5	.32	.32			
	31-40	---	---	0.00-0.06	---	---	---	---	---			
Barboncito	0-2	10-15	1.55-1.65	6.00-20.00	0.09-0.11	0.0-2.9	0.5-1.0	.20	.20	1	3	86
	2-6	10-20	1.35-1.45	0.60-2.00	0.14-0.16	3.0-5.9	0.0-0.5	.32	.32			
	6-11	30-35	1.35-1.45	0.20-0.60	0.19-0.21	3.0-5.9	0.0-0.5	.32	.32			
	11-20	---	---	0.00-0.06	---	---	---	---	---			
250:												
Hospah	0-3	30-40	1.25-1.35	0.20-0.60	0.03-0.05	3.0-5.9	0.5-1.0	.05	.32	2	8	0
	3-15	40-60	1.35-1.50	0.06-0.20	0.14-0.16	6.0-8.9	0.5-1.0	.20	.20			
	15-20	---	---	0.00-0.20	---	---	---	---	---			
Skyvillage	0-1	5-15	1.35-1.45	2.00-6.00	0.06-0.08	0.0-2.9	0.5-1.0	.10	.24	1	4L	86
	1-5	10-15	1.45-1.55	2.00-6.00	0.11-0.13	0.0-2.9	0.2-0.6	.24	.24			
	5-8	20-25	1.45-1.55	0.60-2.00	0.14-0.16	3.0-5.9	0.2-0.6	.32	.32			
	8-20	---	---	0.20-2.00	---	---	---	---	---			
Rock outcrop	0	---	---	0.00-0.20	---	---	---	---	---	-	---	---
255:												
Farview	0-1	5-10	1.45-1.60	6.00-20.00	0.09-0.11	0.0-2.9	0.0-0.5	.20	.20	1	2	134
	1-10	10-20	1.35-1.50	2.00-6.00	0.13-0.15	0.0-2.9	0.0-0.5	.28	.28			
	10-17	10-20	1.35-1.50	2.00-6.00	0.13-0.15	0.0-2.9	0.0-0.5	.28	.28			
	17-20	---	---	0.00-0.06	---	---	---	---	---			
Rock outcrop	0	---	---	0.00-0.20	---	---	---	---	---	-	---	---
258:												
Eagleye	0-2	30-40	1.35-1.45	0.20-0.60	0.19-0.21	3.0-5.9	0.0-0.5	.32	.32	2	5	56
	2-10	40-50	1.25-1.35	0.06-0.20	0.14-0.16	6.0-8.9	0.0-0.5	.20	.20			
	10-20	---	---	0.00-0.06	---	---	---	---	---			
Atchee	0-2	10-20	1.45-1.55	2.00-6.00	0.13-0.14	0.0-2.9	0.0-0.5	.28	.28	1	3	86
	2-12	15-27	1.35-1.45	0.60-2.00	0.07-0.09	3.0-5.9	0.0-0.5	.05	.32			
	12-14	15-27	1.35-1.45	0.20-0.60	0.07-0.09	3.0-5.9	0.0-0.5	.05	.32			
	14-20	---	---	0.00-0.06	---	---	---	---	---			
Rock outcrop	0	---	---	0.00-0.20	---	---	---	---	---	-	---	---
260:												
Quarries and Pits	0	---	---	0.00-0.20	---	---	---	---	---	-	8	0
261:												
Coal Mine Lands	---	---	---	---	---	---	---	---	---	-	---	---
265:												
Uranium Mined Lands	0	---	---	0.00-0.20	---	---	---	---	---	-	---	---

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
270:												
Alesna	0-1	15-27	1.20-1.30	0.60-2.00	0.06-0.07	0.0-2.9	0.5-1.0	.05	.37	4	8	0
	1-10	30-40	1.35-1.45	0.20-0.60	0.15-0.17	6.0-8.9	0.5-1.0	.15	.32			
	10-20	40-55	1.35-1.45	0.06-0.20	0.08-0.10	6.0-8.9	0.5-0.5	.05	.20			
	20-26	40-55	1.35-1.45	0.20-0.60	0.14-0.16	6.0-8.9	0.5-0.5	.20	.20			
	26-52	30-40	1.50-1.60	0.20-0.60	0.17-0.19	6.0-8.9	0.5-0.5	.32	.32			
	52-60	---	---	0.00-0.06	---	---	---	---	---			
Rock outcrop	0	---	---	0.00-0.20	---	---	---	---	---	-	---	---
275:												
Eldado	0-2	10-20	1.45-1.55	2.00-6.00	0.11-0.13	0.0-2.9	0.5-1.0	.15	.28	2	5	56
	2-9	20-35	1.40-1.50	0.60-2.00	0.13-0.15	3.0-5.9	0.5-0.5	.32	.32			
	9-13	20-35	1.40-1.50	0.60-2.00	0.13-0.15	3.0-5.9	0.5-0.5	.32	.32			
	13-25	20-35	1.40-1.50	0.60-2.00	0.13-0.15	3.0-5.9	0.5-0.5	.32	.32			
	25-43	5-10	1.50-1.60	20.00-20.00	0.01-0.02	0.0-2.9	0.5-0.5	.02	.15			
	43-72	1-5	1.50-1.60	20.00-20.00	0.00-0.00	0.0-2.9	0.5-0.5	.02	.10			
280:												
Azabache	0-1	27-35	1.35-1.45	0.20-0.60	0.05-0.06	0.0-2.9	0.5-0.9	.05	.32	3	8	0
	1-5	40-50	1.25-1.35	0.01-0.06	0.12-0.14	6.0-8.9	0.5-0.9	.20	.20			
	5-17	20-35	1.45-1.55	0.20-0.60	0.10-0.11	0.0-2.9	0.2-0.8	.15	.32			
	17-32	20-35	1.45-1.55	0.20-0.60	0.04-0.05	0.0-2.9	0.2-0.5	.05	.32			
	32-50	10-20	1.45-1.55	0.60-2.00	0.03-0.04	0.0-2.9	0.2-0.5	.05	.28			
	50-62	10-20	1.55-1.65	0.60-2.00	0.09-0.10	0.0-2.9	0.2-0.5	.10	.28			
290:												
Rock outcrop	0	---	---	0.00-0.20	---	---	---	---	---	-	---	---
Westmion	0-2	30-40	1.35-1.45	0.20-0.60	0.15-0.17	3.0-5.9	0.5-1.0	.15	.32	2	6	48
	2-14	40-55	1.40-1.50	0.06-0.20	0.14-0.16	6.0-8.9	0.2-0.6	.20	.20			
	14-20	---	---	0.00-0.20	---	---	---	---	---			
Skyvillage	0-2	10-20	1.35-1.45	2.00-6.00	0.11-0.13	0.0-2.9	0.5-1.0	.24	.24	1	3	86
	2-13	10-20	1.35-1.45	2.00-6.00	0.11-0.13	0.0-2.9	0.2-0.6	.24	.24			
	13-20	---	---	0.20-2.00	---	---	---	---	---			
291:												
Rock outcrop	0	---	---	---	---	---	---	---	---	-	---	---
Eagleye	0-2	30-40	1.25-1.35	0.20-0.60	0.19-0.21	3.0-5.9	0.0-0.5	.10	.37	2	5	56
	2-7	30-40	1.25-1.35	0.20-0.60	0.19-0.21	3.0-5.9	0.0-0.5	.37	.37			
	7-13	30-40	1.25-1.35	0.20-0.60	0.19-0.21	3.0-5.9	0.0-0.5	.37	.37			
	13-20	---	---	0.00-0.01	---	---	---	---	---			
Atchee	0-2	10-15	1.45-1.55	0.60-2.00	0.13-0.15	0.0-2.9	0.0-0.5	.10	.28	1	4L	86
	2-8	10-15	1.45-1.55	0.60-2.00	0.13-0.15	0.0-2.9	0.0-0.5	.15	.28			
	8-20	---	---	0.00-0.01	---	---	---	---	---			
300:												
Regracic	0-2	20-30	1.15-1.25	0.60-2.00	0.10-0.11	0.0-2.9	1.0-2.0	.15	.32	4	6	48
	2-31	35-50	1.20-1.25	0.06-0.60	0.14-0.18	6.0-8.9	1.0-2.0	.20	.20			
	31-45	35-45	1.35-1.40	0.20-0.60	0.07-0.08	6.0-8.9	0.5-0.9	.10	.32			
	45-50	27-40	1.20-1.25	0.20-0.60	0.19-0.21	3.0-5.9	0.5-0.9	.32	.32			
	50-60	25-35	1.25-1.30	0.20-2.00	0.09-0.14	3.0-5.9	0.5-0.9	.10	.37			
	60-80	10-20	1.40-1.50	2.00-6.00	0.08-0.10	0.0-2.9	0.5-0.9	.15	.24			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
305:												
Celavar	0-2	10-20	1.15-1.25	0.60-2.00	0.16-0.18	0.0-2.9	0.5-1.0	.37	.37	2	5	56
	2-24	20-30	1.25-1.35	0.60-2.00	0.14-0.16	0.0-2.9	0.1-0.5	.32	.32			
	24-31	20-30	1.25-1.35	0.60-2.00	0.14-0.16	0.0-2.9	0.1-0.5	.32	.32			
	31-40	---	---	0.20-2.00	---	---	---	---	---			
Atarque	0-3	10-18	1.45-1.55	2.00-6.00	0.11-0.13	0.0-2.9	0.5-1.0	.24	.24	1	3	86
	3-14	18-35	1.20-1.30	0.60-2.00	0.14-0.16	0.0-2.9	0.5-0.9	.32	.32			
	14-20	---	---	0.00-0.20	---	---	---	---	---			
308:												
Fikel	0-3	30-35	1.35-1.45	0.20-0.60	0.18-0.20	3.0-5.9	0.5-1.5	.32	.32	5	4	86
	3-14	40-55	1.25-1.35	0.06-0.20	0.14-0.16	6.0-8.9	0.5-1.5	.20	.20			
	14-32	40-55	1.25-1.35	0.06-0.20	0.14-0.16	6.0-8.9	0.0-0.3	.20	.20			
	32-50	20-35	1.35-1.45	0.60-2.00	0.14-0.16	3.0-5.9	0.0-0.3	.32	.32			
	50-65	40-50	1.25-1.35	0.06-0.20	0.14-0.16	6.0-8.9	0.0-0.3	.20	.20			
	65-70	20-35	1.35-1.45	0.60-2.00	0.14-0.16	3.0-5.9	0.0-0.3	.32	.32			
Venzuni	0-7	45-65	1.15-1.25	0.06-0.20	0.12-0.14	6.0-8.9	1.0-2.0	.20	.20	5	4	86
	7-22	60-80	1.30-1.40	0.01-0.06	0.12-0.14	6.0-8.9	1.0-2.0	.20	.20			
	22-42	60-80	1.30-1.40	0.01-0.06	0.12-0.14	6.0-8.9	0.5-1.0	.20	.20			
	42-56	35-50	1.50-1.60	0.20-0.60	0.13-0.14	6.0-8.9	0.5-1.0	.32	.32			
	56-75	25-35	1.50-1.60	0.60-2.00	0.14-0.15	3.0-5.9	0.5-0.5	.32	.32			
310:												
Parkelei	0-2	10-20	1.50-1.60	2.00-6.00	0.11-0.13	0.0-2.9	1.0-2.0	.24	.24	5	3	86
	2-21	20-35	1.45-1.55	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.32	.32			
	21-55	20-35	1.45-1.55	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.32	.32			
	55-65	30-40	1.40-1.50	0.20-0.60	0.19-0.21	3.0-5.9	0.5-1.0	.32	.32			
312:												
Bluewater	0-2	15-25	1.15-1.25	0.60-2.00	0.16-0.18	0.0-2.9	3.0-5.0	.37	.37	5	4L	86
	2-11	30-35	1.25-1.35	0.20-0.60	0.19-0.21	3.0-5.9	3.0-5.0	.32	.32			
	11-28	30-35	1.45-1.55	0.20-0.60	0.19-0.21	3.0-5.9	1.0-3.0	.32	.32			
	28-50	35-40	1.45-1.55	0.20-0.60	0.19-0.21	3.0-5.9	1.0-3.0	.32	.32			
	50-70	40-50	1.30-1.40	0.01-0.06	0.13-0.15	6.0-8.9	1.0-2.0	.20	.20			
	70-80	40-50	1.30-1.40	0.01-0.06	0.13-0.15	6.0-8.9	0.0-0.5	.20	.20			
315:												
Flugle	0-3	10-25	1.20-1.30	0.60-2.00	0.16-0.18	0.0-2.9	1.0-2.0	.37	.37	5	4L	86
	3-10	20-35	1.40-1.50	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.32	.32			
	10-28	27-35	1.40-1.50	0.20-0.60	0.19-0.21	3.0-5.9	0.5-1.0	.32	.32			
	28-65	10-20	1.45-1.55	2.00-6.00	0.11-0.13	0.0-2.9	0.5-1.0	.24	.24			
Fragua	0-2	5-15	1.50-1.60	6.00-20.00	0.09-0.10	0.0-2.9	1.0-2.0	.20	.20	5	2	134
	2-19	10-20	1.45-1.55	2.00-6.00	0.11-0.13	0.0-2.9	0.5-1.0	.24	.24			
	19-65	5-20	1.45-1.55	2.00-6.00	0.11-0.13	0.0-2.9	0.5-1.0	.24	.24			
316:												
Royosa	0-2	3-10	1.30-1.40	6.00-20.00	0.09-0.10	0.0-2.9	1.0-2.0	.20	.20	5	2	134
	2-6	3-10	1.45-1.55	6.00-20.00	0.09-0.10	0.0-2.9	0.5-1.0	.20	.20			
	6-65	3-10	1.45-1.55	6.00-20.00	0.09-0.10	0.0-2.9	0.5-1.0	.20	.20			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
317:												
Highdye	0-3	10-20	1.40-1.50	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.28	.28	1	3	86
	3-5	30-40	1.45-1.55	0.20-0.60	0.19-0.21	3.0-5.9	0.5-1.0	.32	.32			
	5-12	40-55	1.35-1.45	0.06-0.60	0.14-0.16	6.0-8.9	0.5-1.0	.20	.20			
	12-20	---	---	0.06-2.00	---	---	---	---	---			
Evpark	0-5	10-25	1.45-1.55	0.60-2.00	0.16-0.18	0.0-2.9	1.0-2.0	.37	.37	2	5	56
	5-10	27-35	1.40-1.50	0.20-0.60	0.19-0.21	3.0-5.9	1.0-2.0	.32	.32			
	10-24	20-35	1.45-1.55	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.32	.32			
	24-40	---	---	0.06-2.00	---	---	---	---	---			
Bryway	0-4	10-20	1.50-1.60	2.00-6.00	0.11-0.13	0.0-2.9	1.0-2.0	.24	.24	3	3	86
	4-10	35-55	1.40-1.50	0.06-0.60	0.14-0.16	6.0-8.9	0.5-1.0	.20	.20			
	10-23	40-55	1.40-1.50	0.06-0.20	0.14-0.16	6.0-8.9	0.5-1.0	.20	.20			
	23-40	---	---	0.00-0.20	---	---	---	---	---			
320:												
Parkelei	0-4	5-15	1.35-1.45	2.00-6.00	0.12-0.14	0.0-2.9	1.0-2.0	.24	.28	5	3	86
	4-18	20-35	1.25-1.35	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.32	.32			
	18-28	20-35	1.25-1.35	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.32	.32			
	28-39	20-35	1.25-1.35	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.32	.32			
	39-52	20-35	1.25-1.35	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.32	.32			
	52-70	5-15	1.35-1.45	2.00-6.00	0.12-0.14	0.0-2.9	0.5-0.5	.24	.28			
Fraguni	0-4	5-10	1.75-1.85	6.00-20.00	0.09-0.10	0.0-2.9	0.5-1.0	.20	.20	5	2	134
	4-20	10-20	1.75-1.85	2.00-6.00	0.13-0.15	0.0-2.9	0.0-0.5	.28	.28			
	20-46	5-10	1.75-1.85	6.00-20.00	0.09-0.10	0.0-2.9	0.0-0.5	.20	.20			
	46-58	20-35	1.70-1.80	0.60-2.00	0.14-0.16	3.0-5.9	0.0-0.5	.32	.32			
	58-70	10-20	1.75-1.85	2.00-6.00	0.13-0.15	0.0-2.9	0.0-0.5	.28	.28			
325:												
Venzuni	0-2	50-60	1.20-1.30	0.06-0.20	0.15-0.17	6.0-8.9	1.0-2.0	.24	.24	5	4	86
	2-12	50-60	1.25-1.35	0.06-0.20	0.15-0.17	6.0-8.9	0.5-1.0	.24	.24			
	12-46	60-80	1.25-1.35	0.00-0.06	0.14-0.16	6.0-8.9	0.5-1.0	.20	.20			
	46-65	60-80	1.25-1.35	0.00-0.06	0.14-0.16	6.0-8.9	0.5-1.0	.20	.20			
332:												
Evpark	0-2	10-20	1.50-1.60	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.28	.28	2	3	86
	2-9	25-35	1.45-1.55	0.20-0.60	0.19-0.21	3.0-5.9	1.0-2.0	.32	.32			
	9-36	27-35	1.55-1.65	0.20-0.60	0.19-0.21	3.0-5.9	0.2-1.0	.32	.32			
	36-40	---	---	0.06-2.00	---	---	---	---	---			
Arabrab	0-2	10-18	1.50-1.60	2.00-6.00	0.06-0.11	0.0-2.9	1.0-2.0	.15	.28	1	6	48
	2-7	20-27	1.45-1.55	0.60-2.00	0.14-0.16	0.0-2.9	0.5-1.0	.32	.32			
	7-12	30-35	1.45-1.55	0.20-0.60	0.19-0.21	3.0-5.9	0.0-0.5	.32	.32			
	12-17	30-35	1.45-1.55	0.20-0.60	0.19-0.21	3.0-5.9	0.0-0.5	.32	.32			
	17-20	---	---	0.00-0.20	---	---	---	---	---			
335:												
Venadito	0-3	40-60	1.15-1.25	0.06-0.20	0.14-0.16	6.0-8.9	2.0-3.0	.20	.20	5	4	86
	3-30	60-80	1.10-1.20	0.01-0.06	0.14-0.16	6.0-8.9	1.0-2.0	.20	.20			
	30-65	60-80	1.10-1.20	0.01-0.06	0.14-0.16	6.0-8.9	0.2-1.0	.20	.20			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
336:												
Nuffel	0-2	10-27	1.20-1.30	0.60-2.00	0.19-0.21	0.0-2.9	0.5-1.0	.43	.43	5	4L	86
	2-10	10-20	1.45-1.55	2.00-6.00	0.11-0.13	0.0-2.9	0.5-1.0	.24	.24			
	10-17	10-27	1.20-1.30	0.60-2.00	0.16-0.21	0.0-2.9	0.5-1.0	.43	.43			
	17-20	15-27	1.20-1.30	0.60-2.00	0.16-0.18	0.0-2.9	0.5-1.0	.37	.37			
	20-47	28-35	1.30-1.45	0.20-0.60	0.19-0.21	3.0-5.9	0.5-1.0	.37	.37			
	47-65	40-60	1.25-1.35	0.06-0.20	0.15-0.17	3.0-5.9	0.5-1.0	.24	.24			
Venadito	0-2	50-60	1.15-1.25	0.06-0.20	0.12-0.14	6.0-8.9	1.0-3.0	.20	.20	5	4	86
	2-9	60-80	1.25-1.35	0.01-0.06	0.12-0.14	6.0-8.9	1.0-2.0	.20	.20			
	9-11	50-60	1.35-1.45	0.06-0.20	0.12-0.14	6.0-8.9	0.5-1.0	.24	.24			
	11-65	60-80	1.35-1.45	0.01-0.06	0.12-0.14	9.0-11.9	0.5-1.0	.20	.20			
338:												
Zyme	0-3	30-40	1.25-1.35	0.20-0.60	0.18-0.20	6.0-8.9	0.5-1.0	.20	.37	2	7	38
	3-8	40-55	1.25-1.35	0.06-0.20	0.14-0.16	6.0-8.9	0.0-0.5	.20	.20			
	8-15	40-55	1.25-1.35	0.06-0.20	0.14-0.16	6.0-8.9	0.0-0.5	.20	.20			
	15-20	---	---	0.00-0.06	---	---	---	---	---			
Lockerby	0-1	30-40	1.25-1.40	0.20-0.60	0.19-0.21	3.0-5.9	1.0-2.0	.37	.37	3	4L	86
	1-11	40-50	1.25-1.40	0.06-0.20	0.14-0.16	6.0-8.9	0.5-1.0	.20	.20			
	11-15	40-55	1.25-1.40	0.06-0.20	0.14-0.16	6.0-8.9	0.0-0.5	.20	.20			
	15-26	40-55	1.25-1.40	0.06-0.06	0.14-0.16	6.0-8.9	0.0-0.5	.20	.20			
	26-40	---	---	0.00-0.06	---	---	---	---	---			
345:												
Rock outcrop	0	---	---	0.00-0.20	---	---	---	---	---	-	---	---
Tuces	0-1	30-40	1.30-1.40	0.20-0.60	0.05-0.07	3.0-5.9	0.5-0.9	.05	.32	3	8	0
	1-4	45-55	1.25-1.35	0.06-0.20	0.14-0.16	6.0-8.9	0.0-0.5	.17	.20			
	4-24	45-55	1.25-1.35	0.06-0.20	0.14-0.16	6.0-8.9	0.0-0.5	.17	.20			
	24-40	---	---	0.00-0.20	---	---	---	---	---			
350:												
Toldohn	0-4	30-40	1.30-1.40	0.20-0.60	0.10-0.12	3.0-5.9	1.0-2.0	.15	.32	2	4L	86
	4-11	40-55	1.35-1.45	0.06-0.20	0.14-0.16	6.0-8.9	0.5-1.0	.20	.20			
	11-20	---	---	0.00-0.20	---	---	---	---	---			
Vessilla	0-2	5-20	1.50-1.60	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28	1	3	86
	2-11	5-20	1.50-1.60	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28			
	11-20	---	---	0.20-2.00	---	---	---	---	---			
Rock outcrop	0	---	---	0.00-0.20	---	---	---	---	---	-	---	---
351:												
Rock outcrop	0	---	---	0.00-0.20	---	---	---	---	---	-	---	---
Vessilla	0-5	5-20	1.50-1.60	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28	1	3	86
	5-20	---	---	0.20-2.00	---	---	---	---	---			
352:												
Zia	0-3	10-20	1.45-1.55	2.00-6.00	0.11-0.13	0.0-2.9	1.0-2.0	.24	.24	5	3	86
	3-31	8-18	1.45-1.55	2.00-20.00	0.06-0.13	0.0-2.9	0.5-1.0	.24	.24			
	31-65	8-18	1.45-1.55	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28			
353:												
Mido	0-3	3-5	1.50-1.60	6.00-20.00	0.09-0.10	0.0-2.9	0.4-0.6	.20	.20	5	2	134
	3-65	4-8	1.50-1.60	6.00-20.00	0.09-0.10	0.0-2.9	0.3-0.5	.20	.20			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
354:												
Knifehill	0-2	18-27	1.25-1.35	0.60-2.00	0.16-0.18	0.0-2.9	1.0-2.0	.37	.37	5	6	48
	2-6	30-40	1.45-1.55	0.20-0.60	0.19-0.21	3.0-5.9	1.0-2.0	.32	.32			
	6-11	30-40	1.45-1.55	0.20-0.60	0.19-0.21	3.0-5.9	1.0-2.0	.32	.32			
	11-26	40-50	1.40-1.50	0.06-0.20	0.14-0.16	6.0-8.9	1.0-2.0	.20	.20			
	26-35	40-50	1.40-1.50	0.06-0.20	0.14-0.16	6.0-8.9	1.0-2.0	.20	.20			
	35-65	35-50	1.40-1.50	0.06-0.20	0.14-0.16	6.0-8.9	1.0-2.0	.20	.20			
355:												
Rizno	0-3	10-18	1.45-1.55	2.00-6.00	0.11-0.13	0.0-2.9	0.5-1.0	.24	.24	1	3	86
	3-8	10-18	1.45-1.55	2.00-6.00	0.11-0.13	0.0-2.9	0.5-1.0	.24	.24			
	8-20	---	---	0.20-2.00	---	---	---	---	---			
Tekapo	0-2	28-40	1.15-1.25	0.20-0.60	0.15-0.17	3.0-5.9	0.5-1.0	.20	.37	2	5	56
	2-10	35-50	1.40-1.50	0.06-0.60	0.15-0.17	6.0-8.9	0.2-1.0	.24	.24			
	10-20	---	---	0.00-0.20	---	---	---	---	---			
Rock outcrop	0	---	---	0.00-0.20	---	---	---	---	---	-	---	---
357:												
Heshotauthla	0-3	40-50	1.40-1.50	0.06-0.20	0.14-0.16	3.0-5.9	1.0-2.0	.20	.20	5	4	86
	3-18	50-60	1.40-1.50	0.00-0.06	0.10-0.12	6.0-8.9	1.0-2.0	.20	.20			
	18-65	50-60	1.40-1.50	0.00-0.06	0.07-0.08	6.0-8.9	0.2-1.0	.20	.20			
360:												
Hosta	0-2	10-26	1.45-1.55	0.60-2.00	0.16-0.18	0.0-2.9	1.0-2.0	.37	.37	5	5	56
	2-4	30-40	1.40-1.50	0.20-0.60	0.19-0.21	3.0-5.9	0.5-1.0	.32	.32			
	4-24	30-40	1.40-1.50	0.20-0.60	0.19-0.21	3.0-5.9	0.5-1.0	.32	.32			
	24-51	40-55	1.30-1.40	0.06-0.20	0.14-0.16	6.0-8.9	0.5-1.0	.20	.20			
	51-65	20-30	1.50-1.60	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.32	.32			
Concho	0-1	30-40	1.25-1.35	0.20-0.60	0.19-0.21	3.0-5.9	2.0-3.0	.32	.32	5	4	86
	1-5	40-55	1.30-1.40	0.06-0.20	0.14-0.16	6.0-8.9	1.0-2.0	.20	.20			
	5-32	40-55	1.25-1.35	0.06-0.20	0.14-0.16	6.0-8.9	0.5-1.0	.20	.20			
	32-51	40-55	1.25-1.35	0.06-0.20	0.14-0.16	6.0-8.9	0.5-1.0	.20	.20			
	51-65	40-55	1.25-1.35	0.06-0.20	0.14-0.16	6.0-8.9	0.5-1.0	.20	.20			
361:												
Monpark	0-4	40-55	1.10-1.20	0.06-0.20	0.15-0.17	6.0-8.9	0.5-1.0	.24	.24	3	4	86
	4-7	35-55	1.25-1.35	0.06-0.20	0.15-0.17	6.0-8.9	0.5-1.0	.24	.24			
	7-27	40-60	1.25-1.35	0.06-0.06	0.14-0.16	6.0-8.9	0.5-1.0	.20	.20			
	27-40	---	---	0.00-0.20	---	---	---	---	---			
365:												
Vessilla	0-2	10-20	1.50-1.60	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28	1	3	86
	2-6	10-20	1.50-1.60	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28			
	6-15	10-20	1.50-1.60	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28			
	15-20	---	---	0.20-2.00	---	---	---	---	---			
Rock outcrop	0	---	---	0.00-0.20	---	---	---	---	---	-	---	---

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
366:												
Bosonoak	0-2	20-27	---	0.60-2.00	0.16-0.18	0.0-2.9	0.5-1.0	.37	.37	5	4L	86
	2-5	30-35	---	0.20-0.60	0.19-0.21	3.0-5.9	0.0-0.5	.32	.32			
	5-28	30-35	---	0.20-0.60	0.19-0.21	3.0-5.9	0.0-0.5	.32	.32			
	28-40	15-27	---	0.60-2.00	0.16-0.18	0.0-2.9	0.0-0.5	.37	.37			
	40-63	15-27	---	0.60-2.00	0.16-0.18	0.0-2.9	0.0-0.5	.37	.37			
	63-80	20-27	---	0.60-2.00	0.19-0.21	0.0-2.9	0.0-0.5	.43	.43			
367:												
Chunkmonk	0-1	5-15	1.45-1.55	2.00-6.00	0.09-0.11	0.0-2.9	0.5-1.0	.10	.28	1	4L	86
	1-4	10-25	1.30-1.40	0.60-2.00	0.09-0.11	0.0-2.9	0.5-1.0	.10	.37			
	4-8	10-25	1.30-1.40	0.60-2.00	0.14-0.16	0.0-2.9	0.5-0.5	.20	.37			
	8-10	10-25	1.30-1.40	0.60-2.00	0.14-0.16	0.0-2.9	0.5-0.5	.20	.37			
	10-20	---	---	0.00-0.60	---	---	---	---	---			
368:												
Simitarq	0-1	5-18	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	0.5-0.9	.24	.28	1	3	86
	1-6	20-35	1.30-1.35	0.60-2.00	0.13-0.14	3.0-5.9	0.1-0.5	.32	.32			
	6-14	35-45	1.30-1.35	0.20-0.60	0.14-0.16	6.0-8.9	0.1-0.5	.32	.32			
	14-20	---	---	0.20-2.00	---	---	---	---	---			
Celavar	0-1	---	---	6.00-20.00	---	---	---	---	---	2	3	86
	1-2	10-20	1.25-1.35	2.00-6.00	0.11-0.13	0.0-2.9	0.5-1.0	.24	.24			
	2-11	20-30	1.35-1.45	0.60-2.00	0.14-0.16	0.0-2.9	0.5-0.5	.32	.32			
	11-27	20-30	1.55-1.65	0.60-2.00	0.14-0.16	0.0-2.9	0.5-0.5	.32	.32			
	27-31	25-35	1.55-1.65	0.60-2.00	0.14-0.16	3.0-5.9	0.5-0.5	.32	.32			
	31-40	---	---	0.20-2.00	---	---	---	---	---			
375:												
Todest	0-1	10-15	1.50-1.60	2.00-6.00	0.13-0.15	0.0-2.9	0.5-0.9	.28	.28	2	3	86
	1-3	10-20	1.50-1.60	2.00-6.00	0.13-0.15	0.0-2.9	0.1-0.5	.28	.28			
	3-10	20-35	1.45-1.55	0.60-2.00	0.14-0.16	0.0-2.9	0.1-0.5	.32	.32			
	10-18	20-35	1.45-1.55	0.60-2.00	0.14-0.16	0.0-2.9	0.1-0.5	.32	.32			
	18-25	10-20	1.45-1.55	0.60-2.00	0.15-0.17	0.0-2.9	0.1-0.5	.37	.37			
	25-40	---	---	0.00-0.60	---	---	---	---	---			
Shadilto	0-1	8-18	1.45-1.65	2.00-6.00	0.05-0.06	0.0-2.9	0.1-0.5	.15	.24	1	6	48
	1-9	8-18	1.45-1.65	2.00-6.00	0.10-0.12	0.0-2.9	0.1-0.5	.24	.24			
	9-13	8-18	1.45-1.65	2.00-6.00	0.10-0.12	0.0-2.9	0.1-0.5	.24	.24			
	13-15	8-18	1.45-1.65	2.00-6.00	0.10-0.12	0.0-2.9	0.1-0.5	.24	.24			
	15-20	---	---	0.00-0.60	---	---	---	---	---			
376:												
Todest	0-1	10-20	1.50-1.60	2.00-6.00	0.12-0.14	0.0-2.9	0.5-0.9	.28	.28	2	3	86
	1-8	20-35	1.45-1.55	0.60-2.00	0.14-0.16	0.0-2.9	0.1-0.5	.32	.32			
	8-14	20-35	1.45-1.55	0.60-2.00	0.13-0.14	0.0-2.9	0.1-0.5	.32	.32			
	14-24	20-35	1.45-1.55	0.60-2.00	0.13-0.14	0.0-2.9	0.1-0.5	.15	.32			
	24-40	---	---	0.00-0.60	---	---	---	---	---			
380:												
Berryhill	0-2	40-50	1.25-1.35	0.06-0.20	0.13-0.15	6.0-8.9	0.5-1.0	.20	.20	5	4	86
	2-12	45-60	1.40-1.50	0.01-0.06	0.13-0.15	6.0-8.9	0.5-1.0	.20	.20			
	12-26	45-60	1.40-1.50	0.01-0.06	0.13-0.15	6.0-8.9	0.5-1.0	.20	.20			
	26-39	45-60	1.40-1.50	0.01-0.06	0.13-0.15	6.0-8.9	0.2-0.5	.20	.20			
	39-70	45-60	1.40-1.50	0.01-0.06	0.13-0.15	6.0-8.9	0.2-0.5	.20	.20			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
380:												
Casamero	0-3	45-60	1.25-1.35	0.06-0.20	0.13-0.15	6.0-8.9	0.5-1.0	.20	.20	2	4	86
	3-11	50-70	1.40-1.50	0.01-0.06	0.13-0.15	6.0-8.9	0.5-0.5	.20	.20			
	11-18	50-70	1.40-1.50	0.01-0.06	0.13-0.15	6.0-8.9	0.5-0.5	.20	.20			
	18-20	---	---	0.00-0.20	---	---	---	---	---			
385:												
Mcorreon	0-2	20-27	1.25-1.35	0.60-2.00	0.03-0.04	0.0-2.9	0.5-2.0	.05	.37	5	8	0
	2-5	30-40	1.25-1.35	0.20-0.60	0.18-0.20	3.0-5.9	0.5-2.0	.32	.32			
	5-16	40-60	1.35-1.45	0.06-0.20	0.14-0.16	6.0-8.9	0.5-2.0	.20	.20			
	16-22	40-60	1.35-1.45	0.06-0.20	0.14-0.16	6.0-8.9	0.5-1.0	.20	.20			
	22-70	40-60	1.35-1.45	0.06-0.20	0.13-0.14	6.0-8.9	0.5-1.0	.20	.20			
	70-74	---	---	0.00-0.60	---	---	---	---	---			
Rock outcrop	0	---	---	0.00-0.00	---	---	---	---	---	-	---	---
390:												
Banquito	0-2	10-20	1.35-1.50	0.60-2.00	0.15-0.17	0.0-2.9	0.5-1.0	.55	.55	2	3	86
	2-9	25-35	1.25-1.40	0.20-0.60	0.19-0.21	3.0-5.9	0.2-0.5	.32	.32			
	9-17	20-27	1.25-1.40	0.60-2.00	0.16-0.18	0.0-2.9	0.2-0.5	.37	.37			
	17-22	20-30	1.25-1.40	0.60-2.00	0.14-0.16	3.0-5.9	0.2-0.5	.32	.32			
	22-36	10-20	1.35-1.50	2.00-6.00	0.11-0.13	0.0-2.9	0.2-0.5	.24	.24			
	36-40	---	---	0.01-20.00	---	---	---	---	---			
395:												
Cabezon	0-2	20-27	1.25-1.35	0.60-2.00	0.08-0.09	0.0-2.9	0.5-2.0	.10	.37	1	8	0
	2-6	35-40	1.30-1.40	0.20-0.60	0.19-0.21	3.0-5.9	0.5-1.0	.32	.32			
	6-14	40-60	1.35-1.45	0.06-0.20	0.13-0.14	6.0-8.9	0.5-1.0	.15	.20			
	14-17	---	---	0.00-0.06	---	---	---	---	---			
	17-20	---	---	0.00-0.06	---	---	---	---	---			
Mcorreon	0-2	20-27	1.25-1.35	0.60-2.00	0.14-0.16	0.0-2.9	0.5-2.0	.24	.37	5	6	48
	2-13	40-60	1.35-1.45	0.06-0.20	0.14-0.16	6.0-8.9	0.5-2.0	.20	.20			
	13-19	40-60	1.35-1.45	0.06-0.20	0.13-0.14	6.0-8.9	0.5-2.0	.15	.20			
	19-27	30-40	1.25-1.35	0.20-0.60	0.18-0.20	3.0-5.9	0.5-1.0	.28	.32			
	27-70	30-40	1.25-1.36	0.20-0.60	0.18-0.20	3.0-5.9	0.5-1.0	.28	.32			
	70-80	---	---	0.00-0.60	---	---	---	---	---			
400:												
Shoemaker	0-2	5-15	1.50-1.60	2.00-6.00	0.13-0.15	0.0-2.9	2.0-3.0	.20	.20	2	2	134
	2-7	10-20	1.45-1.55	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.28	.28			
	7-20	20-30	1.50-1.60	0.60-2.00	0.14-0.16	0.0-2.9	0.5-1.0	.32	.32			
	20-28	25-35	1.50-1.60	0.60-2.00	0.14-0.16	0.0-2.9	0.2-1.0	.32	.32			
	28-40	---	---	0.00-0.06	---	---	---	---	---			
Stozuni	0-2	6-18	1.40-1.50	2.00-6.00	0.11-0.13	0.0-2.9	1.0-2.0	.24	.24	1	3	86
	2-10	6-18	1.40-1.50	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28			
	10-15	6-18	1.40-1.50	2.00-6.00	0.13-0.15	0.0-2.9	0.2-1.0	.28	.28			
	15-20	---	---	0.00-0.20	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
403:												
Valnor	0-2	27-35	1.25-1.35	0.20-0.60	0.19-0.21	3.0-5.9	1.0-2.0	.32	.32	3	4	86
	2-4	27-35	1.45-1.55	0.20-0.60	0.19-0.21	3.0-5.9	0.5-1.0	.32	.32			
	4-20	40-60	1.35-1.45	0.06-0.20	0.14-0.16	6.0-8.9	0.5-1.0	.20	.20			
	20-34	40-60	1.35-1.45	0.06-0.20	0.14-0.16	6.0-8.9	0.5-1.0	.20	.20			
	34-40	---	---	0.00-0.20	---	---	---	---	---			
Techado	0-3	40-60	1.20-1.30	0.06-0.20	0.11-0.12	6.0-8.9	1.0-2.0	.10	.20	2	4L	86
	3-13	40-60	1.25-1.40	0.06-0.20	0.14-0.16	6.0-8.9	0.5-1.0	.20	.20			
	13-20	---	---	0.00-0.20	---	---	---	---	---			
404:												
Rock outcrop	0	---	---	0.00-0.20	---	---	---	---	---	-	---	---
Techado	0-5	27-40	1.35-1.40	0.20-0.60	0.16-0.18	3.0-5.9	1.0-2.0	.15	.32	2	4L	86
	5-8	40-60	1.30-1.40	0.06-0.20	0.14-0.16	6.0-8.9	0.5-1.0	.20	.20			
	8-17	40-60	1.30-1.40	0.06-0.20	0.14-0.16	6.0-8.9	0.5-1.0	.20	.20			
	17-20	---	---	0.00-0.06	---	---	---	---	---			
Stozuni	0-1	6-18	1.40-1.50	2.00-6.00	0.08-0.10	0.0-2.9	1.0-2.0	.15	.24	1	4	86
	1-7	6-18	1.40-1.50	2.00-6.00	0.09-0.10	0.0-2.9	0.2-1.0	.15	.24			
	7-20	---	---	0.20-2.00	---	---	---	---	---			
405:												
Fortwingate	0-1	---	---	6.00-20.00	---	---	---	---	---	2	5	56
	1-4	15-25	1.15-1.25	0.60-2.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.37			
	4-9	30-40	1.35-1.45	0.20-0.60	0.17-0.19	6.0-8.9	0.5-1.0	.32	.32			
	9-26	40-50	1.25-1.35	0.06-0.20	0.12-0.14	6.0-8.9	0.5-1.0	.20	.20			
	26-40	---	---	0.00-0.60	---	---	---	---	---			
Owlrock	0-1	10-20	1.15-1.25	0.60-2.00	0.06-0.08	0.0-2.9	1.0-2.0	.10	.37	1	6	86
	1-6	18-25	1.25-1.35	0.60-2.00	0.13-0.15	0.0-2.9	1.0-2.0	.10	.37			
	6-13	18-25	1.25-1.35	0.60-2.00	0.13-0.15	0.0-2.9	1.0-2.0	.10	.37			
	13-20	---	---	0.00-0.60	---	---	---	---	---			
406:												
Polich	0-13	15-27	1.15-1.25	0.60-2.00	0.19-0.21	3.0-5.9	1.0-3.0	.43	.43	5	6	48
	13-23	20-27	1.20-1.30	0.60-2.00	0.16-0.18	3.0-5.9	1.0-2.0	.37	.37			
	23-40	30-40	1.25-1.35	0.20-0.60	0.19-0.21	3.0-5.9	1.0-2.0	.32	.32			
	40-48	30-40	1.25-1.35	0.20-0.60	0.19-0.21	3.0-5.9	1.0-2.0	.32	.32			
	48-58	30-50	1.30-1.40	0.20-0.60	0.19-0.21	6.0-8.9	0.5-0.5	.32	.32			
	58-70	20-27	1.30-1.40	0.60-2.00	0.16-0.18	3.0-5.9	0.5-0.5	.37	.37			
407:												
Cinnadale	0-2	10-18	1.25-1.35	2.00-6.00	0.09-0.11	0.0-2.9	0.5-1.0	.10	.28	1	4L	86
	2-9	10-18	1.35-1.45	2.00-6.00	0.08-0.10	0.0-2.9	0.5-0.5	.10	.28			
	9-15	10-18	1.35-1.45	2.00-6.00	0.08-0.10	0.0-2.9	0.5-0.5	.10	.28			
	15-20	---	---	0.20-2.00	---	---	---	---	---			
Heckly	0-3	10-20	1.45-1.55	2.00-6.00	0.05-0.07	0.0-2.9	0.5-1.0	.05	.24	2	8	0
	3-15	40-50	1.25-1.35	0.06-0.20	0.12-0.14	6.0-8.9	0.5-0.5	.10	.20			
	15-38	30-40	1.25-1.35	0.20-0.60	0.14-0.16	3.0-5.9	0.5-0.5	.15	.37			
	38-40	---	---	0.20-2.00	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
408:												
Mirabal	0-1	---	---	6.00-20.00	---	---	---	---	---	2	8	0
	1-2	5-10	1.30-1.40	6.00-20.00	0.01-0.03	0.0-2.9	0.5-1.0	.02	.17			
	2-6	8-15	1.35-1.45	2.00-6.00	0.08-0.10	0.0-2.9	0.5-0.5	.15	.24			
	6-13	8-15	1.35-1.45	2.00-6.00	0.06-0.08	0.0-2.9	0.5-0.5	.10	.24			
	13-30	8-15	1.35-1.45	2.00-6.00	0.03-0.05	0.0-2.9	0.5-0.5	.05	.24			
	30-40	---	---	0.00-20.00	---	---	---	---	---			
Zuni	0-1	---	---	6.00-20.00	---	---	---	---	---	2	4	86
	1-3	10-15	1.25-1.35	2.00-6.00	0.09-0.11	0.0-2.9	0.5-1.0	.10	.24			
	3-18	35-50	1.25-1.35	0.06-0.20	0.12-0.14	6.0-8.9	0.5-0.5	.15	.32			
	18-27	35-50	1.35-1.45	0.06-0.20	0.11-0.13	6.0-8.9	0.5-0.5	.17	.32			
	27-40	---	---	0.00-0.20	---	---	---	---	---			
409:												
Rauster	0-1	30-40	1.35-1.45	0.20-0.60	0.19-0.21	3.0-5.9	1.0-2.0	.32	.32	5	5	56
	1-5	40-50	1.25-1.35	0.06-0.20	0.14-0.16	6.0-8.9	1.0-2.0	.20	.20			
	5-28	40-50	1.25-1.35	0.06-0.20	0.14-0.16	6.0-8.9	1.0-2.0	.20	.20			
	28-55	40-50	1.25-1.35	0.01-0.06	0.14-0.16	6.0-8.9	0.5-1.0	.20	.20			
	55-60	---	---	0.00-0.06	---	---	---	---	---			
Rock outcrop	0	---	---	0.00-0.20	---	---	---	---	---	-	---	---
410:												
Montillo	0-3	15-27	1.25-1.35	0.60-2.00	0.10-0.12	0.0-2.9	2.0-5.0	.10	.37	2	7	38
	3-8	35-40	1.15-1.25	0.20-0.60	0.15-0.17	3.0-5.9	2.0-4.0	.37	.37			
	8-15	40-60	1.35-1.45	0.06-0.20	0.12-0.14	6.0-8.9	1.0-3.0	.24	.24			
	15-27	50-70	1.35-1.45	0.06-0.20	0.13-0.15	6.0-8.9	1.0-3.0	.20	.20			
	27-32	40-60	1.40-1.50	0.06-0.20	0.09-0.10	6.0-8.9	1.0-3.0	.05	.20			
	32-40	---	---	0.01-20.00	---	---	---	---	---			
Tsoodzil	0-3	15-27	1.20-1.30	0.60-2.00	0.11-0.12	0.0-2.9	2.0-5.0	.15	.43	5	8	0
	3-10	30-40	1.50-1.60	0.20-0.60	0.11-0.12	3.0-5.9	2.0-3.0	.32	.37			
	10-21	60-70	1.30-1.40	0.06-0.20	0.13-0.15	6.0-8.9	1.0-3.0	.20	.20			
	21-46	60-70	1.30-1.40	0.06-0.20	0.13-0.15	6.0-8.9	0.5-1.0	.17	.20			
	46-70	35-55	1.40-1.50	0.20-0.60	0.14-0.16	6.0-8.9	0.2-0.5	.24	.32			
411:												
Ligocki	0-2	10-20	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.28	.28	5	3	86
	2-8	10-20	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28			
	8-21	40-50	1.25-1.35	0.06-0.20	0.14-0.16	6.0-8.9	0.5-0.5	.20	.20			
	21-30	30-40	1.35-1.45	0.20-0.60	0.19-0.21	3.0-5.9	0.5-0.5	.28	.32			
	30-41	20-30	1.35-1.45	0.60-2.00	0.11-0.13	0.0-2.9	0.5-0.5	.20	.32			
	41-70	20-30	1.35-1.45	0.60-2.00	0.14-0.16	0.0-2.9	0.5-0.5	.32	.32			
Robolata	0-6	15-25	1.25-1.35	0.60-2.00	0.16-0.18	0.0-2.9	1.0-2.0	.37	.37	4	5	56
	6-12	20-27	1.25-1.35	0.60-2.00	0.16-0.18	0.0-2.9	1.0-2.0	.37	.37			
	12-20	40-50	1.25-1.35	0.06-0.20	0.14-0.16	6.0-8.9	1.0-2.0	.20	.20			
	20-30	30-40	1.25-1.35	0.20-0.60	0.19-0.21	3.0-5.9	0.5-1.0	.32	.32			
	30-50	20-35	1.25-1.35	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.32	.32			
	50-70	5-15	1.35-1.45	2.00-6.00	0.05-0.07	0.0-2.9	0.5-0.5	.10	.24			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
412:												
Rock outcrop	0	---	---	0.00-0.20	---	---	---	---	---	-	---	---
Rionutria	0-3	15-25	1.15-1.25	0.60-2.00	0.10-0.12	0.0-2.9	1.0-2.0	.15	.37	2	6	48
	3-12	35-40	1.25-1.35	0.20-0.60	0.10-0.12	3.0-5.9	1.0-2.0	.10	.32			
	12-24	35-40	1.25-1.35	0.20-0.60	0.11-0.13	3.0-5.9	0.5-1.0	.10	.32			
	24-40	---	---	0.00-0.60	---	---	---	---	---			
Zaster	0-3	10-20	1.15-1.25	2.00-6.00	0.04-0.06	0.0-2.9	0.5-1.0	.05	.37	2	8	0
	3-11	10-20	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.20	.37			
	11-27	10-20	1.25-1.35	2.00-6.00	0.05-0.07	0.0-2.9	0.5-0.5	.05	.37			
	27-40	---	---	0.00-0.20	---	---	---	---	---			
413:												
Morclay	0-1	40-60	1.15-1.25	0.06-0.20	0.15-0.17	6.0-8.9	0.5-1.0	.24	.24	5	4	86
	1-5	40-60	1.35-1.45	0.01-0.06	0.14-0.16	6.0-8.9	0.5-1.0	.20	.20			
	5-48	40-60	1.35-1.45	0.01-0.06	0.14-0.16	6.0-8.9	0.5-0.5	.20	.20			
	48-56	40-60	1.35-1.45	0.01-0.06	0.14-0.16	6.0-8.9	0.5-0.5	.20	.20			
	56-70	40-60	1.35-1.45	0.01-0.06	0.14-0.16	6.0-8.9	0.5-0.5	.20	.20			
	70-80	---	---	0.00-0.06	---	---	---	---	---			
414:												
Zunalei	0-1	5-10	1.30-1.40	6.00-20.00	0.09-0.11	0.0-2.9	1.0-2.0	.20	.20	5	2	134
	1-6	10-15	1.35-1.45	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28			
	6-20	20-35	1.25-1.35	0.60-2.00	0.14-0.16	3.0-5.9	0.5-0.5	.32	.32			
	20-50	10-20	1.35-1.45	2.00-6.00	0.13-0.15	0.0-2.9	0.5-0.5	.28	.28			
	50-70	10-20	1.35-1.45	2.00-6.00	0.13-0.15	0.0-2.9	0.5-0.5	.28	.28			
Corzuni	0-1	---	---	6.00-20.00	---	---	---	---	---	5	2	134
	1-8	5-10	1.30-1.40	6.00-20.00	0.09-0.11	0.0-2.9	1.0-2.0	.20	.20			
	8-29	10-20	1.35-1.45	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28			
	29-45	10-20	1.35-1.45	2.00-6.00	0.13-0.15	0.0-2.9	0.5-0.5	.28	.28			
	45-70	10-20	1.35-1.45	2.00-6.00	0.13-0.15	0.0-2.9	0.5-0.5	.28	.28			
415:												
Tsoodzil	0-3	15-25	1.60-1.70	0.60-2.00	0.09-0.10	0.0-2.9	2.0-5.0	.15	.37	5	8	0
	3-7	30-40	1.55-1.65	0.20-0.60	0.18-0.20	0.0-2.9	2.0-3.0	.28	.32			
	7-22	40-60	1.45-1.55	0.06-0.20	0.11-0.13	6.0-8.9	0.5-1.0	.10	.20			
	22-65	40-60	1.45-1.55	0.06-0.20	0.13-0.14	6.0-8.9	0.5-1.0	.15	.20			
Rubble Land	0	---	---	---	---	---	---	---	---	5	---	---
416:												
Rock outcrop	0	---	---	0.00-0.20	---	---	---	---	---	-	---	---
Bluesky	0-5	1-5	1.45-1.55	20.00-20.00	0.05-0.07	0.0-2.9	0.5-0.5	.17	.17	1	1	220
	5-8	1-5	1.45-1.55	20.00-20.00	0.05-0.07	0.0-2.9	0.5-0.5	.17	.17			
	8-20	---	---	0.20-2.00	---	---	---	---	---			
418:												
Asaayi	0-1	---	---	6.00-20.00	---	---	---	---	---	1	4	86
	1-3	5-15	1.25-1.35	2.00-6.00	0.11-0.13	0.0-2.9	0.5-1.0	.10	.28			
	3-5	10-19	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	0.5-0.5	.28	.28			
	5-16	30-35	1.25-1.35	0.20-0.60	0.18-0.20	3.0-5.9	0.5-0.5	.32	.32			
	16-20	---	---	0.20-2.00	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
418:												
Osoridge	0-2	30-40	1.15-1.25	0.20-0.60	0.11-0.13	3.0-5.9	0.5-1.0	.10	.32	1	7	38
	2-6	40-50	1.25-1.35	0.06-0.20	0.13-0.15	6.0-8.9	0.5-0.5	.15	.20			
	6-18	40-50	1.35-1.45	0.06-0.20	0.14-0.16	6.0-8.9	0.5-0.5	.20	.20			
	18-20	---	---	0.20-2.00	---	---	---	---	---			
419:												
Fortwingate	0-5	10-20	1.45-1.55	2.00-6.00	0.06-0.08	0.0-2.9	0.5-1.0	.10	.24	2	6	48
	5-13	40-50	1.25-1.35	0.06-0.20	0.13-0.15	6.0-8.9	0.5-0.5	.17	.20			
	13-21	30-40	1.35-1.45	0.20-0.60	0.19-0.21	6.0-8.9	0.5-0.5	.32	.32			
	21-26	35-45	1.40-1.50	0.20-0.60	0.14-0.16	6.0-8.9	0.5-0.5	.28	.32			
	26-40	---	---	0.20-2.00	---	---	---	---	---			
Cinnadale	0-6	10-18	1.25-1.35	2.00-6.00	0.04-0.06	0.0-2.9	0.5-1.0	.02	.24	1	8	0
	6-11	10-18	1.35-1.45	2.00-6.00	0.08-0.10	0.0-2.9	0.5-0.5	.10	.28			
	11-20	---	---	0.20-2.00	---	---	---	---	---			
Rock outcrop	0	---	---	0.00-0.20	---	---	---	---	---	-	---	---
420:												
Seco	0-3	35-40	1.20-1.30	0.20-0.60	0.19-0.21	3.0-5.9	2.0-4.0	.32	.32	5	4	86
	3-11	55-65	1.20-1.30	0.06-0.20	0.14-0.16	6.0-8.9	1.0-3.0	.20	.20			
	11-23	60-70	1.20-1.30	0.01-0.06	0.14-0.16	6.0-8.9	1.0-3.0	.20	.20			
	23-58	60-70	1.25-1.35	0.01-0.06	0.14-0.16	6.0-8.9	0.5-1.0	.20	.20			
	58-70	60-70	1.20-1.30	0.01-0.06	0.14-0.16	6.0-8.9	0.0-0.2	.20	.20			
425:												
Montillo	0-2	15-27	1.40-1.50	0.60-2.00	0.14-0.15	0.0-2.9	2.0-5.0	.20	.37	2	7	38
	2-8	40-50	1.40-1.50	0.06-2.00	0.13-0.14	6.0-8.9	2.0-4.0	.15	.20			
	8-18	50-60	1.40-1.50	0.06-0.20	0.11-0.12	6.0-8.9	1.0-2.0	.10	.20			
	18-35	50-60	1.40-1.50	0.06-0.20	0.07-0.08	6.0-8.9	0.5-1.0	.05	.20			
	35-40	---	---	0.01-20.00	---	---	---	---	---			
Canoneros	0-2	10-25	1.20-1.30	0.60-2.00	0.10-0.12	0.0-2.9	2.0-4.0	.10	.37	1	8	0
	2-8	30-40	1.35-1.45	0.20-0.60	0.17-0.19	3.0-5.9	0.5-2.0	.32	.32			
	8-13	45-60	1.25-1.35	0.06-0.20	0.13-0.15	6.0-8.9	0.5-2.0	.20	.20			
	13-20	---	---	0.00-0.01	---	---	---	---	---			
430:												
Montillo	0-4	15-27	1.40-1.50	0.60-2.00	0.13-0.14	0.0-2.9	2.0-5.0	.20	.37	2	7	38
	4-13	40-50	1.40-1.50	0.06-2.00	0.13-0.15	6.0-8.9	2.0-4.0	.20	.20			
	13-31	50-70	1.40-1.50	0.06-0.20	0.13-0.15	6.0-8.9	1.0-2.0	.20	.20			
	31-38	50-60	1.40-1.50	0.06-0.20	0.11-0.13	6.0-8.9	0.5-1.0	.10	.20			
	38-40	---	---	0.01-20.00	---	---	---	---	---			
435:												
Tsoodzil	0-3	15-25	1.40-1.50	0.60-2.00	0.13-0.14	0.0-2.9	2.0-5.0	.15	.37	4	8	0
	3-11	40-50	1.45-1.55	0.06-0.20	0.13-0.14	6.0-8.9	2.0-3.0	.15	.20			
	11-25	60-70	1.35-1.45	0.06-0.20	0.12-0.14	6.0-8.9	1.0-3.0	.15	.20			
	25-32	40-60	1.50-1.60	0.06-0.20	0.11-0.13	6.0-8.9	0.5-1.0	.10	.20			
	32-65	30-40	1.60-1.70	0.20-0.60	0.05-0.06	3.0-5.9	0.2-0.5	.05	.32			
Amcec	0-4	15-25	1.10-1.20	0.60-2.00	0.02-0.03	0.0-2.9	2.0-5.0	.05	.37	3	8	0
	4-16	20-30	1.15-1.25	0.60-2.00	0.08-0.09	0.0-2.9	2.0-4.0	.10	.37			
	16-39	10-20	1.50-1.60	2.00-6.00	0.01-0.02	0.0-2.9	0.1-0.5	.02	.20			
	39-53	5-15	1.45-1.55	6.00-20.00	0.00-0.01	0.0-2.9	0.1-0.5	.02	.15			
	53-70	5-15	1.45-1.55	6.00-20.00	0.00-0.01	0.0-2.9	0.1-0.5	.02	.15			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
440:												
Chivato	0-2	45-55	1.20-1.30	0.01-0.06	0.14-0.16	6.0-8.9	2.0-4.0	.20	.20	5	4	86
	2-13	55-70	1.25-1.35	0.01-0.06	0.12-0.15	6.0-8.9	2.0-3.0	.20	.20			
	13-40	55-70	1.25-1.35	0.01-0.06	0.12-0.15	6.0-8.9	1.0-3.0	.20	.20			
	40-52	55-70	1.25-1.35	0.01-0.06	0.12-0.15	6.0-8.9	0.0-1.0	.20	.20			
	52-65	55-70	1.25-1.35	0.01-0.06	0.12-0.15	6.0-8.9	0.0-1.0	.20	.20			
525:												
Silcat	0-2	30-40	1.25-1.35	0.20-0.60	0.19-0.21	3.0-5.9	1.0-2.0	.32	.32	5	4	86
	2-38	45-55	1.45-1.55	0.01-0.06	0.13-0.15	6.0-8.9	1.0-2.0	.20	.20			
	38-65	40-55	1.45-1.55	0.01-0.06	0.13-0.15	6.0-8.9	0.5-1.0	.20	.20			
550:												
Bryway	0-2	10-25	1.50-1.60	0.60-2.00	0.16-0.18	0.0-2.9	1.0-2.0	.37	.37	3	5	56
	2-6	35-55	1.40-1.50	0.06-0.60	0.14-0.16	6.0-8.9	0.5-1.0	.20	.20			
	6-32	40-55	1.40-1.50	0.06-0.20	0.14-0.16	6.0-8.9	0.5-1.0	.20	.20			
	32-40	---	---	0.00-0.20	---	---	---	---	---			
Galzuni	0-2	20-27	1.20-1.30	0.60-2.00	0.16-0.18	0.0-2.9	1.0-2.0	.37	.37	5	6	48
	2-4	40-55	1.40-1.50	0.06-0.20	0.14-0.16	6.0-8.9	0.2-1.0	.20	.20			
	4-23	40-55	1.40-1.50	0.06-0.20	0.14-0.16	6.0-8.9	0.2-1.0	.20	.20			
	23-32	30-40	1.35-1.45	0.20-0.60	0.19-0.21	3.0-5.9	0.2-1.0	.32	.32			
	32-52	35-45	1.35-1.45	0.20-0.60	0.15-0.17	3.0-5.9	0.2-1.0	.32	.32			
	52-65	20-35	1.40-1.50	0.60-2.00	0.14-0.16	3.0-5.9	0.2-1.0	.32	.32			
555:												
Parkelei	0-3	10-20	1.50-1.60	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.28	.28	5	3	86
	3-12	27-35	1.55-1.65	0.20-0.60	0.19-0.21	3.0-5.9	0.5-1.0	.32	.32			
	12-21	20-35	1.45-1.55	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.32	.32			
	21-65	10-20	1.50-1.60	2.00-6.00	0.11-0.13	0.0-2.9	0.5-1.0	.24	.24			
Evpark	0-3	10-20	1.50-1.60	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.28	.28	2	3	86
	3-16	25-35	1.45-1.55	0.20-0.60	0.19-0.21	3.0-5.9	1.0-2.0	.32	.32			
	16-20	27-35	1.55-1.65	0.20-0.60	0.19-0.21	3.0-5.9	0.2-1.0	.32	.32			
	20-29	20-35	1.55-1.65	0.60-2.00	0.14-0.16	3.0-5.9	0.2-1.0	.32	.32			
	29-35	20-35	1.45-1.55	0.60-2.00	0.14-0.16	3.0-5.9	0.2-1.0	.32	.32			
	35-40	---	---	0.20-2.00	---	---	---	---	---			
560:												
Flugle	0-3	10-20	1.40-1.50	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.28	.28	5	3	86
	3-35	20-35	1.50-1.60	0.60-2.00	0.14-0.16	0.0-2.9	0.2-1.0	.32	.32			
	35-65	10-20	1.50-1.60	2.00-6.00	0.13-0.15	0.0-2.9	0.2-1.0	.28	.28			
Teczuni	0-2	15-25	1.15-1.25	0.60-2.00	0.16-0.18	0.0-2.9	1.0-2.0	.37	.37	5	5	56
	2-16	30-40	1.45-1.55	0.20-0.60	0.19-0.21	3.0-5.9	0.2-1.0	.32	.32			
	16-33	35-40	1.35-1.45	0.20-0.60	0.19-0.21	3.0-5.9	0.2-1.0	.32	.32			
	33-65	40-50	1.40-1.50	0.06-0.20	0.14-0.16	3.0-5.9	0.2-1.0	.20	.20			
561:												
Flugle	0-3	10-20	1.40-1.50	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.28	.28	5	3	86
	3-17	20-35	1.50-1.60	0.60-2.00	0.14-0.16	0.0-2.9	0.2-1.0	.32	.32			
	17-65	10-20	1.50-1.60	2.00-6.00	0.13-0.15	0.0-2.9	0.2-1.0	.28	.28			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
561:												
Plumasano	0-2	10-20	1.45-1.55	2.00-6.00	0.11-0.13	0.0-2.9	0.5-1.0	.24	.24	5	3	86
	2-11	10-20	1.45-1.55	2.00-6.00	0.11-0.13	0.0-2.9	0.2-1.0	.24	.24			
	11-27	10-20	1.45-1.55	2.00-6.00	0.11-0.13	0.0-2.9	0.2-1.0	.24	.24			
	27-43	10-20	1.45-1.55	2.00-6.00	0.13-0.15	0.0-2.9	0.2-1.0	.28	.28			
	43-53	10-20	1.45-1.55	2.00-6.00	0.13-0.15	0.0-2.9	0.2-1.0	.28	.28			
	53-65	20-30	1.40-1.50	0.60-2.00	0.14-0.16	3.0-5.9	0.2-1.0	.32	.32			
565:												
Plumasano	0-3	10-20	1.45-1.55	2.00-6.00	0.11-0.13	0.0-2.9	0.5-1.0	.24	.24	4	3	86
	3-24	10-20	1.45-1.55	2.00-6.00	0.11-0.13	0.0-2.9	0.2-1.0	.24	.24			
	24-36	4-15	1.55-1.65	6.00-20.00	0.06-0.08	0.0-2.9	0.2-1.0	.17	.17			
	36-65	10-20	1.45-1.55	2.00-6.00	0.11-0.13	0.0-2.9	0.2-1.0	.24	.24			
Rock outcrop	0	---	---	0.00-0.20	---	---	---	---	---	-	---	---
566:												
Bamac	0-2	5-15	1.55-1.65	6.00-20.00	0.03-0.04	0.0-2.9	0.5-1.0	.05	.24	5	8	0
	2-8	5-15	1.55-1.65	6.00-20.00	0.08-0.09	0.0-2.9	0.2-0.9	.15	.24			
	8-30	2-10	1.40-1.50	20.00-20.00	0.01-0.02	0.0-2.9	0.2-0.9	.02	.10			
	30-63	2-10	1.40-1.50	20.00-20.00	0.01-0.02	0.0-2.9	0.2-0.9	.02	.10			
575:												
Ramah	0-3	10-20	1.35-1.45	2.00-6.00	0.11-0.13	0.0-2.9	1.0-2.0	.24	.24	5	3	86
	3-8	20-35	1.45-1.55	0.60-2.00	0.14-0.16	0.0-2.9	0.2-1.0	.32	.32			
	8-15	35-40	1.40-1.50	0.20-0.60	0.19-0.21	3.0-5.9	0.2-1.0	.32	.32			
	15-33	30-40	1.45-1.55	0.20-0.60	0.19-0.21	3.0-5.9	0.2-1.0	.32	.32			
	33-41	30-40	1.45-1.55	0.20-0.60	0.19-0.21	3.0-5.9	0.2-1.0	.32	.32			
	41-62	20-30	1.45-1.55	0.60-2.00	0.14-0.16	0.0-2.9	0.2-1.0	.32	.32			
Pescado	0-3	10-20	1.45-1.55	2.00-6.00	0.13-0.15	0.0-2.9	0.2-1.0	.28	.28	1	3	86
	3-10	20-35	1.40-1.50	0.60-2.00	0.14-0.16	3.0-5.9	0.2-1.0	.32	.32			
	10-16	27-35	1.50-1.60	0.20-0.60	0.19-0.21	3.0-5.9	0.2-1.0	.32	.32			
	16-20	---	---	0.01-20.00	---	---	---	---	---			

Table 16.--Chemical Properties of the Soils

(Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
8:							
Water	---	---	---	---	---	---	---
10:							
Tsosie	0-2	5.0-15	7.4-8.4	1-5	0	0.0-2.0	1-5
	2-7	10-20	7.4-8.4	1-5	0	0.0-2.0	1-5
	7-13	10-20	7.9-9.0	1-5	0	0.0-2.0	10-13
	13-35	10-20	7.9-9.0	1-5	0	0.0-2.0	13-20
	35-47	15-25	7.9-9.0	1-5	0	0.0-2.0	13-20
	47-65	15-25	7.9-9.0	1-5	0	0.0-2.0	13-20
Councelor	0-2	5.0-10	7.4-7.8	1-5	0	0.0-2.0	0
	2-20	5.0-10	7.4-7.8	1-5	0	0.0-2.0	0
	20-47	5.0-10	7.4-8.4	1-10	0	0.0-2.0	1-5
	47-65	10-20	7.4-8.4	1-10	0	0.0-2.0	1-5
Blancot	0-3	5.0-15	7.4-8.4	0-1	0	0.0-2.0	0
	3-11	10-20	7.4-8.4	0-1	0	0.0-2.0	1-5
	11-16	10-20	7.4-8.4	0-1	0	0.0-2.0	1-5
	16-37	10-20	7.4-8.4	0-1	0	0.0-2.0	1-5
	37-65	5.0-10	7.4-8.4	0-1	0	0.0-2.0	0-5
11:							
Doakum	0-2	5.0-10	6.6-7.3	0-1	0	0.0-2.0	0
	2-8	10-20	6.6-7.8	0-1	0	0.0-2.0	0
	8-13	10-20	6.6-7.8	0-1	0	0.0-2.0	0
	13-21	10-20	6.6-7.8	0-1	0	0.0-2.0	0
	21-42	10-20	7.4-7.8	1-5	0	0.0-2.0	1-5
	42-65	5.0-15	7.4-7.8	1-5	0	0.0-2.0	1-5
Betonnie	0-3	5.0-10	6.6-7.3	0	0	0.0-2.0	0
	3-11	5.0-15	6.6-7.3	0	0	0.0-2.0	0
	11-21	5.0-15	6.6-7.3	0	0	0.0-2.0	0
	21-29	5.0-10	7.4-8.4	1-5	0	0.0-2.0	0
	29-45	5.0-15	7.4-8.4	1-5	0	0.0-2.0	0
	45-52	5.0-10	7.4-8.4	1-5	0	0.0-2.0	0
	52-60	5.0-15	8.5-9.4	1-5	0	0.0-2.0	5-10
12:							
Calladito	0-2	5.0-10	7.4-7.8	0	0	0.0-2.0	0
	2-26	5.0-10	7.4-8.4	0	0	0.0-2.0	0
	26-65	5.0-10	7.4-8.4	0-1	0	0.0-2.0	0
Elias	0-1	5.0-15	7.9-9.0	0-5	0	0.0-2.0	5-10
	1-3	15-20	8.5-9.6	5-15	0	2.0-4.0	13-30
	3-10	15-20	8.5-9.6	5-15	0-1	2.0-4.0	13-30
	10-18	5.0-10	7.9-9.6	5-15	0-1	2.0-4.0	13-30
	18-33	15-20	7.9-8.4	5-15	0-1	4.0-8.0	13-30
	33-65	10-25	8.5-9.6	5-15	0-1	4.0-8.0	13-30

Table 16.--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/100 g	pH	Pct	Pct	mmhos/cm	
13:							
Councelor	0-2	5.0-15	7.4-7.8	1-5	0	0.0-2.0	0
	2-15	5.0-15	7.4-7.8	1-5	0	0.0-2.0	0
	15-19	10-25	7.4-8.4	1-5	0	0.0-2.0	1-5
	19-42	5.0-10	7.4-8.4	1-5	0	0.0-2.0	1-5
	42-55	15-20	7.4-8.4	1-5	0	0.0-2.0	1-5
	55-65	15-20	7.4-8.4	1-5	0	0.0-2.0	1-5
Calladito	0-3	5.0-10	7.4-7.8	0	0	0.0-2.0	0
	3-37	5.0-10	7.4-8.4	0	0	0.0-2.0	0
	37-65	5.0-10	7.4-8.4	0-1	0	0.0-2.0	0
14:							
Councelor	0-4	5.0-10	7.4-7.8	1-5	0	0.0-2.0	0
	4-16	5.0-15	7.4-8.4	1-5	0	0.0-2.0	0
	16-65	5.0-15	7.4-8.4	1-5	0	0.0-2.0	1-5
Eslendo	0-2	10-15	6.6-7.3	1-5	0	0.0-2.0	1-5
	2-11	10-20	7.4-8.4	5-10	0-1	2.0-4.0	1-5
	11-20	---	---	---	---	---	---
Calladito	0-3	5.0-10	7.4-7.8	0	0	0.0-2.0	0
	3-41	5.0-10	7.4-8.4	0	0	0.0-2.0	0
	41-65	5.0-10	7.4-8.4	0-1	0	0.0-2.0	0
16:							
Starlake	0-3	20-30	8.5-9.6	5-15	0	2.0-4.0	13-30
	3-12	20-35	8.5-9.6	5-15	0	2.0-4.0	13-30
	12-20	20-25	8.5-9.6	5-15	0-1	4.0-8.0	13-30
	20-54	20-35	8.5-9.6	5-15	0-1	4.0-8.0	13-30
	54-65	20-25	8.5-9.6	5-15	0-1	4.0-8.0	13-30
22:							
Querencia	0-2	5.0-15	7.4-8.4	0-1	0-1	0.0-2.0	0
	2-9	10-20	7.4-8.4	5-15	0-1	0.0-2.0	0-1
	9-15	10-20	7.4-8.4	5-15	0-1	0.0-2.0	0-1
	15-65	10-20	7.4-8.4	5-15	0-1	0.0-2.0	0-1
Lavodnas	0-3	5.0-15	7.4-7.8	1-5	1-2	2.0-4.0	0-1
	3-9	10-20	7.4-7.8	1-5	15-25	2.0-4.0	0-1
	9-13	15-25	6.6-7.3	1-5	15-25	2.0-4.0	0-1
	13-20	---	---	---	---	---	---
30:							
Orlie	0-2	5.0-15	6.6-7.8	0	0	0.0-2.0	0
	2-5	5.0-20	6.6-7.8	0	0	0.0-2.0	0
	5-15	10-25	6.6-7.8	0	0	0.0-2.0	0
	15-36	10-25	7.4-8.4	5-10	0	0.0-2.0	0
	36-50	10-25	7.4-8.4	5-10	0	0.0-2.0	0
	50-62	10-25	7.4-8.4	5-10	0	0.0-2.0	0
Tinian	0-3	10-15	7.4-7.8	0-1	0	0.0-2.0	0-1
	3-8	10-20	7.4-7.8	0-1	0	0.0-2.0	0-1
	8-19	20-30	7.4-7.8	0-1	0	0.0-2.0	0-1
	19-24	20-30	7.4-7.8	1-5	0	0.0-2.0	0-1
	24-40	---	---	---	---	---	---

Table 16.--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/100 g	pH	Pct	Pct	mmhos/cm	
40:							
Nuffel	0-2	30-40	7.9-8.4	5-10	0	0.0-2.0	0-5
	2-12	35-45	7.9-8.4	5-10	0	0.0-2.0	0-5
	12-18	30-40	7.9-8.4	5-10	0	0.0-2.0	0-5
	18-26	35-45	7.9-8.4	5-10	0	0.0-2.0	0-5
	26-65	30-40	7.9-8.4	5-10	0	0.0-2.0	0-5
42:							
Suwanee	0-4	15-30	7.4-7.8	5-10	0	0.0-2.0	0
	4-34	15-25	7.4-7.8	5-10	0	0.0-2.0	0
	34-48	5.0-15	7.4-7.8	5-10	0	0.0-2.0	0
	48-65	15-25	7.4-7.8	5-10	0	0.0-2.0	0
44:							
Suwanee	0-10	15-35	7.4-7.8	5-10	0	0.0-2.0	0
	10-17	15-35	7.9-8.4	5-10	0	0.0-2.0	0
	17-30	15-25	7.9-8.4	5-10	0	0.0-2.0	0
	30-47	10-25	7.9-8.4	5-10	0	0.0-2.0	0
	47-65	5.0-15	7.9-8.4	5-10	0	0.0-2.0	0
45:							
Nutreeah	0-10	15-30	7.4-8.4	0-1	0	0.0-2.0	0-1
	10-16	15-25	7.4-8.4	0-1	0	0.0-2.0	1-5
	16-24	15-30	7.4-8.4	0-1	0	0.0-2.0	1-5
	24-40	15-40	7.4-8.4	0-1	0	0.0-4.0	1-5
	40-65	15-40	7.4-8.4	0-1	0	2.0-8.0	1-5
47:							
Conchovar	0-3	15-30	7.4-7.8	0-1	0	2.0-4.0	1-5
	3-9	20-40	7.4-7.8	0-1	0	2.0-4.0	1-5
	9-26	15-35	7.4-8.4	0-1	0-1	4.0-8.0	1-5
	26-36	20-40	7.9-8.4	0	0-1	4.0-8.0	1-5
	36-54	20-40	7.9-8.4	0	0	2.0-4.0	1-5
	54-65	20-35	7.9-8.4	0	0	0.0-2.0	1-5
49:							
Concho	0-4	15-30	6.6-7.8	0-1	0	0.0-2.0	0
	4-28	15-30	6.6-7.8	0-1	0	0.0-2.0	0
	28-38	20-35	6.6-7.8	1-5	0	0.0-2.0	0
	38-65	15-30	7.4-8.4	1-5	0	2.0-4.0	0
51:							
Kwakina	0-7	5.0-10	7.4-9.0	0-5	0	0.0-2.0	0
	7-11	5.0-10	7.4-9.0	0-5	0	0.0-2.0	0
	11-23	5.0-10	7.4-9.0	0-5	0	2.0-8.0	0
	23-33	5.0-15	7.4-9.0	5-10	0	2.0-8.0	0
	33-65	5.0-10	7.4-9.0	5-10	0	2.0-8.0	0
52:							
Zuniven	0-12	5.0-10	7.4-7.8	0-5	0	0.0-2.0	1-5
	12-42	10-20	7.4-7.8	0-5	0	0.0-2.0	1-5
	42-65	20-40	7.4-7.8	0-5	0	0.0-2.0	1-5

Table 16.--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/100 g	pH	Pct	Pct	mmhos/cm	
53:							
Hawaikuh	0-10	15-25	7.4-7.8	1-5	0	0.0-2.0	0-2
	10-24	15-30	7.4-9.0	1-5	0	0.0-4.0	0-2
	24-32	15-25	7.4-9.0	5-10	0	0.0-4.0	0-2
	32-42	15-25	7.4-9.0	5-10	0	0.0-4.0	0-2
	42-65	15-30	7.4-9.0	5-10	0	0.0-4.0	0-2
54:							
Venadito	0-5	40-50	7.4-7.8	5-10	0	0.0-2.0	0-2
	5-29	45-55	7.4-7.8	5-10	0-2	2.0-4.0	5-10
	29-40	45-55	7.9-8.4	5-10	0-2	2.0-4.0	5-10
	40-65	45-55	7.9-8.4	5-10	0-2	4.0-8.0	5-10
55:							
Sparham	0-2	15-30	7.4-8.4	1-5	0	0.0-2.0	1-5
	2-14	15-40	7.4-8.4	1-5	0	0.0-2.0	1-5
	14-18	10-25	7.4-8.4	1-5	0	0.0-2.0	1-5
	18-27	15-40	7.4-8.4	1-5	0	0.0-2.0	1-5
	27-31	10-25	7.4-8.4	1-5	0	0.0-2.0	1-5
	31-65	15-40	7.4-8.4	1-5	0-1	2.0-4.0	1-5
60:							
Redpen	0-4	10-20	7.4-8.4	5-10	0	0.0-2.0	0
	4-24	10-25	7.4-8.4	5-10	0	0.0-2.0	0
	24-52	10-25	7.4-8.4	5-10	0	0.0-2.0	0
	52-65	10-25	7.4-8.4	5-10	0	0.0-2.0	0-1
100:							
Norkiki	0-3	5.0-10	6.6-7.8	0-5	0	0.0-2.0	0
	3-13	10-20	7.4-7.8	0-5	0	0.0-2.0	0
	13-19	5.0-15	7.4-7.8	0-5	0	0.0-2.0	0
	19-28	10-20	7.4-8.4	5-15	0	0.0-2.0	0
	28-40	---	---	---	---	---	---
Kimnoli	0-2	5.0-10	6.6-7.3	0-1	0	0.0-2.0	0-2
	2-7	5.0-15	6.6-7.3	0-1	0	0.0-2.0	1-5
	7-14	10-20	7.4-7.8	5-15	0	0.0-2.0	1-5
	14-20	---	---	---	---	---	---
110:							
Benally	0-2	5.0-15	7.9-9.0	1-5	0	0.0-2.0	13-30
	2-9	10-20	8.5-9.6	5-10	0-1	0.0-2.0	13-30
	9-25	10-20	8.5-9.6	5-10	0-1	2.0-4.0	13-30
	25-65	10-20	8.5-9.6	5-10	0-1	2.0-4.0	13-30
Fruitland	0-3	0.0-5.0	7.4-7.8	0-1	0	0.0-2.0	0
	3-10	0.0-5.0	7.4-8.4	0-1	0	0.0-2.0	0
	10-19	0.0-5.0	7.4-8.4	0-1	0	0.0-2.0	0
	19-29	0.0-5.0	7.4-8.4	1-10	0	0.0-2.0	1-5
	29-65	5.0-10	8.4-9.0	1-10	0	0.0-2.0	5-10
111:							
Yelives	0-2	5.0-15	7.4-8.4	0-5	0	0.0-2.0	0-2
	2-12	5.0-15	7.4-8.4	0-5	0	0.0-2.0	0-2
	12-30	5.0-15	7.4-8.4	0-5	0	0.0-2.0	0-2
	30-41	5.0-10	7.4-8.4	0-5	0	0.0-2.0	0-2
	41-56	5.0-10	7.4-8.4	0-5	0	0.0-2.0	0-2
	56-80	5.0-10	7.4-8.4	0-5	0	0.0-2.0	0-2

Table 16.--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/100 g	pH	Pct	Pct	mmhos/cm	
115:							
Razito	0-4	5.0-10	7.4-7.8	0-5	0	0.0-2.0	0
	4-34	5.0-10	7.4-7.8	0-5	0	0.0-2.0	0
	34-65	5.0-10	7.4-8.4	1-5	0	0.0-2.0	1-5
Shiprock	0-3	5.0-10	6.6-7.8	0-5	0	0.0-2.0	0
	3-15	10-15	7.4-8.4	1-5	0	0.0-2.0	0
	15-37	10-15	7.4-8.4	5-10	0	0.0-2.0	1-5
	37-60	5.0-10	8.5-9.0	5-10	0	0.0-2.0	1-10
116:							
Fajada	0-2	15-25	7.9-9.0	1-5	0	0.0-4.0	13-20
	2-6	20-30	8.5-9.6	1-5	0	0.0-4.0	13-40
	6-12	20-30	8.5-9.6	1-5	0	0.0-4.0	20-40
	12-16	20-30	8.5-9.6	1-15	0	0.0-4.0	20-40
	16-28	20-30	7.9-9.6	1-15	0-2	4.0-16.0	20-40
	28-40	---	---	---	---	---	---
Huerfano	0-2	5.0-15	7.9-8.4	1-5	0	0.0-4.0	13-30
	2-17	15-20	7.9-9.6	1-10	0-2	4.0-16.0	13-40
	17-20	---	---	---	---	---	---
Benally	0-2	10-20	7.9-8.4	1-5	0	2.0-4.0	13-30
	2-18	10-20	8.5-9.6	5-10	0	4.0-8.0	13-30
	18-45	10-20	7.9-9.6	5-10	0-1	4.0-8.0	13-30
	45-55	---	---	---	---	---	---
118:							
Farb	0-2	5.0-15	7.4-7.8	1-5	0	0.0-2.0	0-2
	2-9	5.0-15	7.4-7.8	1-5	0	0.0-2.0	0-2
	9-20	---	---	---	---	---	---
Chipeta	0-2	5.0-15	7.4-8.4	5-10	1-10	8.0-16.0	5-13
	2-12	5.0-15	7.4-9.0	5-10	1-10	8.0-16.0	5-13
	12-20	---	---	---	---	---	---
Rock outcrop	0	---	---	---	---	---	---
120:							
Doak	0-2	5.0-10	7.4-7.8	0	0	0.0-2.0	0
	2-8	10-20	7.4-8.4	0	0	0.0-2.0	0
	8-12	10-20	7.4-8.4	1-5	0	0.0-2.0	0
	12-40	10-20	7.4-8.4	5-10	0	0.0-2.0	1-5
	40-65	5.0-15	7.4-8.4	5-10	0	0.0-2.0	1-5
Shiprock	0-4	5.0-10	6.6-8.4	0-1	0	0.0-2.0	0
	4-18	10-15	7.4-8.4	1-5	0	0.0-2.0	0
	18-37	10-15	7.4-8.4	5-10	0	0.0-2.0	1-5
	37-65	5.0-10	8.5-9.0	5-10	0	0.0-2.0	1-10
121:							
Badland	0-2	15-25	7.8-8.6	0-5	1-5	2.0-4.0	1-10
	2-20	---	---	---	---	---	---

Table 16.--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/100 g	pH	Pct	Pct	mmhos/cm	
122:							
Farb	0-2	5.0-15	7.9-8.4	5-10	0	0.0-2.0	0-2
	2-5	5.0-15	7.9-8.4	5-10	0	0.0-2.0	0-2
	5-20	---	---	---	---	---	---
Rock outcrop	0	---	---	---	---	---	---
125:							
Sanfeco	0-2	5.0-15	7.4-8.4	3-5	0	0.0-2.0	0-2
	2-10	15-25	7.4-8.4	5-10	0	0.0-2.0	2-5
	10-27	25-35	7.4-8.4	5-10	0	0.0-2.0	2-5
	27-35	15-35	7.4-8.4	5-10	0	0.0-2.0	2-5
	35-39	10-25	7.4-8.4	5-10	0	0.0-2.0	2-5
	39-65	5.0-10	7.4-8.4	5-15	0	0.0-4.0	2-5
130:							
Chipeta	0-3	5.0-10	7.9-8.4	0-5	1-5	0.0-2.0	0
	3-6	15-35	7.9-8.4	0-5	1-5	0.0-4.0	0-2
	6-14	---	---	---	---	---	---
	14-20	---	---	---	---	---	---
Badlands	0-2	15-25	7.8-8.6	1-5	1-5	2.0-4.0	1-5
	2-20	15-25	7.8-8.6	1-5	1-5	2.0-4.0	1-5
Moncisco	0-3	10-15	7.4-8.4	1-5	0	0	0
	3-13	5.0-15	7.4-8.4	5-20	0	4.0-8.0	0
	13-27	0.0-0.0	7.4-8.4	0-5	0-1	0	0
	27-39	0.0-0.0	7.4-8.4	0-5	0-1	0	0
	39-59	0.0-0.0	7.4-8.4	0-5	0	0	0
150:							
Riverwash	0-10	0.0-1.0	6.6-7.3	0	0	0.0-2.0	0-2
	10-80	0.0-1.0	6.6-7.3	0	0	0.0-2.0	0-2
Escawetter	0-2	0.0-5.0	7.4-7.8	0-1	0	0.0-2.0	0
	2-8	0.0-5.0	7.4-7.8	0-1	0	0.0-2.0	0
	8-25	0.0-5.0	7.4-7.8	0-1	0	0.0-2.0	0
	25-32	0.0-5.0	7.9-8.4	0-1	0	0.0-4.0	0
	32-48	0.0-5.0	7.9-8.4	0-1	0	0.0-2.0	0
	48-65	0.0-5.0	7.9-8.4	0-1	0	0.0-2.0	0
160:							
Escawetter	0-1	0.0-5.0	7.4-8.4	0-5	0-1	0.0-4.0	1-5
	1-7	0.0-5.0	7.4-8.4	0-5	0-1	0.0-4.0	1-5
	7-16	0.0-5.0	7.4-8.4	0-5	0-1	0.0-4.0	1-5
	16-22	0.0-5.0	7.9-8.4	0-5	0-1	0.0-4.0	1-5
	22-52	0.0-5.0	7.9-8.4	0-5	0-1	0.0-4.0	1-5
	52-70	0.0-5.0	7.9-8.4	0-5	0-1	0.0-4.0	1-5
Riverwash	0-80	1.0-3.0	7.9-9.0	0-5	0-1	2.0-4.0	1-5
Razito	0-1	0.0-5.0	7.4-8.4	0-1	0-1	0.0-2.0	0-1
	1-70	0.0-5.0	7.4-8.4	0-1	0-1	0.0-2.0	0-1

Table 16.--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/100 g	pH	Pct	Pct	mmhos/cm	
205:							
Penistaja	0-3	5.0-15	6.6-7.8	0-1	0	0.0-2.0	0
	3-19	10-20	6.6-8.4	0-1	0	0.0-2.0	0
	19-65	5.0-20	7.4-8.4	5-10	0	0.0-2.0	0
Tintero	0-4	5.0-10	6.6-7.3	0-5	0	0	0
	4-16	5.0-15	7.4-7.8	1-5	0	0	0
	16-48	5.0-15	7.4-7.8	5-10	0	0.0-2.0	0
	48-65	1.0-1.0	7.4-7.8	5-10	0	0.0-2.0	0
208:							
Marianolake	0-2	5.0-15	7.4-8.4	0-5	0-1	0.0-2.0	0
	2-8	5.0-15	7.4-8.4	0-5	0-1	0.0-2.0	0-1
	8-14	15-25	7.4-8.4	0-5	0-1	0.0-2.0	0-1
	14-24	5.0-15	7.9-8.4	0-5	0-1	0.0-2.0	0-1
	24-39	5.0-15	7.9-8.4	0-5	0-1	0.0-2.0	0-1
	39-70	0.0-5.0	7.9-8.4	0-5	0-1	0.0-2.0	0-1
210:							
Marianolake	0-5	5.0-15	7.4-8.4	0-5	0	0.0-2.0	0
	5-11	10-25	7.4-8.4	5-10	0	0.0-2.0	0
	11-47	10-25	7.4-8.4	5-10	0	0.0-2.0	0
	47-65	5.0-15	7.4-8.4	5-10	0	0.0-2.0	0
Skyvillage	0-2	5.0-10	7.4-8.4	0-5	0	0.0-2.0	0
	2-5	5.0-10	7.4-8.4	5-10	0	0.0-2.0	0
	5-9	10-20	7.4-8.4	5-10	0	0.0-2.0	0
	9-15	10-20	7.4-8.4	5-10	0	0.0-2.0	0
	15-20	---	---	---	---	---	---
212:							
Rehobeth	0-2	20-30	7.9-9.0	1-5	1-10	0.0-2.0	1-5
	2-5	20-30	7.9-9.0	1-5	1-10	0.0-2.0	1-5
	5-12	20-40	7.9-9.0	1-5	1-10	0.0-2.0	1-5
	12-18	20-40	7.9-9.0	1-5	5-10	0.0-2.0	5-13
	18-32	20-40	7.9-9.0	1-5	5-10	0.0-2.0	5-14
	32-80	20-40	7.9-9.0	1-5	1-5	2.0-8.0	5-14
215:							
Viuda	0-3	2.0-7.0	6.6-7.3	0	0	0.0-2.0	0-2
	3-15	2.0-20	7.9-8.4	0	0	0.0-2.0	0-2
	15-17	2.0-10	7.9-8.4	1-15	0	0.0-2.0	0-2
	17-20	---	---	---	---	---	---
Penistaja	0-2	5.0-15	6.6-7.8	0-1	0	0.0-2.0	0
	2-22	10-20	6.6-8.4	0-1	0	0.0-2.0	0
	22-65	5.0-20	7.4-8.4	1-10	0	0.0-2.0	0
Rock outcrop	0	---	---	---	---	---	---
220:							
Hagerwest	0-2	5.0-15	6.6-7.8	0	0	0.0-2.0	0
	2-13	10-20	6.6-7.8	0	0	0.0-2.0	0
	13-19	10-20	7.4-8.4	1-10	0	0.0-2.0	0
	19-35	5.0-15	7.4-8.4	1-10	0	0.0-2.0	0
	35-40	---	---	---	---	---	---

Table 16.--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/100 g	pH	Pct	Pct	mmhos/cm	
220:							
Bond	0-2	5.0-15	6.6-7.8	0-1	0	0.0-2.0	0
	2-5	5.0-15	6.6-8.4	0-5	0	0.0-2.0	0
	5-14	10-20	6.6-8.4	1-5	0	0.0-2.0	0
	14-20	---	---	---	---	---	---
225:							
Aquima	0-2	35-40	7.4-8.4	1-5	0	0.0-2.0	0-2
	2-11	35-40	7.4-8.4	5-10	0	0.0-2.0	0-2
	11-17	35-45	7.4-9.0	5-10	0	0.0-2.0	0-2
	17-45	30-50	7.4-9.0	1-5	0	0.0-2.0	5-10
	49-65	30-40	7.4-9.0	5-10	0	0.0-2.0	0-2
Hawaikuh	0-3	5.0-20	7.4-7.8	1-5	0	0.0-2.0	0-2
	3-12	15-25	7.4-8.4	1-5	0	0.0-4.0	0-2
	12-29	15-25	7.4-8.4	5-10	0	0.0-4.0	0-2
	29-39	10-20	7.4-8.4	5-10	0	0.0-4.0	0-2
	39-54	5.0-15	7.4-8.4	5-10	0	0.0-4.0	0-2
	54-65	15-25	7.4-8.4	5-10	0	0.0-4.0	0-2
230:							
Sparank	0-2	15-30	7.4-8.4	1-5	0	0.0-2.0	1-5
	2-25	15-30	7.4-8.4	1-5	0	0.0-4.0	1-5
	25-65	20-40	7.4-8.4	1-5	0	0.0-4.0	1-5
San Mateo	0-2	15-30	7.4-8.4	1-5	0	0.0-2.0	1-5
	2-15	10-25	7.4-8.4	1-5	0	0.0-2.0	5-10
	15-30	10-20	7.4-9.0	1-5	0	0.0-2.0	5-10
	30-39	10-25	7.4-9.0	1-5	0	2.0-4.0	5-10
	39-45	5.0-15	7.4-9.0	1-5	0	2.0-4.0	5-10
	45-65	10-25	7.4-9.0	1-5	0	2.0-4.0	5-10
Zia	0-3	5.0-15	7.4-8.4	1-5	0	0.0-2.0	0-2
	3-12	5.0-15	7.4-8.4	1-5	0	0.0-2.0	0-2
	12-20	5.0-15	7.4-8.4	1-5	0	0.0-2.0	0-2
	20-28	5.0-15	7.4-8.4	1-5	0	0.0-2.0	0-2
	28-70	5.0-15	7.4-8.4	1-5	0	0.0-2.0	0-2
235:							
Notal	0-1	10-20	8.5-9.6	1-5	0	0.0-4.0	5-13
	1-3	10-20	8.5-9.6	1-5	0	2.0-16.0	5-30
	3-13	10-20	8.5-9.6	1-5	0	2.0-16.0	8-30
	13-27	10-20	7.9-9.0	1-5	0-1	2.0-16.0	8-30
	27-44	20-40	7.9-8.4	1-5	0-1	2.0-16.0	8-30
	44-65	10-20	8.5-9.0	1-5	0-1	2.0-16.0	8-30
Hamburn	0-3	5.0-10	7.4-8.4	1-5	0	0.0-2.0	1-5
	3-8	5.0-10	7.4-9.0	1-5	0-1	0.0-2.0	1-5
	8-29	5.0-10	7.4-9.0	1-5	0-1	2.0-4.0	1-5
	29-52	5.0-10	7.4-9.0	1-5	0-1	2.0-4.0	1-5
	52-70	5.0-10	7.4-9.0	1-5	0-1	2.0-4.0	1-5

Table 16.--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/100 g	pH	Pct	Pct	mmhos/cm	
240:							
Breadsprings	0-3	5.0-10	7.4-8.4	0-1	0	0.0-2.0	0
	3-7	5.0-10	7.4-8.4	0-1	0	0.0-2.0	0-2
	7-14	15-25	7.4-8.4	0-1	0	0.0-2.0	0-2
	14-22	5.0-15	7.4-8.4	0-5	0-2	0.0-2.0	0-2
	22-29	5.0-10	7.4-8.4	1-5	0-2	0.0-2.0	0-2
	29-36	5.0-10	7.4-8.4	1-15	0-2	0.0-2.0	0-5
	36-70	5.0-10	7.4-8.4	1-15	0-2	0.0-2.0	0-5
Nahodish	0-1	5.0-15	7.4-7.8	0-1	0-2	0.0-2.0	1-5
	1-9	10-15	7.4-8.4	0-1	0-2	0.0-2.0	1-5
	9-17	15-20	7.9-9.0	1-5	0-2	0.0-2.0	1-10
	17-31	15-20	7.9-9.0	1-10	1-5	0.0-2.0	1-10
	31-36	15-25	7.9-9.0	1-10	1-10	0.0-2.0	1-10
	36-58	5.0-15	7.9-9.0	1-10	1-10	2.0-4.0	1-10
	58-80	15-35	7.9-9.0	1-10	1-10	2.0-4.0	1-10
241:							
Mentmore	0-1	5.0-10	7.4-7.8	0-2	0	0.0-2.0	0
	1-2	15-25	7.4-7.8	0-2	0	0.0-2.0	0
	2-7	10-25	7.4-7.8	0-2	0	0.0-2.0	0
	7-13	15-25	7.4-8.4	2-10	0	0.0-2.0	0
	13-22	15-25	7.9-8.4	2-10	0	0.0-2.0	0
	22-70	15-25	7.9-8.4	2-10	0	0.0-2.0	0
242:							
Gish	0-3	15-25	7.4-8.4	0	0	0.0-2.0	0
	3-13	15-35	7.4-8.4	0	0	0.0-2.0	0
	13-27	15-35	7.4-8.4	0-10	0-2	0.0-2.0	0-2
	27-55	15-35	7.4-7.8	0-10	0-2	0.0-2.0	0-2
	55-64	15-25	7.4-7.8	0-10	0-2	0.0-2.0	0-2
	64-70	15-35	7.4-7.8	0-10	0-2	0.0-2.0	0-2
Mentmore	0-2	5.0-15	7.4-7.8	0-2	0	0.0-2.0	0
	2-4	15-25	7.4-8.4	0-2	0	0.0-2.0	0
	4-13	15-25	7.4-8.4	0-2	0	0.0-2.0	0
	13-24	15-25	7.4-8.4	0-2	0	0.0-2.0	0
	24-44	15-25	7.4-8.4	1-5	0-2	0.0-2.0	0
	44-62	15-25	7.4-8.4	1-5	0-2	0.0-2.0	0
	62-70	15-25	7.4-8.4	0-5	0-2	0.0-2.0	0
244:							
Buckle	0-4	5.0-15	7.4-7.8	0	0	0	0
	4-14	10-25	7.4-7.8	0	0	0	0
	14-22	10-25	7.4-7.8	0	0	0	0
	22-34	10-25	7.4-8.4	0	0	0	0
	34-48	15-30	7.4-8.4	0-5	0	0.0-2.0	0
	48-62	15-30	7.4-8.4	0-5	0-1	0.0-2.0	0
	62-75	15-30	7.4-8.4	0-5	0-1	0.0-2.0	0
245:							
Buckle	0-1	0.0-5.0	6.6-7.8	0-1	0	0.0-2.0	0
	1-7	15-25	6.6-7.8	0-1	0	0.0-2.0	0
	7-25	10-25	7.4-8.4	5-10	0	0.0-2.0	0
	25-35	15-25	7.4-8.4	5-10	0	0.0-2.0	0
	35-80	5.0-15	7.4-8.4	5-10	0	0.0-2.0	0

Table 16.--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/100 g	pH	Pct	Pct	mmhos/cm	
245:							
Gapmesa	0-1	5.0-10	7.4-7.8	0	0	0	0
	1-9	10-20	7.4-8.4	0	0	0	0
	9-20	10-20	7.9-8.4	1-5	0	0.0-2.0	0
	20-31	15-25	7.9-8.4	1-5	0-1	0.0-2.0	0
	31-40	---	---	---	---	---	---
Barboncito	0-2	0.0-10	7.4-7.8	0-1	0	0.0-2.0	0
	2-6	10-25	7.4-8.4	1-5	0	0.0-2.0	0
	6-11	15-25	7.4-8.4	1-5	0	0.0-2.0	0
	11-20	---	---	---	---	---	---
250:							
Hospah	0-3	15-25	7.9-8.4	1-5	1-5	0.0-4.0	1-5
	3-15	25-35	8.5-9.0	1-5	1-5	0.0-4.0	5-13
	15-20	---	---	---	---	---	---
Skyvillage	0-1	5.0-10	7.4-8.4	0-5	0	0.0-2.0	0
	1-5	5.0-10	7.4-8.4	5-10	0	0.0-2.0	0
	5-8	10-20	7.4-8.4	5-10	0	0.0-2.0	0
	8-20	---	---	---	---	---	---
Rock outcrop	0	---	---	---	---	---	---
255:							
Farview	0-1	5.0-10	7.4-8.4	0-1	0	0	0
	1-10	5.0-15	7.4-8.4	0-1	0	0	0
	10-17	5.0-15	7.8-8.4	1-10	0	0	0
	17-20	---	---	---	---	---	---
Rock outcrop	0	---	---	---	---	---	---
258:							
Eagleye	0-2	15-25	7.4-7.8	0	0-2	0.0-2.0	0-1
	2-10	15-30	7.4-7.8	0	0-2	0.0-2.0	0-1
	10-20	---	---	---	---	---	---
Atchee	0-2	5.0-15	7.4-8.4	0-1	0	0.0-2.0	0
	2-12	10-20	7.4-8.4	0-1	0	0.0-2.0	0
	12-14	15-20	7.4-8.4	0-1	0	0.0-2.0	0-1
	14-20	---	---	---	---	---	---
Rock outcrop	0	---	---	---	---	---	---
260:							
Quarries and pits	0	---	---	---	---	---	---
261:							
Coal mine lands	---	---	---	---	---	---	---
265:							
Uranium mined lands	0	---	---	---	---	---	---

Table 16.--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/100 g	pH	Pct	Pct	mmhos/cm	
270:							
Alesna	0-1	5.0-15	7.4-8.4	0-5	0	0.0-2.0	1-5
	1-10	15-30	7.4-8.4	1-5	0	0.0-2.0	1-5
	10-20	15-35	7.9-9.0	5-40	0	0.0-4.0	1-5
	20-26	15-35	7.9-9.0	5-40	0	0.0-4.0	1-5
	26-52	15-35	7.9-9.0	15-40	0	0.0-4.0	1-5
	52-60	---	---	---	---	---	---
Rock outcrop	0	---	---	---	---	---	---
275:							
Eldado	0-2	5.0-10	7.4-7.8	1-5	0	0.0-2.0	0-2
	2-9	10-20	7.4-8.4	5-15	0	0.0-2.0	0-2
	9-13	10-20	7.9-8.4	15-40	0	0.0-2.0	0-2
	13-25	10-20	7.9-8.4	15-55	0	0.0-2.0	0-2
	25-43	1.0-1.0	7.9-9.0	5-55	0	0.0-2.0	0-2
	43-72	2.0-3.0	7.4-8.4	0-5	0	0.0-2.0	0-2
280:							
Azabache	0-1	15-25	7.4-8.4	0	0	0.0-4.0	10-20
	1-5	20-30	7.9-9.0	0-5	0	4.0-16.0	20-30
	5-17	10-20	8.5-9.8	5-15	0-1	4.0-16.0	20-30
	17-32	10-20	8.5-9.8	5-15	0-1	4.0-16.0	20-30
	32-50	10-20	8.5-9.8	0-5	0-1	4.0-16.0	20-30
	50-62	10-20	8.5-9.8	0-5	0-1	4.0-16.0	20-30
290:							
Rock outcrop	0	---	---	---	---	---	---
Westmion	0-2	10-25	7.4-8.4	1-5	0	0.0-2.0	1-5
	2-14	15-35	7.4-8.4	1-5	0-1	0.0-2.0	1-5
	14-20	---	---	---	---	---	---
Skyvillage	0-2	5.0-15	7.4-8.4	1-5	0	0.0-2.0	0
	2-13	5.0-15	7.4-8.4	5-15	0	0.0-2.0	0
	13-20	---	---	---	---	---	---
291:							
Rock outcrop	0	---	---	---	---	---	---
Eagleye	0-2	15-30	6.6-7.8	0	0	0.0-2.0	0
	2-7	15-30	6.6-7.8	0	0-2	0.0-2.0	0
	7-13	15-30	6.6-7.8	0	0-2	0.0-2.0	0
	13-20	---	---	---	---	---	---
Atchee	0-2	5.0-15	7.4-8.4	0-5	0	0.0-2.0	0
	2-8	5.0-15	7.4-8.4	0-5	0	0.0-2.0	0
	8-20	---	---	---	---	---	---

Table 16.--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/100 g	pH	Pct	Pct	mmhos/cm	
300:							
Regracic	0-2	10-20	6.6-7.3	0-5	0	0.0-2.0	0
	2-31	15-35	6.6-7.8	5-10	0	0.0-2.0	0
	31-45	15-30	7.4-8.4	15-40	0	0.0-2.0	0
	45-50	10-25	7.4-8.4	5-15	0	0.0-2.0	0
	50-60	10-20	7.4-8.4	5-10	0	0.0-2.0	0
	60-80	5.0-15	7.4-7.8	0-5	0	0.0-2.0	0
305:							
Celavar	0-2	5.0-10	6.6-7.3	0-5	0	0.0-2.0	0
	2-24	10-15	7.4-7.8	0-5	0	0.0-2.0	0
	24-31	10-15	7.4-7.8	0-5	0	0.0-2.0	0
	31-40	---	---	---	---	---	---
Atarque	0-3	5.0-10	7.4-7.8	0-1	0	0.0-2.0	0
	3-14	10-20	7.4-7.8	0-5	0	0.0-2.0	0
	14-20	---	---	---	---	---	---
308:							
Fikel	0-3	15-25	6.6-7.8	0-5	0	0.0-2.0	0-1
	3-14	20-35	6.6-7.8	0-5	0	0.0-2.0	0-1
	14-32	20-35	7.4-7.8	0-5	0	0.0-2.0	0-1
	32-50	10-20	7.9-8.4	5-10	0	0.0-2.0	0-1
	50-65	15-20	7.9-8.4	5-10	0	0.0-2.0	0-1
	65-70	10-20	7.9-8.4	5-10	0	0.0-2.0	0-1
Venzuni	0-7	40-60	7.4-8.4	1-10	0	0.0-2.0	1-5
	7-22	40-60	7.4-8.4	1-10	0	0.0-2.0	1-5
	22-42	40-60	7.4-8.4	1-10	0	0.0-2.0	1-5
	42-56	25-50	7.4-8.4	1-10	0	0.0-2.0	1-5
	56-75	25-50	7.9-8.4	1-10	0	0.0-2.0	1-5
310:							
Parkelei	0-2	5.0-15	6.6-7.8	0-1	0	0.0-2.0	0
	2-21	10-25	6.6-8.4	0-1	0	0.0-2.0	0
	21-55	10-25	6.6-8.4	5-10	0	0.0-2.0	0
	55-65	15-25	6.6-8.4	5-10	0	0.0-2.0	0
312:							
Bluewater	0-2	15-25	7.4-7.8	5-15	0	0.0-2.0	0
	2-11	20-30	7.9-8.4	5-15	0-1	0.0-2.0	0
	11-28	15-25	7.9-8.4	15-20	0-1	0.0-2.0	0
	28-50	20-30	7.9-8.4	15-30	0-1	0.0-2.0	0
	50-70	20-35	7.9-8.4	10-30	0-1	0.0-2.0	0
	70-80	20-30	7.9-8.4	15-30	0-1	0.0-2.0	0
315:							
Flugle	0-3	5.0-20	7.4-8.4	0-5	0	0.0-2.0	0
	3-10	10-25	7.4-8.4	0-5	0	0.0-2.0	0
	10-28	10-25	7.4-8.4	0-5	0	0.0-2.0	0
	28-65	5.0-15	7.4-8.4	5-10	0	0.0-2.0	0
Fragua	0-2	5.0-10	6.6-8.4	0-1	0	0.0-2.0	0
	2-19	5.0-15	6.6-8.4	5-10	0	0.0-2.0	0
	19-65	5.0-15	6.6-8.4	5-10	0	0.0-2.0	0

Table 16.--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/100 g	pH	Pct	Pct	mmhos/cm	
316:							
Royosa	0-2	5.0-10	6.6-7.3	0	0	0.0-2.0	0
	2-6	5.0-10	6.6-7.3	0	0	0.0-2.0	0
	6-65	5.0-10	6.6-7.8	0	0	0.0-2.0	0
317:							
Highdye	0-3	5.0-15	6.6-7.3	0	0	0	0
	3-5	15-25	6.6-7.3	0	0	0	0
	5-12	20-30	6.6-7.3	0	0	0	0
	12-20	---	---	---	---	---	---
Evpark	0-5	5.0-20	6.6-7.3	0	0	0	0
	5-10	10-25	6.6-7.3	0	0	0	0
	10-24	10-25	6.6-7.8	0-10	0	0.0-2.0	0
	24-40	---	---	---	---	---	---
Bryway	0-4	5.0-15	6.6-7.8	0	0	0	0
	4-10	15-35	6.6-7.8	0	0	0	0
	10-23	15-35	7.4-7.8	0-5	0	0	0
	23-40	---	---	---	---	---	---
320:							
Parkelei	0-4	5.0-15	6.6-7.8	0	0	0	0
	4-18	10-25	6.6-8.4	0-1	0	0.0-2.0	0
	18-28	10-25	6.6-8.4	0-1	0	0.0-2.0	0
	28-39	10-25	6.6-8.4	0-1	0	0.0-2.0	0
	39-52	10-25	6.6-8.4	2-10	0	0.0-2.0	0
	52-70	5.0-15	6.6-8.4	2-10	0	0.0-2.0	0
Fraguni	0-4	5.0-10	6.6-7.8	0-1	0	0	0
	4-20	5.0-10	6.6-7.8	0-1	0	0	0
	20-46	5.0-10	6.6-7.8	0-1	0	0	0
	46-58	10-20	6.6-7.8	0-1	0	0.0-2.0	0
	58-70	5.0-10	6.6-7.8	0-1	0	0.0-2.0	0
325:							
Venzuni	0-2	20-40	7.4-8.4	5-10	0	0.0-2.0	1-5
	2-12	20-40	7.4-8.4	5-10	0	0.0-2.0	1-5
	12-46	25-50	7.4-8.4	5-10	0	0.0-2.0	1-5
	46-65	25-50	7.4-8.4	5-10	0	0.0-2.0	1-5
332:							
Evpark	0-2	5.0-15	6.6-7.3	0	0	0	0
	2-9	15-25	6.6-7.3	0	0	0	0
	9-36	10-20	6.6-7.3	0	0	0	0
	36-40	---	---	---	---	---	---
Arabrab	0-2	5.0-15	7.4-7.8	0	0	0	0
	2-7	10-20	7.4-7.8	0-5	0	0	0
	7-12	15-25	7.4-7.8	0-5	0	0.0-2.0	0
	12-17	15-25	7.4-8.4	1-5	0	0.0-2.0	0
	17-20	---	---	---	---	---	---
335:							
Venadito	0-3	40-50	7.4-8.4	5-10	0-1	0.0-2.0	0-2
	3-30	45-55	7.4-8.4	5-10	0-1	2.0-4.0	5-10
	30-65	45-55	7.4-8.4	5-10	0-1	2.0-4.0	5-10

Table 16.--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/100 g	pH	Pct	Pct	mmhos/cm	
336:							
Nuffel	0-2	30-40	7.9-8.4	5-10	0	0.0-2.0	0
	2-10	20-30	7.9-8.4	5-10	0	0.0-2.0	0
	10-17	25-45	7.9-8.4	5-10	0	0.0-2.0	0
	17-20	25-45	7.9-8.4	5-10	0	0.0-2.0	0
	20-47	35-45	7.9-8.4	5-10	0	0.0-2.0	0
	47-65	50-60	7.9-8.4	5-10	0	0.0-2.0	0
Venadito	0-2	40-60	7.4-8.4	5-10	0	0.0-4.0	1-5
	2-9	40-60	7.4-8.4	5-10	0	0.0-4.0	1-5
	9-11	40-60	7.4-8.4	5-10	0	0.0-4.0	5-10
	11-65	40-60	7.4-8.4	5-10	0	0.0-4.0	5-10
338:							
Zyme	0-3	15-25	7.9-8.4	0-5	0-2	0.0-2.0	0
	3-8	15-35	7.9-8.4	1-5	0-2	0.0-2.0	0
	8-15	15-35	7.9-8.4	1-5	0-2	0.0-2.0	0
	15-20	---	---	---	---	---	---
Lockerby	0-1	15-25	7.8-8.4	1-5	0-1	0.0-2.0	0
	1-11	15-25	7.8-8.4	1-5	0-1	0.0-2.0	0-1
	11-15	15-25	7.4-8.4	1-5	0-1	0.0-2.0	0-1
	15-26	15-25	7.4-8.4	0	0-1	0.0-4.0	0-1
	26-40	---	---	---	---	---	---
345:							
Rock outcrop	0	---	---	---	---	---	---
Tuces	0-1	15-25	7.4-7.8	2-5	0	0.0-2.0	0-1
	1-4	20-30	7.4-8.4	5-10	0	0.0-2.0	0-1
	4-24	20-30	7.4-8.4	5-10	0	0.0-2.0	0-1
	24-40	---	---	---	---	---	---
Toldohn	0-4	15-30	6.6-7.8	0-5	0	0	0-2
	4-11	15-35	6.6-7.8	0-5	0	0	0-2
	11-20	---	---	---	---	---	---
Vessilla	0-2	5.0-15	6.6-8.4	1-5	0	0	0
	2-11	5.0-15	6.6-8.4	1-5	0	0	0
	11-20	---	---	---	---	---	---
Rock outcrop	0	---	---	---	---	---	---
351:							
Rock outcrop	0	---	---	---	---	---	---
Vessilla	0-5	5.0-15	6.6-8.4	1-5	0	0	0
	5-20	---	---	---	---	---	---
352:							
Zia	0-3	5.0-15	7.4-8.4	1-5	0	0.0-2.0	0-2
	3-31	5.0-15	7.4-8.4	1-5	0	0.0-2.0	0-2
	31-65	5.0-15	7.4-8.4	1-5	0	0.0-2.0	0-2

Table 16.--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/100 g	pH	Pct	Pct	mmhos/cm	
353:							
Mido	0-3	3.0-5.0	7.9-8.4	0-1	0	0	0
	3-65	2.0-5.0	7.9-8.4	0-1	0	0	0
354:							
Knifehill	0-2	10-20	6.6-7.8	0	0	0.0-2.0	0
	2-6	15-25	6.6-7.8	0	0	0.0-2.0	0
	6-11	15-25	6.6-7.8	0	0	0.0-2.0	0
	11-26	20-30	6.6-7.8	0	0	0.0-2.0	0
	26-35	20-30	7.4-7.8	1-15	0	0.0-2.0	0
	35-65	20-30	7.4-7.8	1-15	0	0.0-2.0	0
355:							
Rizno	0-3	5.0-15	7.4-7.8	1-5	0	0.0-2.0	0
	3-8	5.0-15	7.4-7.8	1-5	0	0.0-2.0	0
	8-20	---	---	---	---	---	---
Tekapo	0-2	10-25	7.4-7.8	1-5	0	0.0-2.0	0
	2-10	15-30	7.4-7.8	1-5	0	0.0-2.0	0
	10-20	---	---	---	---	---	---
Rock outcrop	0	---	---	---	---	---	---
357:							
Heshotauthla	0-3	20-30	7.9-9.0	0-5	0	0.0-2.0	10-20
	3-18	20-30	8.5-9.0	0-5	0-1	2.0-4.0	20-40
	18-65	25-35	7.9-9.0	1-5	0-1	4.0-16.0	15-35
360:							
Hosta	0-2	5.0-20	6.6-7.8	0	0	0.0-2.0	0
	2-4	15-25	7.4-8.4	0	0	0.0-2.0	0
	4-24	15-25	7.4-8.4	1-5	0	0.0-2.0	0-2
	24-51	15-35	7.4-8.4	1-5	0	0.0-2.0	0-2
	51-65	10-20	7.4-8.4	1-5	0	0.0-2.0	0-2
Concho	0-1	15-30	6.6-7.8	0	0	0.0-2.0	0
	1-5	20-40	6.6-7.8	0	0	0.0-2.0	0
	5-32	15-35	7.4-8.4	0	0	0.0-2.0	0-2
	32-51	15-35	7.4-8.4	1-5	0	2.0-4.0	0-2
	51-65	15-35	7.4-8.4	1-5	0	2.0-4.0	0-2
361:							
Monpark	0-4	15-35	7.4-8.4	1-10	0	0.0-2.0	0-2
	4-7	20-35	7.4-9.0	1-10	0	0.0-4.0	2-5
	7-27	20-35	7.4-9.0	1-10	0	0.0-4.0	2-5
	27-40	---	---	---	---	---	---
365:							
Vessilla	0-2	5.0-15	6.6-8.4	1-5	0	0.0-2.0	0
	2-6	5.0-10	6.6-8.4	5-15	0	0.0-2.0	0
	6-15	5.0-10	6.6-8.4	5-15	0	0.0-2.0	0
	15-20	---	---	---	---	---	---
Rock outcrop	0	---	---	---	---	---	---

Table 16.--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/100 g	pH	Pct	Pct	mmhos/cm	
366:							
Bosonoak	0-2	5.0-15	7.4-8.4	0-1	0	0.0-2.0	0
	2-5	10-25	7.4-8.4	0-1	0	0.0-2.0	0
	5-28	10-25	7.9-8.4	1-5	0	0.0-2.0	0
	28-40	5.0-15	7.9-8.4	1-5	0	0.0-2.0	0
	40-63	5.0-15	7.9-8.4	1-10	0	0.0-2.0	0
	63-80	5.0-10	7.9-8.4	1-10	0	0.0-2.0	0
367:							
Chunkmonk	0-1	5.0-10	7.4-7.8	0-5	0	0.0-2.0	0
	1-4	5.0-15	7.9-8.4	0-5	0	0.0-2.0	0
	4-8	5.0-15	7.9-8.4	5-40	0	0.0-2.0	0
	8-10	5.0-15	7.9-8.4	15-40	0	0.0-2.0	0
	10-20	---	---	---	---	---	---
368:							
Simitarq	0-1	2.0-10	6.6-7.8	0	0	0	0
	1-6	10-20	6.6-7.8	0	0	0	0
	6-14	20-30	7.4-7.8	0	0	0	0
	14-20	---	---	---	---	---	---
Celavar	0-1	---	---	---	---	---	---
	1-2	5.0-10	6.6-7.8	0	0	0.0-2.0	0
	2-11	10-15	7.4-7.8	0	0	0.0-2.0	0
	11-27	10-15	7.4-7.8	1-5	0	0.0-2.0	0
	27-31	15-20	7.4-7.8	1-5	0	0.0-2.0	0
	31-40	---	---	---	---	---	---
375:							
Todest	0-1	5.0-10	7.4-7.8	5-15	0	0	0
	1-3	5.0-10	7.4-7.8	1-5	0	0	0
	3-10	10-15	7.4-7.8	5-15	0	0	0
	10-18	10-15	7.9-8.4	15-40	0	0	0
	18-25	5.0-10	7.9-8.4	40-80	0	0	0
	25-40	---	---	---	---	---	---
Shadilto	0-1	2.0-10	7.9-8.4	10-40	0	0.0-2.0	0
	1-9	2.0-10	7.9-8.4	40-80	0	0.0-2.0	0
	9-13	2.0-10	7.9-8.4	40-80	0	0.0-2.0	0
	13-15	2.0-10	7.9-8.4	40-80	0	0.0-2.0	0
	15-20	---	---	---	---	---	---
376:							
Todest	0-1	5.0-10	7.4-7.8	5-15	0	0	0
	1-8	10-15	7.9-8.4	10-15	0	0	0
	8-14	10-15	7.9-8.4	15-40	0	0	0
	14-24	10-15	7.9-8.4	40-80	0	0	0
	24-40	---	---	---	---	---	---
380:							
Berryhill	0-2	20-30	7.9-9.0	1-10	0-1	0.0-2.0	0-2
	2-12	20-40	7.9-9.0	1-10	0-1	2.0-4.0	2-5
	12-26	20-40	7.9-9.0	1-10	10-35	2.0-8.0	2-8
	26-39	20-40	7.9-9.0	1-10	2-8	2.0-8.0	2-8
	39-70	20-40	7.9-9.0	1-10	2-8	2.0-8.0	2-8

Table 16.--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/100 g	pH	Pct	Pct	mmhos/cm	
380:							
Casamero	0-3	20-30	7.9-9.0	1-10	0-1	0.0-4.0	0-2
	3-11	20-40	7.9-9.0	1-10	1-5	2.0-4.0	2-5
	11-18	20-40	7.9-9.0	1-10	1-5	2.0-8.0	2-5
	18-20	---	---	---	---	---	---
385:							
Mcorreon	0-2	10-20	6.6-7.3	0-5	0	0	0
	2-5	15-30	6.1-6.5	0-5	0	0	0-1
	5-16	30-40	6.1-6.5	0-5	0	0	0-1
	16-22	30-40	7.9-9.0	15-45	0	0.0-2.0	0-1
	22-70	30-40	7.9-9.0	15-45	0	0.0-2.0	0-1
	70-74	---	---	---	---	---	---
Rock outcrop	0	---	---	---	---	---	---
390:							
Banquito	0-2	5.0-15	7.4-7.8	0-5	0	0.0-2.0	0
	2-9	10-20	7.9-8.4	5-15	0	0.0-2.0	0
	9-17	10-20	7.9-8.4	15-30	0	0.0-2.0	0
	17-22	5.0-20	7.9-8.4	15-55	0	0.0-2.0	0
	22-36	5.0-20	7.9-8.4	15-55	0	0.0-2.0	0
	36-40	5.0-20	7.9-8.4	15-55	0	0.0-2.0	0
395:							
Cabezon	0-2	10-20	6.1-7.3	0	0	0	0
	2-6	15-30	6.1-7.3	0	0	0	0-1
	6-14	20-40	6.6-7.8	0	0	0.0-2.0	0-1
	14-17	---	---	---	---	---	---
	17-20	---	---	---	---	---	---
Mcorreon	0-2	10-20	6.6-7.8	0-5	0	0	0
	2-13	30-40	6.6-7.8	0-5	0	0	0-1
	13-19	30-40	6.6-7.8	0-5	0	0	0-1
	19-27	15-30	7.9-8.4	15-45	0	0.0-2.0	0-1
	27-70	15-30	7.9-8.4	15-45	0	0.0-2.0	0-1
	70-80	---	---	---	---	---	---
400:							
Shoemaker	0-2	5.0-15	6.1-7.3	0	0	0	0
	2-7	5.0-15	6.1-7.3	0	0	0	0
	7-20	10-25	6.1-7.3	0	0	0	0
	20-28	10-25	6.1-7.3	0	0	0	0
	28-40	---	---	---	---	---	---
Stozuni	0-2	5.0-15	6.6-7.3	0	0	0	0
	2-10	5.0-15	6.6-7.3	0	0	0	0
	10-15	5.0-15	6.6-7.3	0	0	0	0
	15-20	---	---	---	---	---	---
403:							
Valnor	0-2	15-25	6.6-7.8	0	0	0	0
	2-4	10-25	6.6-7.8	0	0	0.0-2.0	0
	4-20	15-40	6.6-7.8	0	0	0.0-2.0	0
	20-34	15-40	6.6-7.8	1-5	0	0.0-2.0	0
	34-40	---	---	---	---	---	---

Table 16.--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/100 g	pH	Pct	Pct	mmhos/cm	
403:							
Techado	0-3	20-40	6.6-7.3	0	0	0.0-2.0	0-1
	3-13	15-40	6.6-7.8	0	0	0.0-2.0	0-1
	13-20	---	---	---	---	---	---
404:							
Rock outcrop	0	---	---	---	---	---	---
Techado	0-5	15-30	6.6-7.3	0	0	0.0-2.0	0-1
	5-8	15-40	6.6-7.8	0	0	0.0-2.0	0-1
	8-17	15-40	6.6-7.8	0	0	0.0-2.0	0-1
	17-20	---	---	---	---	---	---
Stozuni	0-1	5.0-15	6.6-7.3	0	0	0	0
	1-7	5.0-15	6.6-7.3	0-1	0	0	0
	7-20	---	---	---	---	---	---
405:							
Fortwingate	0-1	---	---	---	---	---	---
	1-4	5.0-15	6.6-7.3	0	0	0	0
	4-9	20-25	6.6-7.8	0	0	0	0
	9-26	25-30	7.4-7.8	0	0	0	0
	26-40	---	---	---	---	---	---
Owlrock	0-1	5.0-10	7.4-8.4	5-15	0	0.0-2.0	0
	1-6	10-20	7.4-8.4	5-15	0	0.0-2.0	0
	6-13	10-20	7.4-8.4	5-15	0	0.0-2.0	0
	13-20	---	---	---	---	---	---
406:							
Polich	0-13	10-20	7.4-8.4	1-5	0	0.0-2.0	0
	13-23	10-20	7.4-8.4	1-10	0	0.0-2.0	0
	23-40	15-25	7.9-8.4	5-15	0	0.0-2.0	0
	40-48	15-25	7.9-8.4	5-15	0	0.0-2.0	0
	48-58	10-30	7.9-8.4	5-10	0	0.0-2.0	0
	58-70	10-15	7.9-8.4	5-10	0	0.0-2.0	0
407:							
Cinnadale	0-2	5.0-10	6.6-7.3	0	0	0	0
	2-9	5.0-10	6.6-7.3	0	0	0	0
	9-15	5.0-10	6.6-7.3	0	0	0	0
	15-20	---	---	---	---	---	---
Heckly	0-3	5.0-15	7.4-7.8	0	0	0.0-2.0	0
	3-15	15-20	7.4-7.8	0	0	0.0-2.0	0
	15-38	10-15	7.4-7.8	0	0	0.0-2.0	0
	38-40	---	---	---	---	---	---
408:							
Mirabal	0-1	---	---	---	---	---	---
	1-2	4.0-5.0	6.1-6.5	0	0	0	0
	2-6	5.0-6.0	6.1-6.5	0	0	0	0
	6-13	5.0-6.0	6.6-7.3	0	0	0	0
	13-30	5.0-6.0	6.6-7.3	0	0	0	0
	30-40	---	---	---	---	---	---

Table 16.--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/100 g	pH	Pct	Pct	mmhos/cm	
408:							
Zuni	0-1	---	---	---	---	---	---
	1-3	5.0-10	6.6-7.3	0	0	0	0
	3-18	15-20	6.6-7.3	0	0	0	0
	18-27	15-20	6.6-7.3	0	0	0	0
	27-40	---	---	---	---	---	---
409:							
Rauster	0-1	15-20	7.4-7.8	0	0	0	0
	1-5	20-35	7.4-7.8	0	0	0	0
	5-28	20-35	7.4-7.8	1-5	0	0	0
	28-55	20-35	7.4-7.8	1-10	0	0	0
	55-60	---	---	---	---	---	---
Rock outcrop	0	---	---	---	---	---	---
410:							
Montillo	0-3	10-25	6.1-7.3	0	0	0	0
	3-8	20-40	6.6-7.3	0	0	0	0
	8-15	20-40	7.4-7.8	0	0	0	0
	15-27	40-60	7.4-7.8	0	0	0	0
	27-32	40-60	7.4-7.8	0	0	0	0
	32-40	---	---	---	---	---	---
Tsoodzil	0-3	15-25	6.1-7.3	0	0	0	0
	3-10	15-30	6.6-7.3	0	0	0	0
	10-21	25-45	6.6-7.3	0	0	0	0
	21-46	25-45	7.4-7.8	0-1	0	0.0-2.0	0
	46-70	15-35	7.4-7.8	0-1	0	0.0-2.0	0
411:							
Ligocki	0-2	5.0-15	6.6-7.3	0	0	0	0
	2-8	5.0-15	6.6-7.3	0	0	0	0
	8-21	20-30	7.4-7.8	0	0	0	0
	21-30	15-25	7.4-8.4	5-10	0	0.0-2.0	0
	30-41	10-20	7.4-8.4	5-15	0	0.0-2.0	0
	41-70	10-20	7.4-7.8	5-15	0	0.0-2.0	0
Robolata	0-6	10-20	7.4-7.8	0	0	0	0
	6-12	10-20	7.4-7.8	0	0	0.0-2.0	0
	12-20	20-35	7.4-7.8	0	0	0.0-2.0	0
	20-30	15-25	7.4-7.8	0	0	0.0-2.0	0
	30-50	10-25	7.4-7.8	5-10	0	0.0-2.0	0
	50-70	5.0-10	7.4-7.8	5-10	0	0.0-2.0	0
412:							
Rock outcrop	0	---	---	---	---	---	---
Rionutria	0-3	10-20	6.6-7.8	0	0	0	0
	3-12	15-30	7.4-7.8	5-10	0	0.0-2.0	0
	12-24	15-25	7.4-8.4	5-10	0	0.0-2.0	0
	24-40	---	---	---	---	---	---

Table 16.--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/100 g	pH	Pct	Pct	mmhos/cm	
412:							
Zaster	0-3	5.0-15	7.9-8.4	5-10	0	0.0-2.0	0
	3-11	5.0-15	7.9-8.4	10-15	0	0.0-2.0	0
	11-27	5.0-15	7.9-8.4	10-25	0	0.0-2.0	0
	27-40	---	---	---	---	---	---
413:							
Morclay	0-1	15-40	7.4-7.8	0-1	0	0.0-2.0	0-1
	1-5	15-40	7.4-7.8	1-5	0	0.0-2.0	0-1
	5-48	15-25	7.4-7.8	1-5	0	0.0-2.0	0-1
	48-56	15-25	7.4-7.8	1-5	0	0.0-2.0	0-1
	56-70	15-25	7.4-7.8	1-5	0	0.0-2.0	0-1
	70-80	---	---	---	---	---	---
414:							
Zunalei	0-1	5.0-10	6.6-7.3	0	0	0	0
	1-6	5.0-10	6.6-7.3	0	0	0	0
	6-20	10-20	6.6-7.3	0	0	0	0
	20-50	10-15	7.4-7.8	0	0	0.0-2.0	0
	50-70	10-15	7.4-7.8	0-5	0	0.0-2.0	0
Corzuni	0-1	---	---	---	---	---	---
	1-8	5.0-10	6.6-7.3	0	0	0	0
	8-29	5.0-15	6.6-7.3	0	0	0	0
	29-45	5.0-15	6.6-7.3	0	0	0	0
	45-70	5.0-15	7.4-7.8	1-5	0	0.0-2.0	0
415:							
Tsoodzil	0-3	15-25	6.1-6.5	0	0	0	0
	3-7	15-30	6.6-7.3	0	0	0	0
	7-22	20-40	6.6-7.3	0	0	0	0
	22-65	25-45	6.6-7.3	0-1	0	0.0-2.0	0
Rubble land	0	---	---	---	---	---	---
416:							
Rock outcrop	0	---	---	---	---	---	---
Bluesky	0-5	2.0-5.0	6.6-7.3	0	0	0	0
	5-8	2.0-5.0	6.6-7.3	0	0	0	0
	8-20	---	---	---	---	---	---
418:							
Asaayi	0-1	---	---	---	---	---	---
	1-3	5.0-10	6.6-7.3	0	0	0	0
	3-5	10-15	6.6-7.3	0	0	0	0
	5-16	15-20	6.6-7.3	0	0	0	0
	16-20	---	---	---	---	---	---
Osoridge	0-2	15-25	6.6-7.3	0	0	0	0
	2-6	15-30	6.6-7.3	0	0	0	0
	6-18	15-30	6.6-7.3	0	0	0	0
	18-20	---	---	---	---	---	---

Table 16.--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/100 g	pH	Pct	Pct	mmhos/cm	
419:							
Fortwingate	0-5	5.0-10	6.6-7.3	0	0	0	0
	5-13	15-30	6.6-7.8	0	0	0	0
	13-21	10-15	6.6-7.8	0	0	0	0
	21-26	15-20	6.6-7.8	0	0	0	0
	26-40	---	---	---	---	---	---
Cinnadale	0-6	5.0-10	6.6-7.3	0	0	0	0
	6-11	5.0-10	6.6-7.3	0	0	0	0
	11-20	---	---	---	---	---	---
Rock outcrop	0	---	---	---	---	---	---
420:							
Seco	0-3	20-30	6.1-7.3	0	0	0	0
	3-11	30-45	6.6-8.4	0	0	0	0
	11-23	30-50	6.6-8.4	0	0	0.0-2.0	0
	23-58	30-50	7.4-8.4	1-5	0	0.0-2.0	0
	58-70	30-50	7.4-8.4	1-5	0	0.0-2.0	0
425:							
Montillo	0-2	10-25	6.1-7.3	0	0	0	0
	2-8	20-40	6.1-7.3	0	0	0	0
	8-18	20-40	6.1-7.3	0	0	0	0
	18-35	20-40	6.1-7.3	0	0	0	0
	35-40	---	---	---	---	---	---
Canoneros	0-2	10-20	6.1-7.3	0	0	0	0
	2-8	15-25	6.1-7.3	0	0	0	0
	8-13	20-35	6.1-7.3	0	0	0	0
	13-20	---	---	---	---	---	---
430:							
Montillo	0-4	10-25	6.1-7.3	0	0	0	0
	4-13	20-40	6.6-7.8	0	0	0	0
	13-31	20-40	6.6-7.8	0	0	0	0
	31-38	20-40	6.6-7.8	0	0	0	0
	38-40	---	---	---	---	---	---
435:							
Tsoodzil	0-3	15-25	6.1-7.3	0	0	0	0-2
	3-11	20-35	6.1-7.3	0	0	0	0-2
	11-25	25-45	6.6-7.3	0	0	0	0-2
	25-32	20-40	7.4-7.8	1-10	0	0	0-2
	32-65	15-35	7.4-7.8	1-10	0	0.0-2.0	0-2
Amcec	0-4	15-20	6.6-7.3	0	0	0	0
	4-16	15-20	7.4-7.8	0	0	0	0
	16-39	15-20	7.4-8.4	1-10	0	0	0
	39-53	5.0-10	7.4-8.4	1-10	0	0	0
	53-70	5.0-10	7.4-8.4	1-10	0	0	0

Table 16.--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/100 g	pH	Pct	Pct	mmhos/cm	
440:							
Chivato	0-2	25-40	6.1-7.3	0	0	0.0-2.0	0-1
	2-13	25-45	6.6-7.8	0	0	0.0-2.0	0-1
	13-40	25-45	6.6-7.8	0	0	0.0-2.0	0-1
	40-52	25-45	6.6-7.8	0	0	0.0-2.0	0-1
	52-65	25-45	6.6-7.8	0	0	0.0-2.0	0-1
525:							
Silcat	0-2	15-30	7.4-7.8	0-1	0	0.0-2.0	0-2
	2-38	20-40	7.4-8.4	0-5	0	0.0-2.0	0-2
	38-65	20-40	7.4-8.4	0-5	0	0.0-2.0	0-2
550:							
Bryway	0-2	5.0-20	6.6-7.8	0	0	0	0
	2-6	15-35	6.6-7.8	0	0	0	0
	6-32	15-35	7.4-7.8	0-5	0	0	0
	32-40	---	---	---	---	---	---
Galzuni	0-2	10-20	6.6-7.8	0	0	0	0
	2-4	15-35	7.4-7.8	0	0	0	0
	4-23	15-35	7.4-7.8	0-1	0	0.0-2.0	0-2
	23-32	15-25	7.4-7.8	1-5	0	0.0-2.0	0-2
	32-52	15-30	7.4-7.8	1-5	0	0.0-2.0	0-2
	52-65	10-25	7.4-7.8	1-5	0	0.0-2.0	0-2
555:							
Parkelei	0-3	5.0-15	6.6-7.8	0	0	0	0-1
	3-12	10-25	6.6-7.8	0	0	0	0-1
	12-21	10-25	6.6-7.8	0	0	0	0-1
	21-65	5.0-15	6.6-7.8	0-5	0	0.0-2.0	0-1
Evpark	0-3	5.0-15	6.6-7.3	0	0	0	0
	3-16	15-25	6.6-7.3	0	0	0	0
	16-20	10-20	6.6-7.3	0	0	0	0
	20-29	10-20	7.4-7.8	0	0	0.0-2.0	0-1
	29-35	10-20	7.4-7.8	1-10	0	0.0-2.0	0-1
	35-40	---	---	---	---	---	---
560:							
Flugle	0-3	5.0-15	6.6-7.8	0-1	0	0.0-2.0	0-1
	3-35	10-25	6.6-7.8	0-1	0	0.0-2.0	0-1
	35-65	5.0-15	7.4-8.4	5-10	0	0.0-2.0	0-1
Teczuni	0-2	10-20	6.6-7.8	0-5	0	0.0-2.0	0
	2-16	15-25	6.6-7.8	0-5	0	0.0-2.0	0
	16-33	15-25	6.6-7.8	5-15	0	0.0-2.0	0
	33-65	15-30	7.4-8.4	15-30	0	0.0-2.0	0
561:							
Flugle	0-3	5.0-15	6.6-7.8	0-5	0	0	0
	3-17	10-25	6.6-7.8	0-5	0	0.0-2.0	0-1
	17-65	5.0-15	7.4-8.4	5-10	0	0.0-2.0	0-1

Table 16.--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/100 g	pH	Pct	Pct	mmhos/cm	
561:							
Plumasano	0-2	5.0-15	6.6-7.8	1-5	0	0.0-2.0	0
	2-11	5.0-15	6.6-7.8	1-5	0	0.0-2.0	0
	11-27	5.0-15	7.4-7.8	5-15	0	0.0-2.0	0
	27-43	5.0-15	7.4-7.8	5-15	0	0.0-2.0	0
	43-53	5.0-15	7.4-7.8	5-15	0	0.0-2.0	0
	53-65	10-20	7.4-7.8	5-15	0	0.0-2.0	0
565:							
Plumasano	0-3	5.0-15	6.6-7.8	1-5	0	0.0-2.0	0
	3-24	5.0-15	6.6-7.8	1-5	0	0.0-2.0	0
	24-36	5.0-10	6.6-7.8	1-5	0	0.0-2.0	0
	36-65	5.0-15	7.4-7.8	5-15	0	0.0-2.0	0
Rock outcrop	0	---	---	---	---	---	---
566:							
Bamac	0-2	5.0-10	7.4-8.4	5-15	0	0.0-2.0	0
	2-8	5.0-10	7.4-8.4	5-15	0	0.0-2.0	0
	8-30	5.0-10	7.4-8.4	5-15	0	0.0-2.0	0
	30-63	5.0-10	7.4-8.4	5-15	0	0.0-2.0	0
575:							
Ramah	0-3	5.0-15	6.6-7.8	0-1	0	0	0
	3-8	10-25	6.6-7.8	0-5	0	0	0
	8-15	15-25	6.6-7.8	0-5	0	0	0
	15-33	15-25	7.9-8.4	5-15	0	0.0-2.0	0-1
	33-41	15-25	7.9-8.4	15-30	0	0.0-2.0	0-1
	41-62	10-20	7.9-8.4	5-10	0	0.0-2.0	0-1
Pescado	0-3	5.0-15	6.6-7.3	0	0	0	0-1
	3-10	10-25	6.6-7.8	0-1	0	0	0-1
	10-16	10-25	6.6-7.8	1-5	0	0.0-2.0	0-1
	16-20	---	---	---	---	---	---

Table 17.--Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Kind	Depth to top		Uncoated steel	Concrete
		In			
8:					
Water	---	---	---	---	---
10:					
Tsosie	---	---	Low	High	Low
Councelor	---	---	Low	High	Low
Blancot	---	---	Low	High	Low
11:					
Doakum	---	---	Low	High	Low
Betonnie	---	---	Low	High	Low
12:					
Calladito	---	---	Low	Moderate	Low
Elias	---	---	Low	High	High
13:					
Councelor	---	---	Low	High	Low
Calladito	---	---	Low	Moderate	Low
14:					
Councelor	---	---	Low	High	Low
Eslendo	Bedrock (paralithic)	5-20	Low	High	Moderate
Calladito	---	---	Low	Moderate	Low
16:					
Starlake	---	---	Low	High	High
22:					
Querencia	---	---	Low	High	Low
Lavodnas	Bedrock (paralithic)	10-20	Low	High	High
30:					
Orlie	---	---	Moderate	High	Low
Tinian	Bedrock (lithic)	20-40	Low	High	Low
40:					
Nuffel	---	---	Low	High	Low
42:					
Suwanee	---	---	Low	High	Low

Table 17.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Kind	Depth to top		Uncoated steel	Concrete
		In			
44:					
Suwanee	---	---	Low	High	Low
45:					
Nutreeah	---	---	Low	High	Moderate
47:					
Conchovar	---	---	Low	High	High
49:					
Concho	---	---	Low	High	Low
51:					
Kwakina	---	---	Low	High	Low
52:					
Zuniven	---	---	Moderate	High	Low
53:					
Hawaikuh	---	---	Low	High	Low
54:					
Venadito	---	---	Low	High	High
55:					
Sparham	---	---	Low	High	Low
60:					
Redpen	---	---	Low	High	Low
100:					
Norkiki	Bedrock (lithic)	20-40	Low	High	Low
Kimnoli	Bedrock (lithic)	5-20	Low	High	Low
110:					
Benally	---	---	Low	High	High
Fruitland	---	---	Low	High	Moderate
111:					
Yelives	---	---	Low	High	Low
115:					
Razito	---	---	Low	High	Low
Shiprock	---	---	Low	High	Moderate
116:					
Fajada	Bedrock (paralithic)	20-40	Low	High	High
Huerfano	Bedrock (paralithic)	10-20	Low	High	High
Benally	Bedrock (paralithic)	40-60	Low	High	High

Table 17.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Kind	Depth to top		Uncoated steel	Concrete
		In			
118:					
Farb	Bedrock (lithic)	5-20	Low	High	Low
Chipeta	Bedrock (paralithic)	5-20	Low	High	High
Rock outcrop	Bedrock (lithic)	0-0	None	---	---
120:					
Doak	---	---	Low	High	Low
Shiprock	---	---	Low	High	Moderate
121:					
Badland	Bedrock (paralithic)	0-2	None	High	Low
122:					
Farb	Bedrock (lithic)	5-20	Low	High	Low
Rock outcrop	Bedrock (lithic)	0-0	None	---	---
125:					
Sanfeco	---	---	Low	High	Low
130:					
Chipeta	Bedrock (paralithic)	5-20	Low	High	High
Badlands	Bedrock (paralithic)	1-2	Low	Low	High
Moncisco	Abrupt textural change	10-20	Low	Low	High
150:					
Riverwash	---	---	None	High	Low
Escawetter	---	---	Low	High	Low
160:					
Escawetter	---	---	Low	High	Low
Riverwash	---	---	---	High	Low
Razito	---	---	Low	High	Low
205:					
Penistaja	---	---	Low	High	Low
Tintero	---	---	Low	High	Low
208:					
Marianolake	---	---	Low	High	Low

Table 17.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Kind	Depth to top		Uncoated steel	Concrete
		In			
210:					
Marianolake	---	---	Low	High	Low
Skyvillage	Bedrock (lithic)	5-20	Low	High	Low
212:					
Rehobeth	---	---	Low	High	High
215:					
Viuda	Bedrock (lithic)	10-20	Low	High	Low
Penistaja	---	---	Low	High	Low
Rock outcrop	Bedrock (lithic)	0-0	None	---	---
220:					
Hagerwest	Bedrock (lithic)	20-40	Low	High	Low
Bond	Bedrock (lithic)	10-20	Low	High	Low
225:					
Aquima	---	---	Low	High	Low
Hawaikuh	---	---	Low	High	Low
230:					
Sparank	---	---	Low	High	Low
San Mateo	---	---	Low	High	Low
Zia	---	---	Low	High	Low
235:					
Notal	---	---	Low	High	High
Hamburn	---	---	Low	High	Moderate
240:					
Breadsprings	---	---	Low	High	Low
Nahodish	---	---	Low	High	Low
241:					
Mentmore	---	---	Low	High	Low
242:					
Gish	---	---	Low	High	Low
Mentmore	---	---	Low	High	Low
244:					
Buckle	---	---	Low	High	Low

Table 17.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Kind	Depth to top		Uncoated steel	Concrete
		In			
245:					
Buckle	---	---	Low	High	Low
Gapmesa	Bedrock (lithic)	20-40	Low	High	Low
Barboncito	Bedrock (lithic)	10-20	Low	High	Low
250:					
Hospah	Bedrock (paralithic)	5-20	Low	High	Low
Skyvillage	Bedrock (lithic)	5-20	Low	High	Low
Rock outcrop	Bedrock (lithic)	0-0	None	---	---
255:					
Farview	Bedrock (lithic)	5-20	Low	Low	Low
Rock outcrop	---	0-0	---	---	---
258:					
Eagleye	Bedrock (paralithic)	5-20	Low	High	Low
Atchee	Bedrock (lithic)	5-20	Low	High	Low
Rock outcrop	---	0-0	---	---	---
260:					
Quarries and Pits	Bedrock (lithic)	0-0	None	---	---
261:					
Coal Mine Lands	---	---	---	---	---
265:					
Uranium Mined Lands	---	---	None	---	---
270:					
Alesna	Bedrock (paralithic)	40-60	Low	High	Low
Rock outcrop	Bedrock (lithic)	0-0	None	---	---
275:					
Eldado	---	---	Low	High	Low
280:					
Azabache	---	---	Low	High	High
290:					
Rock outcrop	Bedrock (lithic)	0-0	None	---	---
Westmion	Bedrock (paralithic)	5-20	Low	High	Low
Skyvillage	Bedrock (lithic)	5-20	Low	High	Low

Table 17.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Kind	Depth to top		Uncoated steel	Concrete
		In			
291:					
Rock outcrop	Bedrock (lithic)	0-0	---	---	---
Eagleye	Bedrock (paralithic)	5-20	Low	High	Low
Atchee	Bedrock (lithic)	5-20	Low	High	Low
300:					
Regracic	---	---	Low	Moderate	Low
305:					
Celavar	Bedrock (lithic)	20-40	Moderate	High	Low
Atarque	Bedrock (lithic)	10-20	Moderate	High	Low
308:					
Fikel	---	---	Low	High	Low
Venzuni	---	---	Low	High	Low
310:					
Parkelei	---	---	Moderate	High	Low
312:					
Bluewater	---	---	Moderate	High	Low
315:					
Flugle	---	---	Moderate	High	Low
Fragua	---	---	Moderate	High	Low
316:					
Royosa	---	---	Low	Moderate	Low
317:					
Highdye	Bedrock (lithic)	5-20	Low	High	Low
Evpark	Bedrock (lithic)	20-40	Moderate	High	Low
Bryway	Bedrock (paralithic)	20-40	Moderate	High	Low
320:					
Parkelei	---	---	Moderate	High	Low
Fraguni	---	---	Moderate	Moderate	Low
325:					
Venzuni	---	---	Low	High	Low
332:					
Evpark	Bedrock (lithic)	20-40	Moderate	High	Low
Arabrab	Bedrock (lithic)	10-20	Moderate	Moderate	Low

Table 17.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Kind	Depth to top		Uncoated steel	Concrete
		In			
335:					
Venadito	---	---	Low	High	Low
336:					
Nuffel	---	---	Low	High	Low
Venadito	---	---	Low	High	Low
338:					
Zyme	Bedrock (paralithic)	5-20	Low	High	Low
Lockerby	Bedrock (paralithic)	20-40	Low	High	Low
345:					
Rock outcrop	Bedrock (lithic)	0-0	None	---	---
Tuces	Bedrock (paralithic)	20-40	Low	High	Low
350:					
Toldohn	Bedrock (paralithic)	5-20	Low	High	Low
Vessilla	Bedrock (lithic)	5-20	Moderate	Low	Low
Rock outcrop	Bedrock (lithic)	0-0	None	---	---
351:					
Rock outcrop	Bedrock (lithic)	0-0	None	---	---
Vessilla	Bedrock (lithic)	5-20	Moderate	Low	Low
352:					
Zia	---	---	Low	High	Low
353:					
Mido	---	---	Low	Moderate	Low
354:					
Knifehill	---	---	Moderate	High	Low
355:					
Rizno	Bedrock (lithic)	5-20	Low	Moderate	Low
Tekapo	Bedrock (paralithic)	5-20	Low	High	Low
Rock outcrop	Bedrock (lithic)	0-0	None	---	---
357:					
Heshotauthla	---	---	Low	High	High

Table 17.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Kind	Depth to top		Uncoated steel	Concrete
		In			
360:					
Hosta	---	---	Moderate	High	Low
Concho	---	---	Low	High	Low
361:					
Monpark	Bedrock (paralithic)	20-40	Low	High	Moderate
365:					
Vessilla	Bedrock (lithic)	5-20	Moderate	High	Low
Rock outcrop	Bedrock (lithic)	0-0	None	---	---
366:					
Bosonoak	---	---	Moderate	High	Low
367:					
Chunkmonk	Bedrock (lithic)	10-20	Moderate	High	Low
368:					
Simitarq	Bedrock (lithic)	5-20	Moderate	Moderate	Low
Celavar	Bedrock (lithic)	20-40	Moderate	High	Low
375:					
Todest	Bedrock (lithic)	20-40	Moderate	High	Low
Shadilto	Bedrock (lithic)	5-20	Moderate	High	Low
376:					
Todest	Bedrock (lithic)	20-40	Moderate	High	Low
380:					
Berryhill	---	---	Low	High	High
Casamero	Bedrock (paralithic)	10-20	Low	High	High
385:					
Mcorreon	Bedrock (lithic)	---	Low	High	Low
Rock outcrop	Bedrock (lithic)	0-0	None	---	---
390:					
Banquito	Bedrock (lithic)	20-40	Moderate	High	Low
395:					
Cabezon	Bedrock (lithic)	10-20	Low	High	Low
Mcorreon	Bedrock (lithic)	---	Low	High	Low
400:					
Shoemaker	Bedrock (lithic)	20-40	Moderate	Moderate	Low
Stozuni	Bedrock (lithic)	5-20	Moderate	Low	Low

Table 17.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Kind	Depth to top		Uncoated steel	Concrete
		In			
403:					
Valnor	Bedrock (paralithic)	20-40	Low	High	Low
Techado	Bedrock (paralithic)	10-20	Low	Moderate	Low
404:					
Rock outcrop	Bedrock (lithic)	0-0	None	---	---
Techado	Bedrock (paralithic)	10-20	Low	Moderate	Low
Stozuni	Bedrock (lithic)	5-20	Moderate	Low	Low
405:					
Fortwingate	Bedrock (lithic)	20-40	Low	High	Low
Owlrock	Bedrock (lithic)	5-20	Moderate	High	Low
406:					
Polich	---	---	Moderate	High	Low
407:					
Cinnadale	Bedrock (lithic)	10-20	Moderate	Moderate	Low
Heckly	Bedrock (lithic)	20-40	Low	High	Low
408:					
Mirabal	Bedrock (lithic)	20-40	Moderate	Low	Low
Zuni	Bedrock (lithic)	20-40	Low	High	Low
409:					
Rauster	Bedrock (paralithic)	40-60	Low	High	Low
Rock outcrop	Bedrock (lithic)	0-0	None	---	---
410:					
Montillo	Bedrock (lithic)	20-40	Low	High	Low
Tsoodzil	---	---	Low	High	Low
411:					
Ligocki	---	---	Low	High	Low
Robolata	---	---	Moderate	High	Low
412:					
Rock outcrop	Bedrock (lithic)	0-0	None	---	---
Rionutria	Bedrock (lithic)	20-40	Low	High	Low
Zaster	Bedrock (lithic)	20-40	Moderate	High	Low

Table 17.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Kind	Depth to top		Uncoated steel	Concrete
		In			
413:					
Morclay	Bedrock (paralithic)	---	Low	High	Low
414:					
Zunalei	---	---	Moderate	High	Low
Corzuni	---	---	Moderate	Low	Low
415:					
Tsoodzil	---	---	Low	High	Low
Rubble Land	---	---	None	High	Low
416:					
Rock outcrop	Bedrock (lithic)	0-0	None	---	---
Bluesky	Bedrock (lithic)	5-20	Low	Low	Low
418:					
Asaayi	Bedrock (lithic)	5-20	Moderate	Low	Low
Osoridge	Bedrock (lithic)	10-20	Low	High	Low
419:					
Fortwingate	Bedrock (lithic)	20-40	Low	High	Low
Cinnadale	Bedrock (lithic)	5-20	Moderate	Moderate	Low
Rock outcrop	---	---	None	---	---
420:					
Seco	---	---	Low	High	Low
425:					
Montillo	Bedrock (lithic)	20-40	Low	High	Low
Canoneros	Bedrock (lithic)	10-20	Low	High	Low
430:					
Montillo	Bedrock (lithic)	20-40	Low	High	Low
435:					
Tsoodzil	---	---	Low	High	Low
Amcec	---	---	Moderate	High	Low
440:					
Chivato	---	---	Low	High	Low
525:					
Silcat	---	---	Low	High	Low
550:					
Bryway	Bedrock (paralithic)	20-40	Moderate	High	Low

Table 17.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Kind	Depth to top		Uncoated steel	Concrete
		In			
550:					
Galzuni	---	---	Low	High	Low
555:					
Parkelei	---	---	Moderate	High	Low
Evpark	Bedrock (lithic)	20-40	Moderate	High	Low
560:					
Flugle	---	---	Moderate	High	Low
Teczuni	---	---	Moderate	High	Low
561:					
Flugle	---	---	Moderate	High	Low
Plumasano	---	---	Moderate	High	Low
565:					
Plumasano	---	---	Moderate	High	Low
Rock outcrop	Bedrock (lithic)	0-0	None	---	---
566:					
Bamac	---	---	Low	High	Low
575:					
Ramah	---	---	Moderate	High	Low
Pescado	Bedrock (lithic)	5-20	Moderate	High	Low

Table 18.--Water Features

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
8:									
Water	---								
		Jan-Dec	---	---	---	---	None	---	None
10:									
Tsosie	B								
		March	---	---	---	---	None	Very brief	Rare
		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
Councelor	B								
		March	---	---	---	---	None	Very brief	Rare
		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
Blancot	B								
		Jan-Dec	---	---	---	---	None	---	None
11:									
Doakum	B								
		Jan-Dec	---	---	---	---	None	---	None
Betonnie	B								
		Jan-Dec	---	---	---	---	None	---	None
12:									
Calladito	A								
		Jan-Dec	---	---	---	---	None	---	None
Elias	C								
		Jan-Dec	---	---	---	---	None	---	None
13:									
Councelor	B								
		March	---	---	---	---	None	Very brief	Rare
		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
Calladito	A								
		Jan-Dec	---	---	---	---	None	---	None

Table 18.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
14:									
Councelor	B								
		March	---	---	---	---	None	Very brief	Rare
		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
Eslendo	D								
		Jan-Dec	---	---	---	---	None	---	None
Calladito	A								
		Jan-Dec	---	---	---	---	None	---	None
16:									
Starlake	D								
		March	---	---	---	---	None	Very brief	Rare
		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
22:									
Querencia	B								
		Jan-Dec	---	---	---	---	None	---	None
Lavodnas	C								
		Jan-Dec	---	---	---	---	None	---	None
30:									
Orlie	B								
		Jan-Dec	---	---	---	---	None	---	None
Tinian	C								
40:									
Nuffel	B								
		January	---	---	---	---	None	Very brief	Frequent
		February	---	---	---	---	None	Very brief	Frequent
		March	---	---	---	---	None	Very brief	Frequent
		April	---	---	---	---	None	Very brief	Frequent
		July	---	---	---	---	None	Very brief	Frequent
		August	---	---	---	---	None	Very brief	Frequent
		September	---	---	---	---	None	Very brief	Frequent
		October	---	---	---	---	None	Very brief	Frequent
		November	---	---	---	---	None	Very brief	Frequent
		December	---	---	---	---	None	Very brief	Frequent

Table 18.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
42:									
Suwanee	B								
		January	---	---	---	---	None	Very brief	Frequent
		February	---	---	---	---	None	Very brief	Frequent
		March	---	---	---	---	None	Very brief	Frequent
		April	---	---	---	---	None	Very brief	Frequent
		July	---	---	---	---	None	Very brief	Frequent
		August	---	---	---	---	None	Very brief	Frequent
		September	---	---	---	---	None	Very brief	Frequent
		October	---	---	---	---	None	Very brief	Frequent
		November	---	---	---	---	None	Very brief	Frequent
		December	---	---	---	---	None	Very brief	Frequent
44:									
Suwanee	B								
		January	---	---	---	---	None	Very brief	Frequent
		February	---	---	---	---	None	Very brief	Frequent
		March	---	---	---	---	None	Very brief	Frequent
		April	---	---	---	---	None	Very brief	Frequent
		July	---	---	---	---	None	Very brief	Frequent
		August	---	---	---	---	None	Very brief	Frequent
		September	---	---	---	---	None	Very brief	Frequent
		October	---	---	---	---	None	Very brief	Frequent
		November	---	---	---	---	None	Very brief	Frequent
		December	---	---	---	---	None	Very brief	Frequent
45:									
Nutreeah	C								
		March	3.5	>6.0	---	---	None	Very brief	Rare
		April	3.5	---	---	---	None	Very brief	Rare
		May	3.5	---	---	---	None	Very brief	Rare
		June	3.5	---	---	---	None	Very brief	Rare
		July	---	---	---	---	None	Very brief	Rare
		August	---	---	---	---	None	Very brief	Rare
47:									
Conchovar	C								
		March	2.5-5.0	---	---	---	None	Very brief	Rare
		April	2.5-5.0	---	---	---	None	Very brief	Rare
		May	2.5-5.0	---	---	---	None	Very brief	Rare
		June	2.5-5.0	---	---	---	None	Very brief	Rare
		July	2.5-5.0	---	---	---	None	Very brief	Rare
		August	2.5-5.0	---	---	---	None	Very brief	Rare
		September	2.5-5.0	---	---	---	None	---	None
		October	2.5-5.0	---	---	---	None	---	None
49:									
Concho	C								
		March	---	---	---	---	None	Very brief	Rare
		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

Table 18.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
51:									
Kwakina	B								
		July	---	---	---	---	None	Very brief	Occasional
		August	---	---	---	---	None	Very brief	Occasional
		September	---	---	---	---	None	Very brief	Occasional
		October	---	---	---	---	None	Very brief	Occasional
		November	---	---	---	---	None	Very brief	Occasional
52:									
Zuniven	B								
		March	---	---	---	---	None	Brief	Frequent
		April	---	---	---	---	None	Brief	Frequent
		May	---	---	---	---	None	Brief	Occasional
		June	---	---	---	---	None	Brief	Occasional
		July	---	---	---	---	None	Brief	Frequent
		August	---	---	---	---	None	Brief	Frequent
		September	---	---	---	---	None	Brief	Frequent
		October	---	---	---	---	None	Brief	Occasional
53:									
Hawaikuh	C								
		Jan-Dec	---	---	---	---	None	---	None
54:									
Venadito	D								
		March	3.0-5.0	---	---	---	None	Very brief	Occasional
		April	3.0-5.0	---	---	---	None	Very brief	Occasional
		May	3.0-5.0	---	---	---	None	Very brief	Occasional
		June	3.0-5.0	---	---	---	None	Very brief	Occasional
		July	3.0-5.0	---	---	---	None	Very brief	Occasional
		August	3.0-5.0	---	---	---	None	Very brief	Occasional
		September	3.0-5.0	---	---	---	None	Very brief	Occasional
		October	3.0-5.0	---	---	---	None	Very brief	Occasional
		November	3.0-5.0	---	---	---	None	---	None
55:									
Sparham	D								
		January	---	---	---	---	None	Very brief	Frequent
		February	---	---	---	---	None	Very brief	Frequent
		March	---	---	---	---	None	Very brief	Frequent
		April	---	---	---	---	None	Very brief	Frequent
		July	---	---	---	---	None	Very brief	Frequent
		August	---	---	---	---	None	Very brief	Frequent
		September	---	---	---	---	None	Very brief	Frequent
		October	---	---	---	---	None	Very brief	Frequent
		November	---	---	---	---	None	Very brief	Frequent
		December	---	---	---	---	None	Very brief	Frequent
60:									
Redpen	B								
		Jan-Dec	---	---	---	---	None	---	None

Table 18.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
100:									
Norkiki	C								
		Jan-Dec	---	---	---	---	None	---	None
Kimnoli	D								
		Jan-Dec	---	---	---	---	None	---	None
110:									
Benally	C								
		Jan-Dec	---	---	---	---	None	---	None
Fruitland	B								
		Jan-Dec	---	---	---	---	None	---	None
111:									
Yelives	B								
		March	---	---	---	---	None	Very brief	Rare
		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
115:									
Razito	A								
		Jan-Dec	---	---	---	---	None	---	None
Shiprock	B								
		Jan-Dec	---	---	---	---	None	---	None
116:									
Fajada	C								
		Jan-Dec	---	---	---	---	None	---	None
Huerfano	D								
		Jan-Dec	---	---	---	---	None	---	None
Benally	C								
		Jan-Dec	---	---	---	---	None	---	None
118:									
Farb	D								
		Jan-Dec	---	---	---	---	None	---	None
Chipeta	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None

Table 18.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
120:									
Doak	B								
		Jan-Dec	---	---	---	---	None	---	None
Shiprock	B								
		Jan-Dec	---	---	---	---	None	---	None
121:									
Badland	D								
		Jan-Dec	---	---	---	---	None	---	None
122:									
Farb	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
125:									
Sanfeco	C								
		March	---	---	---	---	None	Very brief	Rare
		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
130:									
Chipeta	D								
		Jan-Dec	---	---	---	---	None	---	None
Badlands	D								
		Jan-Dec	---	---	---	---	None	---	None
Moncisco	A								
		Jan-Dec	---	---	---	---	None	---	None
150:									
Riverwash	---								
		March	---	---	---	---	None	Very brief	Occasional
		April	---	---	---	---	None	Very brief	Occasional
		May	---	---	---	---	None	Very brief	Occasional
		June	---	---	---	---	None	Very brief	Occasional
		July	---	---	---	---	None	Brief	Frequent
		August	---	---	---	---	None	Brief	Frequent
		September	---	---	---	---	None	Very brief	Occasional

Table 18.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
150:									
Escawetter	A								
		January	3.0-4.9	---	---	---	None	---	None
		March	3.3-5.0	---	---	---	None	Very brief	Occasional
		April	3.3-5.0	---	---	---	None	Very brief	Occasional
		May	3.3-5.0	---	---	---	None	Very brief	Occasional
		June	3.3-5.0	---	---	---	None	Very brief	Occasional
		July	3.3-5.0	---	---	---	None	Brief	Frequent
		August	3.3-5.0	---	---	---	None	Brief	Frequent
		September	3.3-5.0	---	---	---	None	Very brief	Occasional
160:									
Escawetter	A								
		March	3.3-5.0	---	---	---	None	Very brief	Occasional
		April	3.3-5.0	---	---	---	None	Very brief	Occasional
		May	3.3-5.0	---	---	---	None	Very brief	Occasional
		June	3.3-5.0	---	---	---	None	Very brief	Occasional
		July	3.3-5.0	---	---	---	None	Brief	Frequent
		August	---	---	---	---	None	Brief	Frequent
		September	---	---	---	---	None	Very brief	Occasional
Riverwash	---								
		March	---	---	---	---	None	Very brief	Occasional
		April	---	---	---	---	None	Very brief	Occasional
		May	---	---	---	---	None	Very brief	Occasional
		June	---	---	---	---	None	Very brief	Occasional
		July	---	---	---	---	None	Brief	Frequent
		August	---	---	---	---	None	Brief	Frequent
		September	---	---	---	---	None	Very brief	Occasional
		October	3.0-4.9	---	---	---	None	---	None
Razito	A								
		Jan-Dec	---	---	---	---	None	---	None
205:									
Penistaja	B								
		Jan-Dec	---	---	---	---	None	---	None
Tintero	B								
		Jan-Dec	---	---	---	---	None	---	None
208:									
Marianolake	B								
		Jan-Dec	---	---	---	---	None	---	None
210:									
Marianolake	B								
		Jan-Dec	---	---	---	---	None	---	None
Skyvillage	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 18.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
212:									
Rehobeth	D								
		March	---	---	---	---	None	Very brief	Rare
		April	---	---	---	---	None	Very brief	Occasional
		May	---	---	---	---	None	Very brief	Occasional
		June	---	---	0.0-0.3	Brief	Occasional	Very brief	Occasional
		July	---	---	0.0-0.3	Brief	Occasional	Very brief	Occasional
		August	---	---	0.0-0.3	Brief	Occasional	Very brief	Occasional
		September	---	---	0.0-0.3	Brief	Occasional	Very brief	Occasional
215:									
Viuda	D								
		Jan-Dec	---	---	---	---	None	---	None
Penistaja	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
220:									
Hagerwest	B								
		Jan-Dec	---	---	---	---	None	---	None
Bond	D								
		Jan-Dec	---	---	---	---	None	---	None
225:									
Aquima	B								
		Jan-Dec	---	---	---	---	None	---	None
Hawaikuh	C								
		Jan-Dec	---	---	---	---	None	---	None
230:									
Sparank	D								
		January	---	---	---	---	None	Very brief	Occasional
		February	---	---	---	---	None	Very brief	Occasional
		March	---	---	---	---	None	Very brief	Occasional
		April	---	---	---	---	None	Very brief	Occasional
		July	---	---	---	---	None	Very brief	Occasional
		August	---	---	---	---	None	Very brief	Occasional
		September	---	---	---	---	None	Very brief	Occasional
		October	---	---	---	---	None	Very brief	Occasional
		November	---	---	---	---	None	Very brief	Occasional
		December	---	---	---	---	None	Very brief	Occasional

Table 18.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
230:									
San Mateo	B								
		January	---	---	---	---	None	Very brief	Occasional
		February	---	---	---	---	None	Very brief	Occasional
		March	---	---	---	---	None	Very brief	Occasional
		April	---	---	---	---	None	Very brief	Occasional
		July	---	---	---	---	None	Very brief	Occasional
		August	---	---	---	---	None	Very brief	Occasional
		September	---	---	---	---	None	Very brief	Occasional
		October	---	---	---	---	None	Very brief	Occasional
		November	---	---	---	---	None	Very brief	Occasional
		December	---	---	---	---	None	Very brief	Occasional
Zia	B								
		March	---	---	---	---	None	Very brief	Rare
		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
235:									
Notal	D								
		March	---	---	---	---	None	Very brief	Rare
		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
Hamburn	B								
		January	---	---	---	---	None	Very brief	Rare
		February	---	---	---	---	None	Very brief	Rare
		March	---	---	---	---	None	Very brief	Occasional
		April	---	---	---	---	None	Very brief	Occasional
		May	---	---	---	---	None	Very brief	Occasional
		June	---	---	---	---	None	Very brief	Occasional
		July	---	---	---	---	None	Very brief	Occasional
		August	---	---	---	---	None	Very brief	Occasional
		September	---	---	---	---	None	Very brief	Rare
		October	---	---	---	---	None	Very brief	Rare
		November	---	---	---	---	None	Very brief	Rare
		December	---	---	---	---	None	Very brief	Rare
240:									
Breadsprings	C								
		March	---	---	0.0-0.2	Very brief	Rare	Extremely brief	Rare
		April	---	---	0.0-0.2	Very brief	Rare	Extremely brief	Rare
		May	---	---	0.0-0.2	Brief	Rare	Extremely brief	Rare
		June	---	---	0.0-0.2	Brief	Rare	Very brief	Rare
		July	---	---	0.0-0.2	Brief	Rare	Very brief	Rare
		August	---	---	0.0-0.2	Brief	Rare	Very brief	Rare

Table 18.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
240:									
Nahodish	D								
		March	---	---	0.0-0.2	Very brief	Rare	Extremely brief	Rare
		April	---	---	0.0-0.2	Very brief	Rare	Extremely brief	Rare
		May	---	---	0.0-0.2	Brief	Rare	Extremely brief	Rare
		June	---	---	0.0-0.2	Brief	Rare	Very brief	Rare
		July	---	---	0.0-0.2	Brief	Rare	Very brief	Rare
		August	---	---	0.0-0.2	Brief	Rare	Very brief	Rare
241:									
Mentmore	B								
		Jan-Dec	---	---	---	---	None	---	None
242:									
Gish	D								
		June	---	---	---	---	None	Very brief	Rare
		July	---	---	---	---	None	Very brief	Rare
		August	---	---	---	---	None	Very brief	Rare
		September	---	---	---	---	None	Very brief	Rare
Mentmore	B								
		Jan-Dec	---	---	---	---	None	---	None
244:									
Buckle	B								
		Jan-Dec	---	---	---	---	None	---	None
245:									
Buckle	B								
		Jan-Dec	---	---	---	---	None	---	None
Gapmesa	B								
		Jan-Dec	---	---	---	---	None	---	None
Barboncito	D								
		Jan-Dec	---	---	---	---	None	---	None
250:									
Hospah	D								
		Jan-Dec	---	---	---	---	None	---	None
Skyvillage	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
255:									
Farview	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None

Table 18.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
258:									
Eagleye	D								
		Jan-Dec	---	---	---	---	None	---	None
Atchee	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
260:									
Quarries and Pits	---								
		Jan-Dec	---	---	---	---	None	---	None
261:									
Coal Mine Land	---								
		Jan-Dec	---	---	---	---	None	---	None
265:									
Uranium Mined Lands	---								
		Jan-Dec	---	---	---	---	None	---	None
270:									
Alesna	C								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
275:									
Eldado	B								
		Jan-Dec	---	---	---	---	None	---	None
280:									
Azabache	D								
		Jan-Dec	---	---	---	---	None	---	None
290:									
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
Westmion	D								
		Jan-Dec	---	---	---	---	None	---	None
Skyvillage	D								
		Jan-Dec	---	---	---	---	None	---	None
291:									
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
Eagleye	D								
		Jan-Dec	---	---	---	---	None	---	None
Atchee	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 18.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
300:									
Regracic	D								
		Jan-Dec	---	---	---	---	None	---	None
305:									
Celavar	C								
		Jan-Dec	---	---	---	---	None	---	None
Atarque	D								
		Jan-Dec	---	---	---	---	None	---	None
308:									
Fikel	C								
		Jan-Dec	---	---	---	---	None	---	None
Venzuni	D								
		June	---	---	---	---	None	Very brief	Rare
		July	---	---	---	---	None	Very brief	Rare
		August	---	---	---	---	None	Very brief	Rare
310:									
Parkelei	B								
		Jan-Dec	---	---	---	---	None	---	None
312:									
Bluewater	D								
		January	2.0-4.0	---	---	---	None	---	None
		February	2.0-4.0	---	---	---	None	---	None
		March	2.0-4.0	---	---	---	None	Very brief	Rare
		April	2.0-4.0	---	---	---	None	Very brief	Rare
		May	2.0-4.0	---	---	---	None	Very brief	Rare
		June	2.0-4.0	---	---	---	None	Very brief	Rare
		July	---	---	---	---	None	Very brief	Rare
		August	2.0-4.0	---	---	---	None	Very brief	Rare
		September	2.0-4.0	---	---	---	None	---	None
		October	2.0-4.0	---	---	---	None	---	None
		November	2.0-4.0	---	---	---	None	---	None
		December	2.0-4.0	---	---	---	None	---	None
315:									
Flugle	B								
		Jan-Dec	---	---	---	---	None	---	None
Fragua	B								
		Jan-Dec	---	---	---	---	None	---	None
316:									
Royosa	A								
		Jan-Dec	---	---	---	---	None	---	None

Table 18.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
317:									
Highdye	D								
		Jan-Dec	---	---	---	---	None	---	None
Evpark	B								
		Jan-Dec	---	---	---	---	None	---	None
Bryway	C								
		Jan-Dec	---	---	---	---	None	---	None
320:									
Parkelei	B								
		Jan-Dec	---	---	---	---	None	---	None
Fraguni	B								
		Jan-Dec	---	---	---	---	None	---	None
325:									
Venzuni	D								
		March	---	---	---	---	None	Very brief	Rare
		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
332:									
Evpark	B								
		Jan-Dec	---	---	---	---	None	---	None
Arabrab	D								
		Jan-Dec	---	---	---	---	None	---	None
335:									
Venadito	D								
		March	---	---	---	---	None	Very brief	Occasional
		April	---	---	---	---	None	Very brief	Occasional
		May	---	---	---	---	None	Very brief	Occasional
		June	---	---	---	---	None	Very brief	Occasional
		July	---	---	---	---	None	Very brief	Frequent
		August	---	---	---	---	None	Very brief	Frequent
336:									
Nuffel	B								
		March	---	---	---	---	None	Very brief	Frequent
		April	---	---	---	---	None	Very brief	Frequent
		May	---	---	---	---	None	Very brief	Occasional
		June	---	---	---	---	None	Very brief	Occasional
		July	---	---	---	---	None	Very brief	Frequent
		August	---	---	---	---	None	Very brief	Frequent
		September	---	---	---	---	None	Very brief	Occasional
		October	---	---	---	---	None	Very brief	Occasional

Table 18.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
336:									
Venadito	D								
		March	---	---	---	---	None	Very brief	Frequent
		April	---	---	---	---	None	Very brief	Frequent
		May	---	---	---	---	None	Very brief	Occasional
		June	---	---	---	---	None	Very brief	Occasional
		July	---	---	---	---	None	Very brief	Frequent
		August	---	---	---	---	None	Very brief	Frequent
		September	---	---	---	---	None	Very brief	Occasional
		October	---	---	---	---	None	Very brief	Occasional
338:									
Zyme	D								
		Jan-Dec	---	---	---	---	None	---	None
Lockerby	D								
		Jan-Dec	---	---	---	---	None	---	None
345:									
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
Tuces	D								
		Jan-Dec	---	---	---	---	None	---	None
350:									
Toldohn	D								
		Jan-Dec	---	---	---	---	None	---	None
Vessilla	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
351:									
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
Vessilla	D								
		Jan-Dec	---	---	---	---	None	---	None
352:									
Zia	B								
		Jan-Dec	---	---	---	---	None	---	None
353:									
Mido	A								
		Jan-Dec	---	---	---	---	None	---	None
354:									
Knifehill	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 18.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
355:									
Rizno	D								
		Jan-Dec	---	---	---	---	None	---	None
Tekapo	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
357:									
Heshotauthla	D								
		March	---	---	---	---	None	Very brief	Occasional
		April	---	---	---	---	None	Very brief	Occasional
		May	---	---	---	---	None	Very brief	Rare
		June	---	---	---	---	None	Very brief	Rare
		July	---	---	---	---	None	Very brief	Occasional
		August	---	---	---	---	None	Very brief	Occasional
		September	---	---	---	---	None	Very brief	Occasional
		October	---	---	---	---	None	Very brief	Occasional
360:									
Hosta	C								
		Jan-Dec	---	---	---	---	None	---	None
Concho	C								
		March	---	---	---	---	None	Very brief	Rare
		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
361:									
Monpark	D								
		Jan-Dec	---	---	---	---	None	---	None
365:									
Vessilla	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
366:									
Bosonoak	B								
		Jan-Dec	---	---	---	---	None	---	None
367:									
Chunkmonk	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 18.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
368:									
Simitarq	D	Jan-Dec	---	---	---	---	None	---	None
Celavar	B	Jan-Dec	---	---	---	---	None	---	None
375:									
Todest	B	Jan-Dec	---	---	---	---	None	---	None
Shadilto	D	Jan-Dec	---	---	---	---	None	---	None
376:									
Todest	B	Jan-Dec	---	---	---	---	None	---	None
380:									
Berryhill	D	Jan-Dec	---	---	---	---	None	---	None
Casamero	D	Jan-Dec	---	---	---	---	None	---	None
385:									
Mcorreon	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None
390:									
Banquito	B	Jan-Dec	---	---	---	---	None	---	None
395:									
Cabezon	D	Jan-Dec	---	---	---	---	None	---	None
Mcorreon	C	Jan-Dec	---	---	---	---	None	---	None
400:									
Shoemaker	B	Jan-Dec	---	---	---	---	None	---	None
Stozuni	D	Jan-Dec	---	---	---	---	None	---	None
403:									
Valnor	C	Jan-Dec	---	---	---	---	None	---	None
Techado	D	Jan-Dec	---	---	---	---	None	---	None

Table 18.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
404:									
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
Techado	D								
		Jan-Dec	---	---	---	---	None	---	None
Stozuni	D								
		Jan-Dec	---	---	---	---	None	---	None
405:									
Fortwingate	C								
		Jan-Dec	---	---	---	---	None	---	None
Owlrock	D								
		Jan-Dec	---	---	---	---	None	---	None
406:									
Polich	C								
		March	0.5-5.0	---	---	---	None	Long	Frequent
		April	0.5-5.0	---	---	---	None	Long	Frequent
		May	0.5-5.0	---	---	---	None	Long	Frequent
		June	0.5-5.0	---	---	---	None	---	None
		September	3.3-5.0	---	---	---	None	---	None
		October	3.3-5.0	---	---	---	None	---	None
407:									
Cinnadale	D								
		Jan-Dec	---	---	---	---	None	---	None
Heckly	C								
		Jan-Dec	---	---	---	---	None	---	None
408:									
Mirabal	B								
		Jan-Dec	---	---	---	---	None	---	None
Zuni	C								
		Jan-Dec	---	---	---	---	None	---	None
409:									
Rauster	C								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
410:									
Montillo	C								
		Jan-Dec	---	---	---	---	None	---	None
Tsoodzil	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 18.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
411:									
Ligocki	C								
		Jan-Dec	---	---	---	---	None	---	None
Robolata	C								
		March	---	---	---	---	None	Brief	Occasional
		April	---	---	---	---	None	Brief	Occasional
		May	---	---	---	---	None	Brief	Occasional
412:									
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
Rionutria	C								
		Jan-Dec	---	---	---	---	None	---	None
Zaster	C								
		Jan-Dec	---	---	---	---	None	---	None
413:									
Morclay	D								
		Jan-Dec	---	---	---	---	None	---	None
414:									
Zunalei	B								
		Jan-Dec	---	---	---	---	None	---	None
Corzuni	B								
		Jan-Dec	---	---	---	---	None	---	None
415:									
Tsoodzil	C								
		Jan-Dec	---	---	---	---	None	---	None
Rubble Land	A								
		Jan-Dec	---	---	---	---	None	---	None
416:									
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
Bluesky	D								
		Jan-Dec	---	---	---	---	None	---	None
418:									
Asaayi	D								
		Jan-Dec	---	---	---	---	None	---	None
Osoridge	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 18.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
419:									
Fortwingate	C								
		Jan-Dec	---	---	---	---	None	---	None
Cinnadale	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
420:									
Seco	C								
		March	---	---	---	---	None	Very brief	Rare
		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
425:									
Montillo	C								
		Jan-Dec	---	---	---	---	None	---	None
Canoneros	D								
		Jan-Dec	---	---	---	---	None	---	None
430:									
Montillo	C								
		Jan-Dec	---	---	---	---	None	---	None
435:									
Tsoodzil	C								
		Jan-Dec	---	---	---	---	None	---	None
Amcec	B								
		Jan-Dec	---	---	---	---	None	---	None
440:									
Chivato	D								
		July	---	---	0.2-0.8	Brief	Occasional	---	None
		August	---	---	0.2-0.8	Brief	Occasional	---	None
		September	---	---	0.2-0.8	Brief	Occasional	---	None
		October	---	---	0.2-0.8	Brief	Occasional	---	None
525:									
Silcat	D								
		Jan-Dec	---	---	---	---	None	---	None
550:									
Bryway	C								
		Jan-Dec	---	---	---	---	None	---	None
Galzuni	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 18.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
555:									
Parkelei	B								
		Jan-Dec	---	---	---	---	None	---	None
Evpark	B								
		Jan-Dec	---	---	---	---	None	---	None
560:									
Flugle	B								
		Jan-Dec	---	---	---	---	None	---	None
560:									
Teczuni	C								
		Jan-Dec	---	---	---	---	None	---	None
561:									
Flugle	B								
		Jan-Dec	---	---	---	---	None	---	None
Plumasano	B								
		Jan-Dec	---	---	---	---	None	---	None
565:									
Plumasano	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
566:									
Bamac	A								
		Jan-Dec	---	---	---	---	None	---	None
575:									
Ramah	B								
		Jan-Dec	---	---	---	---	None	---	None
Pescado	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 19.--Classification of the Soils

Soil name	Family or higher taxonomic class
Alesna	Fine, mixed, superactive, mesic Ustic Calciargids
Amcec	Loamy-skeletal, mixed, superactive, frigid Vitrandic Haplustalfs
Aquima	Fine-loamy, mixed, superactive, mesic Ustic Haplocambids
Arabrab	Loamy, mixed, superactive, mesic Lithic Haplustalfs
Asaayi	Loamy, mixed, active, frigid Lithic Haplustalfs
Atarque	Loamy, mixed, superactive, mesic Lithic Haplustalfs
Atchee	Loamy-skeletal, mixed, active, calcareous, mesic Lithic Ustic Torriorthents
Azabache	Fine-loamy, mixed, superactive, mesic Typic Natrargids
Bamac	Sandy-skeletal, mixed, mesic Aridic Ustorthents
Banquito	Fine-loamy, mixed, superactive, mesic Calcidic Haplustalfs
Barboncito	Loamy, mixed, superactive, mesic Lithic Ustic Haplargids
Benally	Fine-loamy, mixed, superactive, mesic Typic Natrargids
Berryhill	Fine, mixed, superactive, mesic Chromic Gypsitorrerts
Betonnie	Coarse-loamy, mixed, superactive, mesic Ustic Haplargids
Blancot	Fine-loamy, mixed, superactive, mesic Ustic Haplargids
Bluesky	Mixed, frigid Lithic Ustipsamments
Bluewater	Fine-loamy, mixed, superactive, mesic Pachic Argiustolls
Bond	Loamy, mixed, superactive, mesic Lithic Ustic Haplargids
Bosonoak	Fine-loamy, mixed, superactive, mesic Aridic Haplustalfs
Breadsprings	Fine-loamy, mixed, superactive, mesic Ustifluventic Haplocambids
Bryway	Fine, mixed, superactive, mesic Aridic Paleustalfs
Buckle	Fine-loamy, mixed, superactive, mesic Ustic Haplargids
Cabezon	Clayey, smectitic, mesic Lithic Argiustolls
Calladito	Mixed, mesic Ustic Torripsamments
Canoneros	Clayey, mixed, superactive, frigid Lithic Argiustolls
Casamero	Clayey, smectitic, mesic, shallow Leptic Haplotorrerts
Celavar	Fine-loamy, mixed, superactive, mesic Aridic Haplustalfs
Chipeta	Clayey, mixed, active, calcareous, mesic, shallow Typic Torriorthents
Chivato	Fine, mixed, active, frigid Typic Haplusterts
Chunkmonk	Loamy-skeletal, mixed, superactive, mesic Lithic Haplustalfs
Cinnadale	Loamy-skeletal, mixed, superactive, frigid Lithic Haplustepts
Concho	Fine, mixed, superactive, mesic Aridic Argiustolls
Conchovar	Fine, mixed, superactive, mesic Pachic Argiustolls
Corzuni	Coarse-loamy, mixed, superactive, mesic Typic Haplustalfs
Councelor	Coarse-loamy, mixed, superactive, calcareous, mesic Ustic Torriorthents
Doak	Fine-loamy, mixed, active, mesic Typic Haplargids
Doakum	Fine-loamy, mixed, superactive, mesic Ustic Haplargids
Eagleye	Clayey, mixed, active, nonacid, mesic, shallow Ustic Torriorthents
Eldado	Fine-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Ustic Calciargids
Elias	Fine-loamy, mixed, superactive, mesic Ustic Natrargids
Escawetter	Sandy, mixed, mesic Oxyaquic Torrifluvents
Eslendo	Loamy, mixed, superactive, calcareous, mesic, shallow Ustic Torriorthents
Evpark	Fine-loamy, mixed, superactive, mesic Aridic Haplustalfs
Fajada	Fine-loamy, mixed, superactive, mesic Typic Natrargids
Farb	Loamy, mixed, superactive, calcareous, mesic Lithic Torriorthents
Farview	Loamy, mixed, active, calcareous, mesic Lithic Ustic Torriorthents
Fikel	Fine, mixed, superactive, mesic Aridic Haplustalfs
Flugle	Fine-loamy, mixed, superactive, mesic Aridic Haplustalfs
Fortwingate	Fine, mixed, superactive, frigid Vertic Haplustalfs
Fragua	Coarse-loamy, mixed, superactive, mesic Aridic Haplustalfs
Fraguni	Coarse-loamy, mixed, superactive, mesic Aridic Haplustalfs
Fruitland	Coarse-loamy, mixed, superactive, calcareous, mesic Typic Torriorthents
Galzuni	Fine, mixed, superactive, mesic Aridic Paleustalfs
Gapmesa	Fine-loamy, mixed, superactive, mesic Ustic Haplargids
Gish	Fine, mixed, superactive, mesic Ustic Haplocambids
Hagerwest	Fine-loamy, mixed, superactive, mesic Ustic Haplargids
Hamburn	Fine-loamy, mixed, superactive, calcareous, mesic Ustic Torrifluvents

Table 19.--Classification of the Soils--Continued

Soil name	Family or higher taxonomic class
Hawaikuh	Fine, mixed, superactive, mesic Ustic Haplargids
Heckly	Fine, mixed, superactive, frigid Typic Haplustalfs
Heshotauthla	Fine, mixed, active, mesic Aridic Natrustolls
Highdye	Clayey, mixed, superactive, mesic Lithic Haplustalfs
Hospah	Clayey, mixed, superactive, calcareous, mesic, shallow Ustic Torriorthents
Hosta	Fine, mixed, superactive, mesic Aridic Haplustalfs
Huerfano	Loamy, mixed, superactive, mesic, shallow Typic Natrargids
Kimnoli	Loamy, mixed, active, mesic Lithic Haplargids
Knifehill	Fine, mixed, superactive, mesic Pachic Argiustolls
Kwakina	Sandy, mixed, mesic Ustic Torrifluvents
Lavodnas	Loamy, mixed, superactive, mesic, shallow Leptic Haplogypsids
Ligocki	Fine, mixed, superactive, frigid Typic Haplustalfs
Lockerby	Fine, smectitic, mesic Ustertic Haplocambids
Marianolake	Fine-loamy, mixed, active, mesic Ustic Haplargids
Mcorreon	Fine, smectitic, mesic Calcidic Argiustolls
Mentmore	Fine-loamy, mixed, superactive, mesic Ustic Haplargids
Mido	Mixed, mesic Ustic Torripsamments
Mirabal	Loamy-skeletal, mixed, superactive, nonacid, frigid Typic Ustorthents
Moncisco	Loamy-skeletal over fragmental, mixed, active, mesic Typic Haplocalcids
Monpark	Fine, smectitic, mesic Leptic Haplotorrerts
Montillo	Fine, mixed, superactive, frigid Vertic Argiustolls
Morclay	Fine, mixed, superactive, frigid Chromic Haplusterts
Nahodish	Fine, mixed, superactive, mesic Ustifluventic Haplocambids
Norkiki	Fine-loamy, mixed, active, mesic Typic Haplargids
Notal	Fine, mixed, active, calcareous, mesic Typic Torriorthents
Nuffel	Fine-silty, mixed, superactive, calcareous, mesic Ustic Torrifluvents
Nutreeah	Fine, mixed, superactive, mesic Pachic Argiustolls
Orlie	Fine-loamy, mixed, superactive, mesic Aridic Haplustalfs
Osoridge	Clayey, mixed, superactive, frigid Lithic Haplustalfs
Owlrock	Loamy-skeletal, mixed, superactive, frigid Lithic Argiustolls
Parkelei	Fine-loamy, mixed, superactive, mesic Aridic Haplustalfs
Penistaja	Fine-loamy, mixed, superactive, mesic Ustic Haplargids
Pescado	Loamy, mixed, superactive, mesic Lithic Haplustalfs
Plumasano	Coarse-loamy, mixed, superactive, mesic Aridic Haplustepts
Polich	Fine-loamy, mixed, superactive, frigid Cumulic Haplustolls
Querencia	Fine-loamy, mixed, superactive, mesic Ustic Haplocambids
Ramah	Fine, mixed, superactive, mesic Calcidic Haplustalfs
Rauster	Fine, mixed, superactive, frigid Vertic Argiustolls
Razito	Mixed, mesic Typic Torripsamments
Redpen	Fine-loamy, mixed, superactive, mesic Ustic Haplargids
Regracic	Fine, mixed, superactive, mesic Aridic Paleustalfs
Rehobeth	Fine, mixed, superactive, mesic Chromic Gypsitorrerts
Rionutria	Clayey-skeletal, mixed, superactive, frigid Typic Argiustolls
Rizno	Loamy, mixed, superactive, calcareous, mesic Lithic Ustic Torriorthents
Robolata	Fine, mixed, superactive, frigid Pachic Argiustolls
Royosa	Mixed, mesic Aridic Ustipsamments
San Mateo	Fine-loamy, mixed, superactive, calcareous, mesic Ustic Torrifluvents
Sanfeco	Fine, mixed, superactive, mesic Typic Haplargids
Seco	Very-fine, mixed, superactive, frigid Vertic Argiustolls
Shadilto	Loamy, carbonatic, mesic Lithic Calciustepts
Shiprock	Coarse-loamy, mixed, superactive, mesic Typic Haplargids
Shoemaker	Fine-loamy, mixed, superactive, frigid Typic Haplustalfs
Silcat	Fine, mixed, superactive, mesic Aridic Haplusterts
Simitarq	Loamy, mixed, superactive, mesic Lithic Haplustalfs
Skyvillage	Loamy, mixed, superactive, calcareous, mesic Lithic Ustic Torriorthents
Sparank	Fine, mixed, superactive, calcareous, mesic Ustic Torrifluvents
Sparham	Fine, mixed, superactive, calcareous, mesic Aridic Ustifluvents
Starlake	Fine, mixed, superactive, mesic Ustic Natrargids

Table 19.--Classification of the Soils--Continued

Soil name	Family or higher taxonomic class
Stozuni	Loamy, mixed, superactive, nonacid, frigid Lithic Ustorthents
Suwanee	Fine-loamy, mixed, superactive, calcareous, mesic Ustic Torrifluvents
Techado	Clayey, mixed, superactive, nonacid, frigid, shallow Typic Ustorthents
Teczuni	Fine, mixed, superactive, mesic Calcidic Haplustalfs
Tekapo	Clayey, mixed, superactive, calcareous, mesic, shallow Ustic Torriorthents
Tinian	Fine, mixed, superactive, mesic Aridic Haplustalfs
Tintero	Coarse-loamy, mixed, superactive, mesic Ustic Haplargids
Todest	Fine-loamy, mixed, superactive, mesic Calcidic Haplustalfs
Toldohn	Clayey, mixed, superactive, nonacid, mesic, shallow Aridic Ustorthents
Tsoodzil	Fine, smectitic, frigid Vertic Argiustolls
Tsosie	Fine-loamy, mixed, superactive, calcareous, mesic Ustic Torriorthents
Tuces	Fine, mixed, superactive, mesic Aridic Haplustepts
Valnor	Fine, mixed, superactive, frigid Typic Haplustalfs
Venadito	Very-fine, smectitic, mesic Chromic Haplotorrerts
Venzuni	Very-fine, smectitic, mesic Aridic Haplusterts
Vessilla	Loamy, mixed, active, calcareous, mesic Aridic Lithic Ustorthents
Viuda	Clayey, mixed, superactive, mesic Lithic Ustic Haplargids
Westmion	Clayey, mixed, superactive, calcareous, mesic, shallow Ustic Torriorthents
Yelives	Coarse-loamy, mixed, superactive, calcareous, mesic Typic Torrifluvents
Zaster	Loamy-skeletal, mixed, superactive, mesic Typic Calciustolls
Zia	Coarse-loamy, mixed, superactive, calcareous, mesic Ustic Torriorthents
Zunalei	Fine-loamy, mixed, superactive, mesic Typic Haplustalfs
Zuni	Fine, mixed, superactive, frigid Typic Haplustalfs
Zuniven	Fine-silty, mixed, superactive, calcareous, mesic Aridic Ustifluvents
Zyme	Clayey, smectitic, calcareous, mesic, shallow Ustic Torriorthents

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