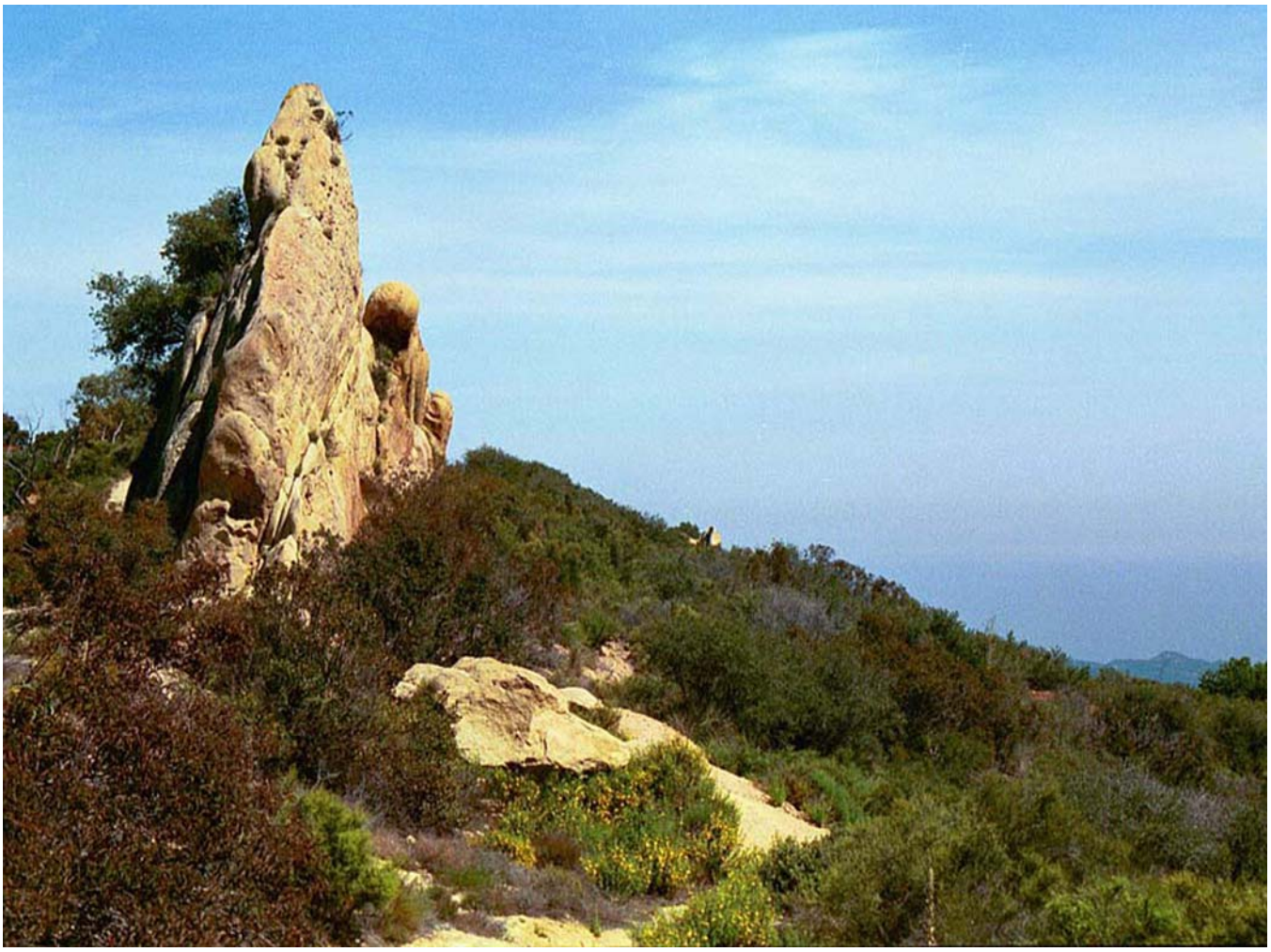
United States Department of Agriculture

Natural Resources Conservation Service

In cooperation with

United States Department of the Interior, National Park Service

Soil Survey of Santa Monica Mountains National Recreation Area, California



How To Use This Soil Survey

General Soil Map

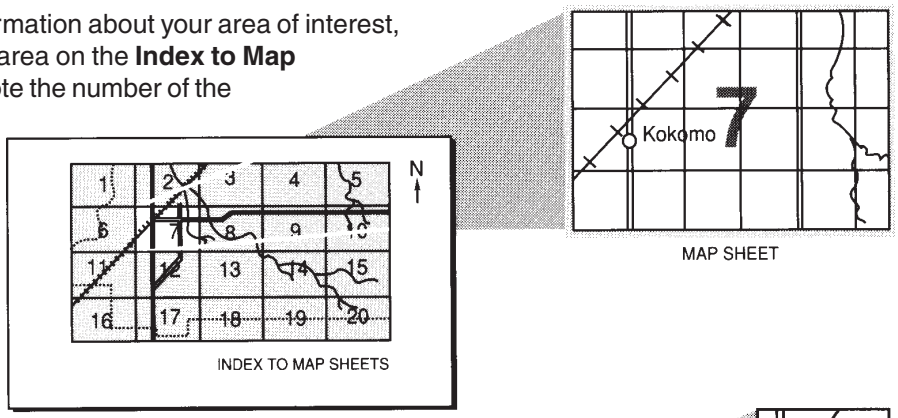
The general soil map, which is a color map, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

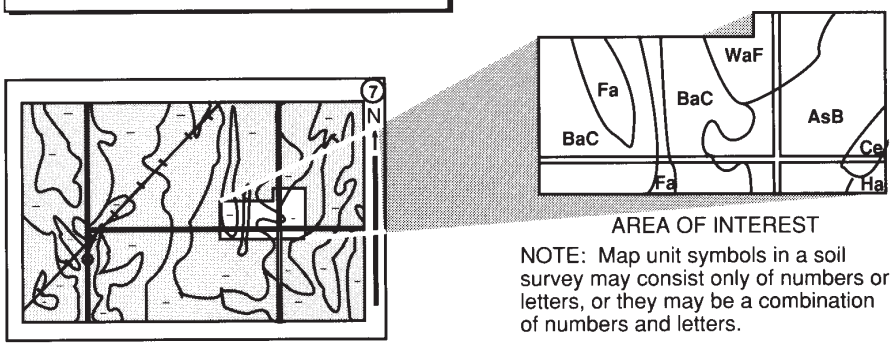
Detailed Soil Maps

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

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



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



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.

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.

National Cooperative Soil Survey

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 2001. Soil names and descriptions were approved in 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 the Interior, National Park Service. The survey is part of the technical assistance furnished to the Ventura County and Santa Monica Mountains Resource Conservation Districts.

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

The most current soil information and interpretations for this survey area are available either through the Soil Data Mart or in the Field Office Technical Guide (FOTG) at the local field office of the Natural Resources Conservation Service. The Soil Data Mart is the Natural Resources Conservation Service data storage site for the official soil survey information. The FOTG is linked to the Soil Data Mart; therefore, the same information is available from both sources. Soil survey maps and tabular data can be accessed through the Soil Data Mart at http://soildatamart.nrcs.usda.gov. The official soil survey information stored at the Soil Data Mart and this soil survey report are also available through Web Soil Survey at http://soils.usda.gov/survey.

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Cover Caption

View of Castro Peak, showing an uplifted sandstone fin surrounded by Sumiwawa soils.

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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.

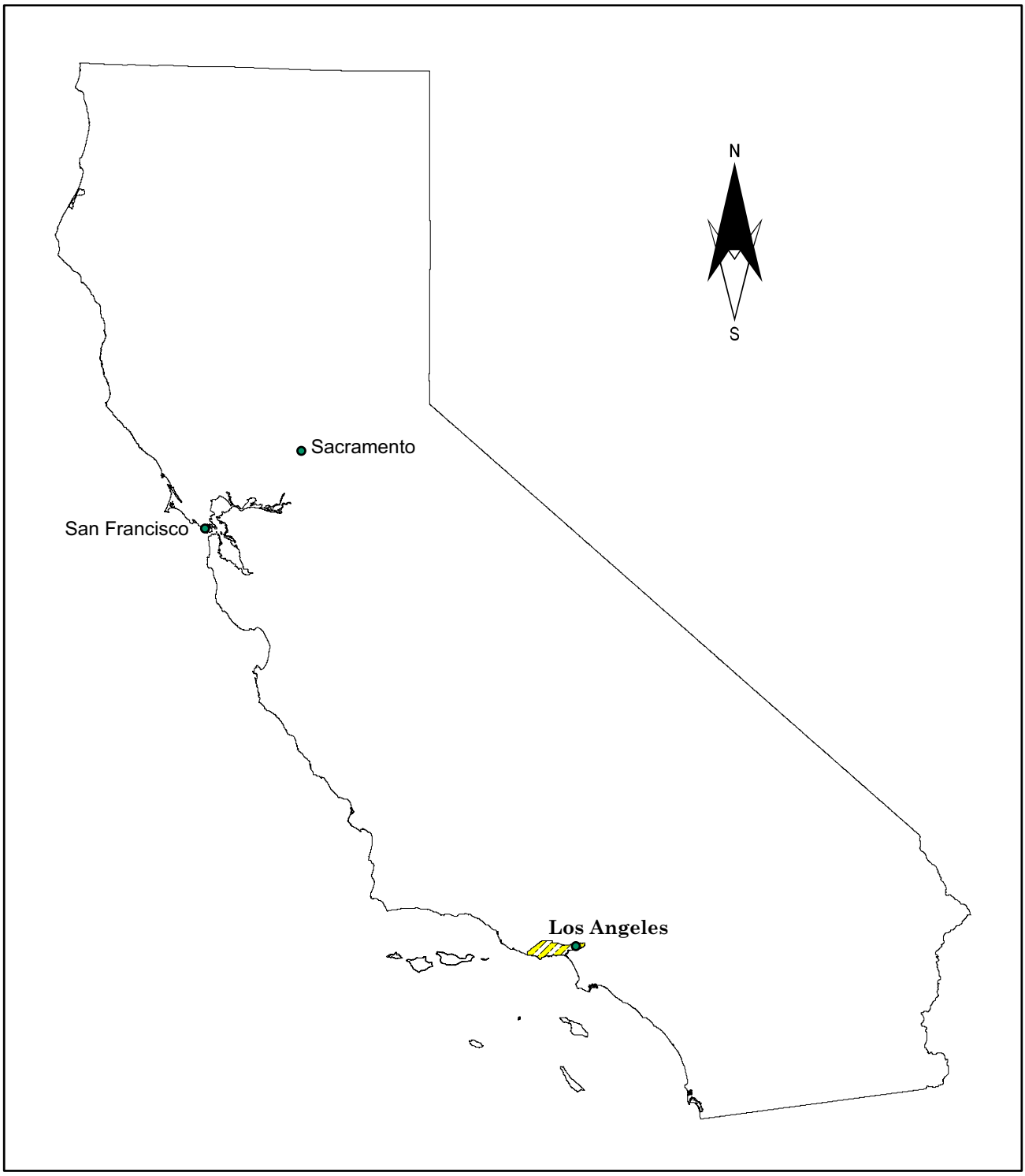
This soil survey is designed for many different users. Farmers, ranchers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use 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.

Lincoln “Ed” Burton
State Conservationist
Natural Resources Conservation Service



Location of Santa Monica Mountains National Recreation Area in California.

Soil Survey of
Santa Monica Mountains National Recreation Area, California

By Alan R. Wasner, Natural Resources Conservation Service

Fieldwork by Alan R. Wasner and Kenneth J. Oster, Natural Resources Conservation Service

Technical edit by Kit Paris, Natural Resources Conservation Service

United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with
United States Department of the Interior, National Park Service

Santa Monica Mountains National Recreation Area is in the eastern part of Ventura County and the western part of Los Angeles County. The total area is 182,440 acres. The survey area is bordered on the northwest and west by the Ventura Area soil survey area; on the northeast by the Los Angeles, West San Fernando Valley Area, soil survey area; on the south by the Pacific Ocean; and on the east by areas of Los Angeles County that have not yet been mapped. The survey area includes the Santa Monica Mountains and a small part of the Oxnard Plain, where Point Mugu Naval Base is located.

General Nature of the Survey Area

This section gives general information about the survey area. It discusses history and development; physiography, relief, and drainage; water supply; agriculture; altered soils; fire history; soil slippage; and climate.

History and Development

The Santa Monica Mountains have a history of continuous human occupation dating back more than 8,000 years. They were home to two of the largest Native American tribes in California—the Chumash and Garielino/Tongva. Large villages existed throughout the range, as evidenced by the more than 1,000 archaeological sites currently known to be located within the National recreation area boundary. The density of archaeological sites in this mountain range is one of the highest in the world. The most significant impact on the soils occurred in the areas of large villages, where anthropic epipedons were formed, and as a result of the use of fire as a management tool. Anthropic epipedons have a dark surface layer that formed as a result of long, continued use by humans. The disposal of bones and shells has supplied calcium and phosphorus to the soils; thus, the level of these elements is higher in these soils than in adjacent soils. Use of fire by the Indians probably resulted in fewer shrubs and more grasses, annual herbs, and bulbs than are typical of these soils today.

The first European explorer in the area was Cabrillo in 1542. During the

colonization in the 1700's and early 1800's, Franciscans established missions to claim the territory for Spain. Later, Spain granted tracts of land called "ranchos" to army veterans for raising cattle. In 1821, California became Mexican territory. Nine years later, Mexico divided the ranchos into smaller ranches. In 1891, Frederick and May Rindge purchased a large parcel of El Rancho Topanga Malibu Sequit. The family's resistance to urban development in Malibu resulted in a legacy of open space in the Santa Monica Mountains (fig. 1).

The Santa Monica Mountains are dominantly steeply sloping mountain ranges with a few intervening flatter "valleys" and ocean terraces (fig. 2). Building site development is dominantly in these flatter areas, although houses have been built on the steeper slopes in a few areas, such as on the mountains above the Malibu area. Considerable alteration of the soils has occurred in these areas. See the "Altered Soils" section for more detailed information.

In 1978, Congress established the Santa Monica Mountains National Recreation Area as part of the National park system. About 15 percent of the land in the recreation area is administered by the Federal government, about 22 percent is administered by the California Department of Parks and Recreation, and about 53 percent is privately owned. The major communities in the survey area are Malibu, Agoura, Calabasas, Monte Nido, Cornell, and Topanga.

Adjacent to the survey area are the major metropolitan areas of Los Angeles, the San Fernando Valley, and many cities such as Thousand Oaks and Ventura, with an approximate total population of 14 million, nearly 5 percent of the Nation's total population. A large number of California State parks and beaches are within the survey area as well as many city and county parks and State and private conservancy land (fig. 3).

Currently, the Santa Monica Mountains National Recreation Area protects the greatest expanse of Mediterranean ecosystem in the National park system. It is generally considered the world's largest "urban park," because it is bounded by urban development.

Figure 1.—Cropley soils in an area of Rancho Sierra Vista. Boney Mountain is in background.

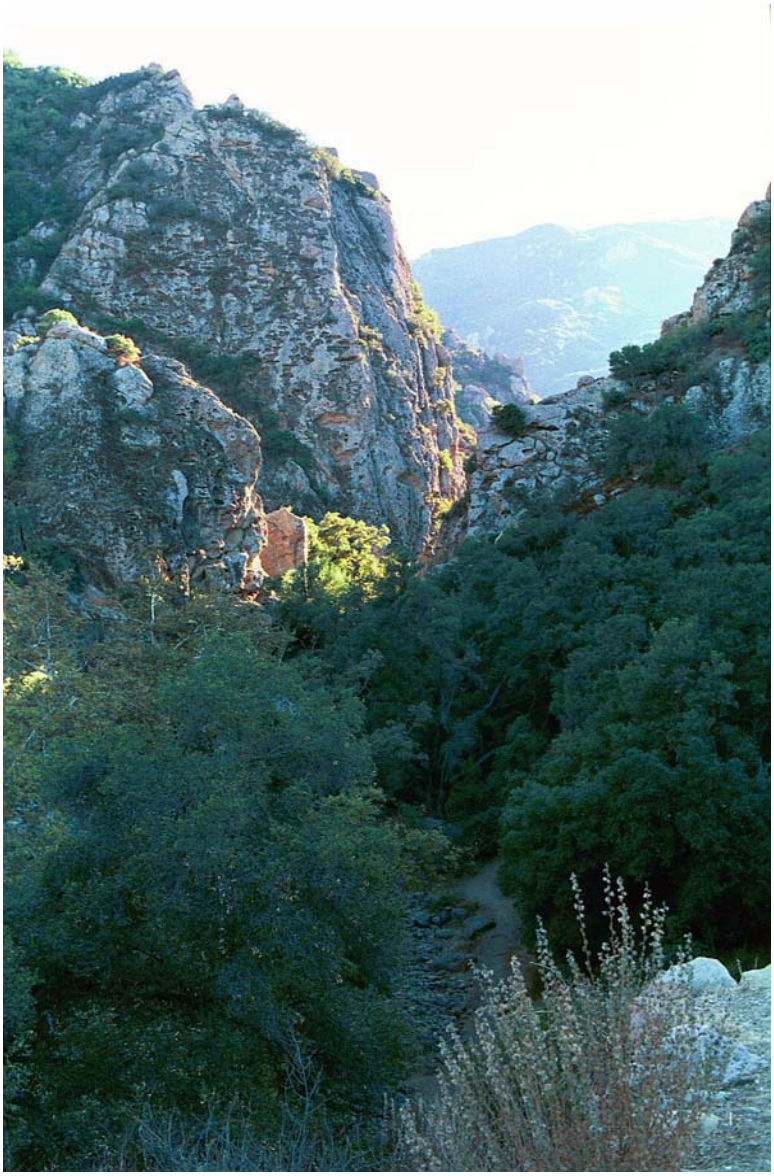


Figure 2.—View of Malibu Creek. Fluvaquents and Riverwash are on the creek bottom, and Sapwi soils are in areas of oak woodland.

Physiography, Relief, and Drainage

The Santa Monica Mountains National Recreation Area is in the southeast corner of Los Angeles County and the eastern part of Ventura County. The survey area is bounded on the east by the cities of Beverly Hills and Hollywood, on the north by Thousand Oaks, on the west by Camarillo and Oxnard, and on the south by the Pacific Ocean. The recreation area boundary on the south is at the high tide line along the Pacific Ocean. The area is about 46 miles long and 8 miles wide.

The dominant landforms in the survey area are steep, rugged mountains and hills, marine terraces, and intervening valleys. The area drains dominantly toward the Pacific Ocean. A narrow belt of marine terraces is along the ocean, extending west from Malibu to the Ventura County line. A few small valleys are throughout the area; Las Virgenes Canyon, La Jolla Valley, Seranno Valley, and Hidden Valley are the

Figure 3.—View of the city of Malibu, along a coastal beach. The beaches are visited by millions of people each year.

largest ones. Elevation ranges from a few feet below sea level at the low tide mark in the tidal flats to 3,111 feet above sea level at Sandstone Peak. Other notable mountains in the area are Laguna Peak, Castro Peak, Ladyface Mountain, Calabasas Peak, and Saddle Peak.

The recreation area can be divided into several geomorphic units. These include the steep, rugged mountains dissected by 49 coastal drainageways, the marine terraces along the ocean, the intervening valleys, and the coastal salt marshes of Mugu and Malibu Lagoons.

The steep, rugged mountains are part of the Transverse Range Geomorphic Province of California. Most of this land is open country because of the steepness of the terrain. The marine terraces along the Pacific Ocean are dissected by drainageways originating in the adjacent hills and mountains. These terraces generally are used for building site development. Localized flooding can occur at the mouth of the drainageways during periods of high rainfall. The intervening valleys are used as building sites or for agriculture. The recreation area includes parts of the Calleguas Creek and Malibu Creek Watersheds. Several reservoirs are in the area, including Encino Reservoir, Stone Canyon Reservoir, Malibu Lake Reservoir, and Franklin Canyon Reservoir. Mugu Lagoon is part of the Mugu Naval Air Station and is a Federally protected wildlife habitat area.

Water Supply

Water supply varies from city to city. Most of the water comes from California water projects, such as the California Aqueduct in the north and the Colorado River and Owens Valley water projects in the south. In some areas the reservoir water is supplemented with ground water.

Agriculture

Notable agriculture in the recreation area includes Broome and Thornhill Ranches, which manage cattle on the mountains at the west end of the area (fig. 4). Several ranches in Hidden Valley produce grass hay and raise horses. In Las Virgenes Canyon, the water district raises a small acreage of corn and has allowed sheep to graze the land after the harvest. Avocados and grapes are grown on hillsides in several small areas. Small areas scattered throughout the recreation area are used as nursery farms for ornamental and native plants.

Altered Soils

Areas of altered soils in the recreation area are dominantly those that have been subject to cut and fill operations in housing developments. These operations mix the existing soil material with crushed rock material, creating a very mixed soil that generally is classified as Xerorthents. The soils in cut areas can be shallow to bedrock, and those in fill areas are deeper.

Many of the “valleys” in the area historically have been under agriculture at some time. These areas now commonly have very clayey soils that do not have a surface layer, which is at least partly a result of incorporation of the surface layer into the subsoil during tillage operations. The areas probably once supported more native brush, but as a result of repeated burning by Indians and tillage by farmers, grass has become dominant. In some areas, the historical tillage lines can be seen on the adjacent hillsides above the “valley,” with grass within the tillage area and heavy brush outside of the tillage area. This probably occurs because the natural surface layer had

Figure 4.—View of Thornhill Ranch. Kayiwish soils are in the more gently sloping areas, and Cotharin soils are in the more steeply sloping areas.

considerably less clay than the underlying subsoil, and brush is not suited to the altered drainage and water holding capacity associated with the more clayey soils.

Some areas are artificially drained by the pumping of ground water, use of upstream diversions, and channeling of water. Some drainageways have altered drainage as a result of the deeply incised drainage channel. Sycamore Canyon is a good example.

Fire History

All of the land in the Santa Monica Mountains National Recreation Area has burned at least once in the last 100 years. Some areas have burned as many as six times. Fanned by the high Santa Ana winds, fire reduces most native shrubs to charred stumps and ash. The dominant plant community in the mountains is chaparral, which is particularly susceptible to fire because of its thick growth and high concentration of volatile oils. Fire is a natural process within the ecosystem of the mountains (fig. 5).

Soil Slippage

Landslides are evident throughout the recreation area. Some of the landslides have areas of deposition, but most do not because the deposited material has been washed away in the steep canyon bottoms, forming new beaches or filling in behind dams. The Rindge Dam is a good example. It is filled to the top with sediment.

The angle of repose is defined as the steepest angle that bare soil will maintain. For natural soils, the angle of repose is about 34 percent. In areas where the angle is higher, soil and rocks are totally under the influence of gravity and may slide downhill unless anchored by plants. All of the soils in the Santa Monica Mountains that have slopes of more than 34 percent are susceptible to soil slippage during dry periods.

Figure 5.—Area of Cotharin soils, showing the effects of the 1993 Green Meadows fire. This area presently is heavily revegetated with chaparral.

During periods of intense rainfall, the angle of repose decreases, depending on factors such as soil type and the amount of rainfall.

The underlying geology also influences the soil slippage potential. Soils that are particularly susceptible to slippage, or unstable, are those that are underlain by downslope-tilted sedimentary rock or by clay shale, those in areas of previous slides, and those that have parallel ridges underlain by basalt. The soils in this recreation area have been rated for their slippage potential. These ratings are given in table 19.

Areas that have flat-lying sedimentary rock are susceptible to slippage under certain conditions (moderately unstable). These areas are very rare in the Santa Monica Mountains. Areas that have sedimentary beds that are perpendicular to the soil slope are much less susceptible to soil slippage. The protruding beds act as anchors or barriers to soil movement. The angle of geologic bedding can change greatly over short distances; therefore, onsite investigation is recommended (fig. 6).

Climate

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

The climate tables were created from data gathered at the climate stations at Canoga Park, Pierce College; Santa Monica Pier; and University of California, Los Angeles (UCLA), in California. Additional information was obtained from several other precipitation-only climate stations in the region as well as from new official precipitation normals maps of California developed for the Natural Resources Conservation Service by Oregon State University using the PRISM modeling system (See “Glossary”).

Thunderstorm days, relative humidity, percent sunshine, and wind information were

Figure 6.—Castro Peak, showing an uplifted sandstone fin surrounded by Sumiwawa soils.

estimated from data gathered at the First Order station at Los Angeles Civic Center, California.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Canoga Park, Pierce College; Santa Monica Pier; and UCLA in the period 1961 to 1990. Extremes reported are for the period 1949 to 1999. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring as recorded at Canoga Park, Pierce College, in the period 1961 to 1990. Table 3 provides data on the length of the growing season as recorded at Canoga Park, Pierce College, in the period 1961 to 1990.

In winter, the average temperature is 54.6 degrees F at Canoga Park, Pierce College; 57.4 degrees at Santa Monica Pier; and 58.6 degrees at UCLA. The average daily minimum temperature in winter at these locations is 39.8 degrees, 50.0 degrees, and 50.6 degrees, respectively. The lowest temperatures on record are 18 degrees at Canoga Park, Pierce College, on February 6, 1989; 33 degrees at Santa Monica Pier on March 21, 1952; and 30 degrees at UCLA on January 4, 1949.

In summer, the average temperature is 74.6 degrees at Canoga Park, Pierce College; 64.9 degrees at Santa Monica Pier; and 68.0 degrees at UCLA. The average daily maximum temperature in summer at these locations is 92.8 degrees, 68.8 degrees, and 75.6 degrees, respectively. The highest temperatures on record are 116 degrees at Canoga Park, Pierce College, on August 24, 1985; 104 degrees at Santa Monica Pier on September 26, 1963; and 108 degrees at UCLA on January 26, 1990. The inland region north of the coastal mountains is considerably warmer in the daytime during the warmest months than is the coastal strip.

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.

At Santa Monica Pier and UCLA, temperatures near 32 degrees are extremely rare. The temperature has not been as low as 31 degrees at UCLA since 1957, and it has never been that low at Santa Monica Pier. In contrast, at Canoga Park, Pierce College, which is inland, frost is common in winter. The normal frost (32 degrees) season is from December 2 to March 4. At the higher elevations, frost is very uncommon, but temperatures near or slightly below 32 degrees occur every few years.

The average annual precipitation across the survey area is quite variable, depending largely on elevation and location. In general, the coastal strip receives 12 to 16 inches of precipitation per year. Precipitation increases inland, and the highest locations near Malibu receive about 30 inches of precipitation in an average year. Most of the rest of the coastal mountains receive 20 to 27 inches annually. Officially, the average annual precipitation is 16.33 inches at Canoga Park, Pierce College; 12.16 inches at Santa Monica Pier; and 16.25 inches at UCLA. At Lechuza Point climate station, which is at an elevation of 1,600 feet and is in the Zuna Ridge area of the western portion of the survey area, the average annual precipitation is about 21 inches. The heaviest 1-day rainfall on record is 6.57 inches at Canoga Park, Pierce College, on November 29, 1970; 5.11 inches at Santa Monica Pier on January 20, 1969; and 5.75 inches at UCLA, on January 26, 1956. Thunderstorms occur on average about 6 days each year, and they can occur in any month.

Snowfall is extremely rare in the survey area. At UCLA and Santa Monica Pier, there is no official record of measurable snowfall from the past 50 years. At Canoga Park, Pierce College, 0.5 inch of snow was recorded on February 8, 1989. At the Lechuza Point climate station, 6.2 inches of snow was recorded on January 12, 1949. In general, the highest mountain locations in the survey area receive a few inches of snow every decade or so. Snow is extremely uncommon elsewhere in the area.

The average relative humidity is highly dependent on location. In general, the highest humidity occurs along the ocean. In areas slightly inland, such as at the Los Angeles Civic Center, the average relative humidity in midafternoon is about 50 percent; the highest nighttime humidity is about 65 percent in winter and 85 percent in summer. The inland valleys north of the coastal hills are very dry, especially during the afternoon in summer, when the humidity typically drops to 20 to 30 percent or lower. Generally, the sun shines 80 to 90 percent of the time in summer throughout the survey area, except along the beach and in June. In winter, the sun shines approximately 70 percent of the time in all areas. The prevailing wind is highly dependent on location. At the Los Angeles Civic Center, the prevailing wind is from the west in all months except December and January, when it is from the northeast. The average windspeed is quite slow all year; it is highest, about 7 miles per hour, in February and March.

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, except in fractures, 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.

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.

The soils in this survey area were mapped at two levels of detail. At the more detailed level, map units are narrowly defined. Map unit boundaries were plotted and verified at closely spaced intervals. At the less detailed level, map units are broadly defined. Boundaries were plotted and verified at wider intervals. The areas in the survey area that have slopes of less than 9 percent were mapped at the more detailed level. These areas include La Jolla Valley, Serrano Valley, Hidden Valley, the city of Malibu, Cheeseboro Canyon, Paramount Ranch, Diamond X Ranch, Malibu Creek State Park, parts of the cities of Topanga and Calabasas, and other less notable areas. The remaining hills and mountains are mapped at the less detailed level.

Survey Procedures

The general procedures followed in making this survey are described in the "National Soil Survey Handbook" of the Natural Resources Conservation Service (Available in the State office of the Natural Resources Conservation Service at Davis, California, or online at http://soils.usda.gov/technical/handbook/) and the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

Before the fieldwork began, preliminary boundaries of slopes and landforms were plotted stereoscopically on aerial photographs taken in 1984 and enlarged to a scale of 1:24,000. Soil scientists studied U.S. Geological Survey topographic maps to relate land and image features. A reconnaissance was made by vehicle before the landscape was traversed on foot.

Sample areas that represent the major landscapes in the survey area were selected. These areas were investigated more closely than the rest of the survey area. Extensive notes were taken on the composition of map units in these preliminary study areas. As mapping progressed, these preliminary notes were modified and a final assessment of the composition of the individual map units was made.

As the traverses were made, the soil scientists divided the landscape into landforms or landform segments based on use and management of the soils. For

example, a hill was separated from a depression and a gently sloping summit from a very steep backslope of a ridge.

Observations of landforms, excavations and trenches, vegetation, roadcuts, and animal burrows were made without regard to spacing. Soil boundaries were determined based on soil examinations and observations and on photointerpretation. The soil material was examined, with the aid of a hand auger or spade, to a depth of about 6 feet or to bedrock if within a depth of 6 feet. The typical pedons were observed and studied in pits that were dug with shovels, spades, and backhoes.

Samples for analyses of chemical and physical properties and of engineering properties were taken from representative sites of several of the soils in the survey area. The chemical and physical analyses were made by the National Soil Survey Laboratory, Natural Resources Conservation Service, Lincoln, Nebraska. The results of the analyses are stored in a computerized data file at the laboratory. A description of the laboratory procedures can be obtained on request from the laboratory. The results of the studies are available at the State office of the Natural Resources Conservation Service at Davis, California.

General Soil Map Units

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

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

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

1. Sulfic Fluvaquents-Camarillo-Pacheco association, 0 to 2 percent slopes

Very deep, nearly level and level, somewhat poorly drained to very poorly drained soils that formed in mixed alluvium; on flood plains and tidal flats

Setting

Landform: Flood plains and tidal flats
Slope: 0 to 2 percent

Composition

Extent of map unit in survey area: Less than 1 percent
Extent of components in map unit:
Sulfic Fluvaquents—43 percent
Camarillo—34 percent
Pacheco—21 percent
Minor components—2 percent

Soil Properties and Qualities

Sulfic Fluvaquents
Depth class: Very deep
Drainage class: Very poorly drained
Position on landform: Tidal flats
Parent material: Alluvium derived from mixed sediment
Slope: Level

Camarillo
Depth class: Very deep
Drainage class: Somewhat poorly drained
Position on landform: Flood plains

Parent material: Alluvium derived from mixed sediment
Slope: Nearly level

Pacheco
Depth class: Very deep
Drainage class: Poorly drained
Position on landform: Flood plains
Parent material: Alluvium derived from mixed sediment
Slope: Nearly level

Minor Components

Haploxerolls

Major Uses

Recreation and wildlife habitat

2. Chumash-Malibu-Boades association, 30 to 75 percent slopes

Very shallow to moderately deep, steep and very steep, well drained and moderately well drained soils derived from shale and sandstone; on hills and mountains

Setting

Landform: Hills and mountains
Slope: 30 to 75 percent

Composition

Extent of map unit in survey area: About 14 percent
Extent of components in map unit:
Chumash—33 percent
Malibu—24 percent
Boades—24 percent
Minor components—19 percent

Soil Properties and Qualities

Chumash
Depth class: Very shallow and shallow
Drainage class: Well drained
Position on landform: Hills and mountains
Parent material: Residuum and colluvium derived from sandstone and shale
Slope: Steep and very steep

Malibu
Depth class: Moderately deep
Drainage class: Moderately well drained
Position on landform: Hills and mountains
Parent material: Residuum and colluvium derived from sandstone and shale
Slope: Steep and very steep

Boades
Depth class: Shallow
Drainage class: Well drained
Position on landform: Hills and mountains

Parent material: Residuum and colluvium derived from sandstone and shale
Slope: Steep and very steep

Minor Components

Cotharin soils, Pachic Argixerolls, Rock outcrop, Calcic Pachic Argixerolls, and Calcic Haploxerolls

Major Uses

Recreation and housing development

3. Cotharin-Talepop-Rock outcrop complex, 30 to 75 percent slopes

Shallow, steep and very steep, well drained soils that formed in igneous volcanic rock, and Rock outcrop; on hills and mountains

Setting

Landform: Hills and mountains
Slope: 30 to 75 percent

Composition

Extent of map unit in survey area: About 22 percent
Extent of components in map unit:
Cotharin—69 percent
Talepop—7 percent
Rock outcrop—7 percent
Minor components—17 percent

Soil Properties and Qualities

Cotharin
Depth class: Shallow
Drainage class: Well drained
Position on landform: Hills and mountains
Parent material: Residuum and colluvium derived from metavolcanic rock
Slope: Steep and very steep

Talepop
Depth class: Shallow
Drainage class: Well drained
Position on landform: Hills and mountains
Parent material: Residuum and colluvium derived from metavolcanic rock
Slope: Steep and very steep

Rock outcrop
Position on landform: Hills and mountains
Parent material: Igneous volcanic rock
Slope: Steep and very steep

Minor Components

Kayiwish soils, Typic Haploxerolls, Pachic Argixerolls, Lithic Haploxerolls, Cumulic Haploxerolls, Tongva soils, and Urban land

Major Uses

Recreation and housing development

4. Mipolomol-Topanga-Sapwi association, 30 to 75 percent slopes

Shallow and moderately deep, steep and very steep, well drained soils that formed in shale, sandstone, and slate; on hills and mountains

Setting

Landform: Hills and mountains
Slope: 30 to 75 percent

Composition

Extent of map unit in survey area: About 29 percent
Extent of components in map unit:
Mipolomol—38 percent
Topanga—38 percent
Sapwi—8 percent
Minor components—16 percent

Soil Properties and Qualities

Mipolomol
Depth class: Shallow
Drainage class: Well drained
Position on landform: Hills and mountains
Parent material: Residuum and colluvium derived from sandstone and shale
Slope: Steep and very steep

Topanga
Depth class: Shallow
Drainage class: Well drained
Position on landform: Hills and mountains
Parent material: Residuum and colluvium derived from sandstone and shale
Slope: Steep and very steep

Sapwi
Depth class: Moderately deep
Drainage class: Well drained
Position on landform: Hills and mountains
Parent material: Residuum and colluvium derived from sandstone
Slope: Steep and very steep

Minor Components

Boades soils, Pachic Argixerolls, Typic Palexerolls, Rock outcrop, Typic Argixerolls, Kawenga soils, and Urban land

Major Uses

Recreation and housing development

5. Zumaridge-Rock outcrop-Kawenga association, 30 to 75 percent slopes

Shallow and deep, steep and very steep, well drained soils derived from sandstone, and Rock outcrop; on hills and mountains

Setting

Landform: Hills and mountains
Slope: 30 to 75 percent

Composition

Extent of map unit in survey area: About 10 percent
Extent of components in map unit:
Zumaridge—28 percent
Rock outcrop—24 percent
Kawenga—10 percent
Minor components—38 percent

Soil Properties and Qualities

Zumaridge
Depth class: Shallow
Drainage class: Well drained
Position on landform: Hills and mountains
Parent material: Residuum and colluvium derived from sandstone
Slope: Steep and very steep

Kawenga
Depth class: Deep
Drainage class: Well drained
Position on landform: Hills and mountains
Parent material: Residuum and colluvium derived from sandstone
Slope: Steep and very steep

Rock outcrop
Position on landform: Hills and mountains
Parent material: Sandstone and shale
Slope: Steep and very steep

Minor Components

Sapwi soils, Typic Argixerolls, Typic Haploxerolls, Gaviota and Sumiwawa soils, Typic Xeropsamments, Hipuk soils, and Lithic Xerorthents

Major Uses

Recreation and housing development

6. Linne-Gaviota-Los Osos complex, 30 to 75 percent slopes

Very shallow and moderately deep, well drained soils derived from marine shale and sandstone; on hills and mountains

Setting

Landform: Hills and mountains
Slope: 30 to 75 percent

Composition

Extent of map unit in survey area: About 9 percent
Extent of components in map unit:
Linne—31 percent
Gaviota—22 percent
Los Osos—14 percent
Minor components—33 percent

Soil Properties and Qualities

Linne
Depth class: Moderately deep
Drainage class: Well drained
Position on landform: Hills
Parent material: Residuum derived from marine shale
Slope: Steep and very steep

Gaviota
Depth class: Very shallow
Drainage class: Well drained
Position on landform: Hills and mountains
Parent material: Residuum and colluvium derived from sandstone
Slope: Steep and very steep

Los Osos
Depth class: Moderately deep
Drainage class: Well drained
Position on landform: Hills
Parent material: Residuum and colluvium derived from marine shale and sandstone
Slope: Steep and very steep

Minor Components

Sapwi and Elder soils, Rock outcrop, Calcic Haploxerolls, Mollic Haploxerolls, Cropley soils, Xerorthents, Haploxerepts, Typic Argixerolls, and Pachic Argixerolls

Major Uses

Recreation and housing development

7. Botella-Cropley-Urban land complex, 0 to 9 percent slopes

Very deep, nearly level to moderately sloping, well drained soils that formed in sedimentary material, and Urban land; on alluvial fans and hills

Setting

Landform: Hills and alluvial fans
Slope: 0 to 30 percent

Composition

Extent of map unit in survey area: About 4 percent
Extent of components in map unit:
Botella—20 percent
Cropley—18 percent
Urban land—15 percent
Minor components—47 percent

Soil Properties and Qualities

Botella
Depth class: Very deep
Drainage class: Well drained
Position on landform: Alluvial fans
Parent material: Alluvium derived from sedimentary rock
Slope: Gently sloping

Cropley
Depth class: Very deep
Drainage class: Well drained
Position on landform: Alluvial fans
Parent material: Residuum and colluvium derived from sedimentary rock
Slope: Nearly level to moderately sloping

Urban land
Position on landform: Hills and alluvial fans
Slope: Nearly level

Minor Components

Danville and Abaft soils, Typic Xeropsamments, Beaches, Riverwash, Typic Xerorthents, Elder soils, Pachic Argixerolls, Lockwood soils, and Cumulic Haploxerolls

Major Uses

Recreation and housing development

8. Balcom-Xerorthents, landscaped-Urban land complex, 0 to 75 percent slopes

Shallow to very deep, nearly level to very steep, well drained soils derived from shale and sandstone; on hills

Setting

Landform: Hills
Slope: 0 to 75 percent

Composition

Extent of map unit in survey area: About 3 percent
Extent of components in map unit:
Balcom—50 percent
Xerorthents, landscaped—20 percent
Urban land—18 percent
Minor components—12 percent

Soil Properties and Qualities

Balcom
Depth class: Moderately deep
Drainage class: Well drained
Position on landform: Hills
Parent material: Residuum derived from shale and sandstone
Slope: Steep and very steep

Xerorthents, landscaped
Depth class: Shallow to deep
Drainage class: Well drained
Position on landform: Hills
Parent material: Residuum derived from marine shale and sandstone
Slope: Nearly level to moderately steep

Urban land
Position on landform: Hills
Description of areas: Houses and other buildings, streets, parking lots, and association landscaped areas
Slope: Nearly level to moderately steep

Minor Components

Urban land, Typic Xerochrepts, Botella soils, Typic Calcixerolls, Xerorthents, Rock outcrop, and Pachic Argixerolls

Major Uses

Recreation and housing development

9. Cumulic Haploxerolls-Elder-Fluvaquents complex, 0 to 9 percent slopes

Very deep, nearly level to gently rolling, well drained and very poorly drained soils that formed in alluvium derived from volcanic and sedimentary material; in drainageways

Setting

Landform: Inset fans and flood plains
Slope: 0 to 9 percent

Composition

Extent of map unit in survey area: About 1 percent
Extent of components in map unit:
Cumulic Haploxerolls—58 percent
Elder—17 percent
Fluvaquents—9 percent
Minor components—16 percent

Soil Properties and Qualities

Cumulic Haploxerolls
Depth class: Very deep
Drainage class: Well drained
Position on landform: Inset fans
Parent material: Alluvium derived from volcanic and sedimentary material
Slope: Nearly level to gently rolling

Elder
Depth class: Very deep
Drainage class: Well drained
Position on landform: Flood plains
Parent material: Alluvium derived from shale and sandstone
Slope: Nearly level

Fluvaquents
Depth class: Very deep
Drainage class: Very poorly drained
Position on landform: Flood plains
Parent material: Alluvium derived from volcanic and sedimentary material
Slope: Nearly level

Minor Components

Riverwash, Danville soils, Typic Argixerolls, and Botella soils

Major Uses

Recreation and housing development

10. Urban land-Xerorthents, landscaped complex, 0 to 9 percent slopes

Urban land, and shallow to very deep, level to moderately sloping, well drained soils derived from sedimentary rock; on hills, mountains, valleys, and alluvial fans

Setting

Landform: Hills, mountains, valleys, and alluvial fans
Slope: 0 to 9 percent

Composition

Extent of map unit in survey area: About 8 percent
Extent of components in map unit:
Urban land—69 percent
Xerorthents, landscaped—29 percent
Minor components—2 percent

Soil Properties and Qualities

Urban land
Position on landform: Hills and mountains
Description of areas: Houses and other buildings, streets, parking lots, and association landscaped areas
Slope: Level to moderately sloping

Xerorthents, landscaped
Depth class: Shallow to very deep
Drainage class: Well drained
Position on landform: Hills, mountains, valleys, and alluvial fans
Parent material: Residuum and colluvium derived from sedimentary rock
Slope: Level to moderately sloping

Minor Components

Elder soils

Major Uses

Housing and commercial building development, and recreation

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. More information about each map unit is given under the heading "Use and Management of the Soils."

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. 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, Cropley clay, 0 to 2 percent slopes, is a phase of the Cropley series.

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

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. Danville-Urban land complex, 0 to 9 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. Chumash-Boades-Malibu association, 30 to 75 percent slopes, is an example.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop 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.

100—Chumash-Boades-Malibu association, 30 to 75 percent slopes

Map Unit Setting

General location: Low-elevation coastal hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills and mountains
Elevation: 5 to 1,545 feet (3 to 471 meters)
Mean annual precipitation: 14 to 18 inches (360 to 457 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Chumash and similar soils—35 percent
Boades and similar soils—25 percent
Malibu and similar soils—25 percent
Minor components—15 percent

Major Components

Chumash

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly southwest to southeast
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from sandstone and shale
Typical vegetation: Grey coast eriogonum

Selected properties and qualities
Surface pH: 6.8
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—4 to 22 inches

Slowest permeability class: Moderate above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 0.9 inch (very low)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Somewhat excessively drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD041CA, Shallow Coastal Scrub 14-16" p.z.

Typical profile
A—0 to 7 inches; gravelly loam
Cr—7 to 17 inches; soft, weathered bedrock

Boades

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly northwest to northeast
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from sandstone and shale
Typical vegetation: Coastal scrub

Selected properties and qualities
Surface pH: 6.0
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—10 to 20 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 1.6 inches (very low)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD039CA, Coastal Scrub 14-16" p.z.

Typical profile
A1—0 to 2 inches; loam
A2—2 to 14 inches; loam
Cr—14 to 24 inches; soft, weathered bedrock

Malibu

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly northeast to west
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from interbedded sandstone and shale
Typical vegetation: Coastal scrub

Selected properties and qualities
Surface pH: 6.4
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—20 to 40 inches
Slowest permeability class: Very slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 3.4 inches (low)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Moderately well drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD039CA, Coastal Scrub 14-16" p.z.

Typical profile
A—0 to 19 inches; loam
2Bt—19 to 27 inches; clay
2Cr—27 to 37 inches; weathered bedrock

Minor Components

Pachic Argixerolls
Percentage of map unit: About 5 percent
Slope: 15 to 50 percent
Landform: Hills and mountains

Rock outcrop
Percentage of map unit: About 5 percent
Landform: Hills and mountains

Cotharin
Percentage of map unit: About 5 percent
Slope: 30 to 75 percent
Landform: Hills and mountains

101—Chumash-Boades-Malibu association, 5 to 15 percent slopes

Map Unit Setting

General location: Low-elevation coastal hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills and mountains
Elevation: 150 to 895 feet (46 to 274 meters)
Mean annual precipitation: 14 to 18 inches (360 to 457 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Chumash and similar soils—35 percent
Boades and similar soils—25 percent
Malibu and similar soils—25 percent
Minor components—15 percent

Major Components

Chumash

Slope: 5 to 15 percent
Aspect (clockwise): Dominantly northeast to south
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from sandstone and shale
Typical vegetation: Grey coast eriogonum

Selected properties and qualities
Surface pH: 6.8
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—4 to 22 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 1 inch (very low)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Somewhat excessively drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD041CA, Shallow Coastal Scrub 14-16" p.z.

Typical profile
A—0 to 9 inches; gravelly loam
Cr—9 to 19 inches; soft, weathered bedrock

Boades

Slope: 5 to 15 percent
Aspect (clockwise): Dominantly northeast to south
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from sandstone and shale
Typical vegetation: Coastal scrub

Selected properties and qualities
Surface pH: 6.0
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—10 to 20 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 1.6 inches (very low)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD039CA, Coastal Scrub 14-16" p.z.

Typical profile
A1—0 to 2 inches; loam
A2—2 to 14 inches; loam
Cr—14 to 24 inches; soft, weathered bedrock

Malibu

Slope: 5 to 15 percent
Aspect (clockwise): Dominantly northeast to south
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from interbedded sandstone and shale
Typical vegetation: Coastal scrub

Selected properties and qualities
Surface pH: 6.4
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—20 to 40 inches
Slowest permeability class: Very slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 3.4 inches (low)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: High
Current water table: Not present
Natural drainage class: Moderately well drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD039CA, Coastal Scrub 14-16" p.z.

Typical profile
A—0 to 20 inches; loam
2Bt—20 to 27 inches; clay
2Cr—27 to 37 inches; weathered bedrock

Minor Components

Cotharin
Percentage of map unit: About 5 percent
Slope: 30 to 75 percent
Landform: Hills and mountains

Pachic Argixerolls
Percentage of map unit: About 5 percent
Slope: 15 to 50 percent
Landform: Hills and mountains

Rock outcrop
Percentage of map unit: About 5 percent
Landform: Hills and mountains

110—Malibu-Chumash-Boades association, 15 to 50 percent slopes

Map Unit Setting

General location: Low-elevation coastal hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills and mountains
Elevation: 75 to 1,545 feet (24 to 471 meters)
Mean annual precipitation: 14 to 18 inches (360 to 457 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Malibu and similar soils—35 percent
Chumash and similar soils—30 percent
Boades and similar soils—25 percent
Minor components—10 percent

Major Components

Malibu

Slope: 15 to 50 percent
Aspect (clockwise): Dominantly northeast to northwest
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from interbedded sandstone and shale
Typical vegetation: Coastal scrub

Selected properties and qualities
Surface pH: 6.4
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—20 to 40 inches
Slowest permeability class: Very slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 3.4 inches (low)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Moderately well drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD039CA, Coastal Scrub 14-16" p.z.

Typical profile
A—0 to 19 inches; loam
2Bt—19 to 27 inches; clay
2Cr—27 to 37 inches; weathered bedrock

Chumash

Slope: 15 to 50 percent
Aspect (clockwise): Dominantly northeast to northwest
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from sandstone and shale
Typical vegetation: Grey coast eriogonum

Selected properties and qualities
Surface pH: 6.8
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—4 to 22 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 0.9 inch (very low)

Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Somewhat excessively drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD041CA, Shallow Coastal Scrub 14-16" p.z.

Typical profile
A—0 to 7 inches; gravelly loam
Cr—7 to 17 inches; soft, weathered bedrock

Boades

Slope: 15 to 50 percent
Aspect (clockwise): Dominantly northeast to northwest
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from sandstone and shale
Typical vegetation: Coastal scrub

Selected properties and qualities
Surface pH: 6.0
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—10 to 20 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 1.6 inches (very low)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD039CA, Coastal Scrub 14-16" p.z.

Typical profile
A1—0 to 2 inches; loam
A2—2 to 14 inches; loam
Cr—14 to 24 inches; soft, weathered bedrock

Minor Components

Rock outcrop
Percentage of map unit: About 5 percent
Landform: Hills and mountains

Cotharin
Percentage of map unit: About 5 percent
Slope: 30 to 75 percent
Landform: Hills and mountains

120—Mipolomol-Topanga association, 30 to 75 percent slopes

Map Unit Setting

General location: Low-elevation coastal hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills and mountains
Elevation: 400 to 2,505 feet (122 to 765 meters)
Mean annual precipitation: 18 to 24 inches (457 to 610 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Mipolomol and similar soils—45 percent
Topanga and similar soils—40 percent
Minor components—15 percent

Major Components

Mipolomol

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly north to west
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from sandstone, shale, and slate
Typical vegetation: Bigpod chaparral

Selected properties and qualities
Surface pH: 6.6
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—4 to 14 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 1.4 inches (very low)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present

Natural drainage class: Well drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD038CA, Dry Chaparral 16-20" p.z.

Typical profile
A—0 to 12 inches; channery loam
Cr—12 to 22 inches; soft, weathered bedrock

Topanga

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly west to north
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from sandstone, shale, and slate
Typical vegetation: Bigpod chaparral

Selected properties and qualities
Surface pH: 6.5
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—10 to 20 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 2.1 inches (very low)
Shrink-swell potential: Low (LEP less than 3)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD038CA, Dry Chaparral 16-20" p.z.

Typical profile
A1—0 to 2 inches; gravelly loam
A2—2 to 15 inches; gravelly loam
Bt—15 to 18 inches; gravelly clay loam
Cr—18 to 27 inches; soft, weathered bedrock

Minor Components

Boades
Percentage of map unit: About 5 percent
Slope: 15 to 50 percent
Landform: Hills and mountains

Rock outcrop
Percentage of map unit: About 5 percent
Landform: Hills and mountains

Typic Palexerolls
Percentage of map unit: About 2 percent
Slope: 15 to 50 percent
Landform: Hills

Pachic Argixerolls, moist
Percentage of map unit: About 2 percent
Slope: 15 to 50 percent
Landform: Hills

Pachic Argixerolls, very moist
Percentage of map unit: About 1 percent
Slope: 15 to 50 percent
Landform: Hills

121—Mipolomol-Topanga-Rock outcrop complex, 30 to 75 percent slopes

Map Unit Setting

General location: Low-elevation coastal hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills and mountains
Elevation: 685 to 2,165 feet (210 to 660 meters)
Mean annual precipitation: 18 to 24 inches (457 to 610 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Mipolomol and similar soils—35 percent
Topanga and similar soils—35 percent
Rock outcrop—15 percent
Minor components—15 percent

Major Components

Mipolomol

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly northeast to southwest
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from sandstone, shale, and slate
Typical vegetation: Bigpod chaparral

Selected properties and qualities
Surface pH: 6.6
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—4 to 14 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic

Available water capacity to a depth of 60 inches: About 1.4 inches (very low)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD038CA, Dry Chaparral 16-20" p.z.

Typical profile
A—0 to 12 inches; channery loam
Cr—12 to 22 inches; soft, weathered bedrock

Topanga

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly west to north
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from sandstone, shale, and slate
Typical vegetation: Bigpod chaparral

Selected properties and qualities
Surface pH: 6.5
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—10 to 20 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 2.1 inches (very low)
Shrink-swell potential: Low (LEP less than 3)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD038CA, Dry Chaparral 16-20" p.z.

Typical profile
A1—0 to 2 inches; gravelly loam
A2—2 to 15 inches; gravelly loam

Bt—15 to 18 inches; gravelly clay loam
Cr—18 to 28 inches; soft, weathered bedrock

Rock Outcrop

Aspect (clockwise): None dominant
Landform: Hills and mountains
Kind of rock: Sandstone and shale
Typical vegetation: None

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 8
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: Not assigned

Minor Components

Boades
Percentage of map unit: About 5 percent
Slope: 15 to 50 percent
Landform: Hills and mountains

Typic Palexerolls
Percentage of map unit: About 4 percent
Slope: 15 to 50 percent
Landform: Hills

Pachic Argixerolls, moist
Percentage of map unit: About 4 percent
Slope: 15 to 50 percent
Landform: Hills

Pachic Argixerolls, very moist
Percentage of map unit: About 2 percent
Slope: 15 to 50 percent
Landform: Hills

122—Calcic Haploxerepts-Mollic Haploxeralfs association, 30 to 75 percent slopes

Map Unit Setting

General location: High-elevation inland hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills
Elevation: 600 to 2,200 feet (183 to 671 meters)
Mean annual precipitation: 18 to 22 inches (457 to 559 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Calcic Haploxerepts and similar soils—50 percent
Mollic Haploxeralfs and similar soils—35 percent
Minor components—15 percent

Major Components

Calcic Haploxerepts

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly north to west
Landform: Hills
Parent material: Colluvium and/or residuum derived from calcareous shale
Typical vegetation: Greenbark ceanothus

Selected properties and qualities
Surface pH: 7.5
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—20 to 39 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 4.6 inches (low)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: High
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD051CA, Moist Chaparral 20-24" p.z.

Typical profile
A—0 to 4 inches; gravelly silt loam
Bk1—4 to 12 inches; gravelly silt loam
Bk2—12 to 31 inches; gravelly silt loam
Cr—31 to 41 inches; soft, weathered bedrock

Mollic Haploxeralfs

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly north to west
Landform: Hills
Parent material: Colluvium and/or residuum derived from sandstone
Typical vegetation: California sagebrush

Selected properties and qualities
Surface pH: 6.7
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—20 to 40 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 6.6 inches (moderate)

Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: High
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD043CA, Loamy Hill 16-20" p.z.

Typical profile
A—0 to 5 inches; loam
Bt—5 to 35 inches; clay loam
Cr—35 to 45 inches; soft, weathered bedrock

Minor Components

Rock outcrop
Percentage of map unit: About 10 percent
Landform: Hills and mountains

Sapwi
Percentage of map unit: About 5 percent
Slope: 15 to 50 percent
Landform: Hills

130—Camarillo loam, coastal, 0 to 2 percent slopes

Map Unit Setting

General location: Coastal plains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 19—Southern California Coastal Plain
Landform: Coastal plains
Elevation: 10 to 20 feet (3 to 6 meters)
Mean annual precipitation: 14 to 18 inches (360 to 457 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Camarillo, coastal, and similar soils—85 percent
Minor components—15 percent

Major Component

Camarillo, Coastal

Slope: 0 to 2 percent
Aspect (clockwise): Dominantly north to northwest
Landform: Flood plains
Parent material: Alluvium derived from shale and/or sandstone
Typical vegetation: Saltgrass

Selected properties and qualities
Surface pH: 8.2
Surface area covered with coarse fragments: None
Restrictive feature: None
Slowest permeability class: Moderate
Salinity: Saline within a depth of 40 inches
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 7.8 inches (high)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: Low

Selected hydrologic properties
Present annual flooding: Frequent
Present annual ponding: Occasional
Surface runoff: Low
Current water table: Not present
Natural drainage class: Somewhat poorly drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): 2w-2
Land capability class (nonirrigated): 3w-2
Farmland classification: Prime farmland if irrigated and drained
Ecological site: R019XD074CA, Salt Marsh 14-16" p.z.

Typical profile
A—0 to 24 inches; loam
Bkyg—24 to 50 inches; stratified sandy loam to sandy clay loam
2Bg—50 to 80 inches; fine sand

Minor Components

Pacheco, coastal
Percentage of map unit: About 10 percent
Slope: 0 to 2 percent
Landform: Tidal flats

Haploxerolls
Percentage of map unit: About 5 percent
Slope: 0 to 2 percent
Landform: Alluvial fans

140—Sulfic Fluvaquents, frequently flooded, 0 to 1 percent slopes

Map Unit Setting

General location: Coastal plains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 19—Southern California Coastal Plain
Landform: Coastal plains
Elevation: 10 feet below sea level to 25 feet above sea level (-4 to 8 meters)
Mean annual precipitation: 14 to 24 inches (360 to 610 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Sulfic Fluvaquents and similar soils—100 percent

Major Component

Sulfic Fluvaquents

Slope: 0 to 1 percent
Aspect (clockwise): Dominantly east to west
Landform: Tidal flats
Parent material: Alluvium derived from volcanic and sedimentary rock
Typical vegetation: None assigned

Selected properties and qualities
Surface pH: 5.0
Surface area covered with coarse fragments: None
Restrictive feature: None
Slowest permeability class: Slow
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 4.8 inches (low)
Shrink-swell potential: High (LEP 6 to 9)
Soil slippage potential: Low

Selected hydrologic properties
Present annual flooding: Frequent
Present annual ponding: Frequent
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Very poorly drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7w
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: Not assigned

Typical profile
A—0 to 41 inches; silty clay
Cg—41 to 60 inches; silty clay

150—Abaft-Beaches association, 0 to 5 percent slopes

Map Unit Setting

General location: Coastal areas
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 19—Southern California Coastal Plain
Landform: Shore complex
Elevation: 0 to 85 feet (0 to 27 meters)
Mean annual precipitation: 14 to 18 inches (360 to 457 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Abaft and similar soils—60 percent
Beaches—30 percent
Minor components—10 percent

Major Components

Abaft

Slope: 0 to 5 percent
Aspect (clockwise): Dominantly southeast to southwest
Landform: Dunes
Parent material: Eolian sand derived from sandstone
Typical vegetation: Beach suncup

Selected properties and qualities
Surface pH: 7.0
Surface area covered with coarse fragments: None
Restrictive feature: None
Slowest permeability class: Rapid
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 4.7 inches (low)
Shrink-swell potential: Low (LEP less than 3)
Soil slippage potential: Low

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very low
Current water table: Not present
Natural drainage class: Somewhat excessively drained
Hydrologic soil group: A

California land use interpretive groups
Land capability class (irrigated): 3s-2
Land capability class (nonirrigated): 4e-2
Farmland classification: Farmland of statewide importance
Ecological site: R019XD075CA, Coastal Strand 14-16" p.z.

Typical profile
A—0 to 4 inches; loamy sand
C—4 to 60 inches; stratified, fine sand to loamy coarse sand to loamy sand

Beaches

Aspect (clockwise): Dominantly southeast to southwest
Parent material: Sandy alluvium derived from sandstone
Typical vegetation: Chaparral

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 8w
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: Not assigned

Minor Components

Typic Xeropsamments
Percentage of map unit: About 5 percent
Slope: 5 to 30 percent
Landform: Dunes and sand sheets

Urban land
Percentage of map unit: About 5 percent
Description of areas: Houses and other buildings, streets, parking lots, and associated landscaped areas

151—Abaft-Beaches-Urban land complex, 0 to 5 percent slopes

Map Unit Setting

General location: Coastal urban areas
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 19—Southern California Coastal Plain
Landform: Shore complex
Elevation: 0 to 25 feet (0 to 9 meters)
Mean annual precipitation: 14 to 18 inches (360 to 457 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Abaft and similar soils—55 percent
Beaches—30 percent
Urban land—15 percent

Major Components

Abaft

Slope: 0 to 5 percent
Aspect (clockwise): Dominantly east to southwest
Landform: Dunes
Parent material: Eolian sand derived from sandstone
Typical vegetation: Beach suncup

Selected properties and qualities
Surface pH: 7.0
Surface area covered with coarse fragments: None
Restrictive feature: None
Slowest permeability class: Rapid
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 4.7 inches (low)
Shrink-swell potential: Low (LEP less than 3)
Soil slippage potential: Low

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very low
Current water table: Not present

Natural drainage class: Somewhat excessively drained
Hydrologic soil group: A

California land use interpretive groups
Land capability class (irrigated): 3s
Land capability class (nonirrigated): 4e
Farmland classification: Farmland of statewide importance
Ecological site: R019XD075CA, Coastal Strand 14-16" p.z.

Typical profile
A—0 to 4 inches; loamy sand
C—4 to 60 inches; stratified, fine sand to loamy coarse sand to loamy sand

Beaches

Aspect (clockwise): Dominantly east to southwest
Parent material: Sandy alluvium derived from sandstone
Typical vegetation: Chaparral

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 8w
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: Not assigned

Urban Land

Aspect (clockwise): None dominant
Description of areas: Houses and other buildings, streets, parking lots, and associated landscaped areas
Typical vegetation: None assigned

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 8
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: Not assigned

160—Xerorthents, landscaped, 0 to 9 percent slopes

Map Unit Setting

General location: Urban areas
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Foothills
Elevation: 590 to 2,830 feet (180 to 864 meters)
Mean annual precipitation: 14 to 24 inches (360 to 610 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Xerorthents, landscaped, and similar soils—95 percent
Minor component—5 percent

Major Components

Xerorthents, Landscaped

Slope: 0 to 9 percent
Aspect (clockwise): Dominantly northwest to south
Position on landform: Leveled areas
Parent material: Colluvium and residuum derived from sedimentary rock and mixed sources
Typical vegetation: Ornamental plants and lawns

Selected properties and qualities
Surface pH: 7.4
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—10 to 60 inches
Slowest permeability class: Slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 8.3 inches (high)
Shrink-swell potential: Low (LEP less than 3)
Soil slippage potential: Low

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Medium
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): 2e-1
Land capability class (nonirrigated): 2e-1
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: Not assigned

Typical profile
A—0 to 4 inches; loam
C—4 to 52 inches; loam
Cr—52 to 62 inches; soft, weathered bedrock

Minor Component

Urban land
Percentage of map unit: About 5 percent
*Descriptio*n of areas: Houses and other buildings, streets, parking lots, and associated landscaped areas

170—Cotharin clay loam, 30 to 75 percent slopes

Map Unit Setting

General location: High-elevation inland hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills and mountains
Elevation: 590 to 2,830 feet (180 to 864 meters)
Mean annual precipitation: 18 to 24 inches (457 to 610 millimeters)

Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Cotharin and similar soils—85 percent
Minor components—15 percent

Major Component

Cotharin

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly west to northeast
Position on landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from andesite
Typical vegetation: Bigpod chaparral

Selected properties and qualities
Surface pH: 6.0
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—4 to 14 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 1.2 inches (very low)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD038CA, Dry Chaparral 16-20" p.z.

Typical profile
Oe—0 to 1 inch; slightly decomposed plant material
A—1 to 9 inches; loam
AC—9 to 11 inches; loam
Cr—11 to 21 inches; soft, weathered bedrock

Minor Components

Pachic Argixerolls
Percentage of map unit: About 7 percent
Slope: 30 to 75 percent
Landform: Hills and mountains

Rock outcrop
Percentage of map unit: About 5 percent
Landform: Hills and mountains

Kayiwish
Percentage of map unit: About 2 percent
Slope: 9 to 30 percent
Landform: Hills

Boades
Percentage of map unit: About 1 percent
Slope: 15 to 50 percent
Landform: Hills and mountains

171—Cotharin loam-Rock outcrop complex, very bouldery, 30 to 75 percent slopes

Map Unit Setting

General location: High-elevation inland hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills and mountains
Elevation: 590 to 3,110 feet (180 to 948 meters)
Mean annual precipitation: 18 to 24 inches (457 to 610 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Cotharin and similar soils—65 percent
Rock outcrop—20 percent
Minor components—15 percent

Major Components

Cotharin

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly east to southwest
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from andesite
Typical vegetation: Bigpod chaparral

Selected properties and qualities
Surface pH: 6.0
Surface area covered with coarse fragments: 3 to 10 percent with very angular stones
Depth to restrictive feature: Bedrock (paralithic)—4 to 14 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 1.2 inches (very low)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present

Natural drainage class: Well drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD038CA, Dry Chaparral 16-20" p.z.

Typical profile
Oe—0 to 1 inch; slightly decomposed plant material
A—1 to 9 inches; loam
AC—9 to 11 inches; loam
Cr—11 to 21 inches; soft, weathered bedrock

Rock Outcrop

Aspect (clockwise): None dominant
Landform: Hills and mountains
Kind of rock: Andesite
Typical vegetation: None

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 8
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: Not assigned

Minor Components

Pachic Argixerolls, moist
Percentage of map unit: About 9 percent
Slope: 30 to 75 percent
Landform: Hills and mountains

Kayiwish
Percentage of map unit: About 3 percent
Slope: 9 to 30 percent
Landform: Hills

Pachic Argixerolls, cool
Percentage of map unit: About 3 percent
Slope: 9 to 30 percent
Landform: Hills and mountains

175—Cotharin-Talepop association, 30 to 75 percent slopes

Map Unit Setting

General location: High-elevation inland hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills and mountains
Elevation: 590 to 2,830 feet (180 to 864 meters)
Mean annual precipitation: 18 to 24 inches (457 to 610 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Cotharin and similar soils—70 percent
Talepop and similar soils—15 percent
Minor components—15 percent

Major Components

Cotharin

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly northeast to west
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from andesite
Typical vegetation: Bigpod chaparral

Selected properties and qualities
Surface pH: 6.0
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—4 to 14 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 1.2 inches (very low)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD038CA, Dry Chaparral 16-20" p.z.

Typical profile
Oe—0 to 1 inch; slightly decomposed plant material
A—1 to 9 inches; loam
AC—9 to 11 inches; loam
Cr—11 to 21 inches; soft, weathered bedrock

Talepop

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly northeast to west
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from andesite
Typical vegetation: Chamise

Selected properties and qualities
Surface pH: 7.2
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—4 to 14 inches

Slowest permeability class: Moderately slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 0.6 inch (very low)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Somewhat excessively drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD042CA, Shallow Chaparral 16-20" p.z.

Typical profile
A—0 to 1 inch; gravelly loam
Bt—1 to 5 inches; gravelly loam
Cr—5 to 15 inches; soft, weathered bedrock

Minor Components

Pachic Argixerolls
Percentage of map unit: About 7 percent
Slope: 30 to 75 percent
Landform: Hills

Rock outcrop
Percentage of map unit: About 5 percent
Landform: Hills and mountains

Cumulic Haploxerolls
Percentage of map unit: About 3 percent
Slope: 9 to 30 percent
Landform: Inset fans

176—Cotharin-Talepop association, 15 to 50 percent slopes

Map Unit Setting

General location: High-elevation inland hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills and mountains
Elevation: 590 to 2,830 feet (180 to 864 meters)
Mean annual precipitation: 18 to 24 inches (457 to 610 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Cotharin and similar soils—70 percent
Talepop and similar soils—15 percent
Minor components—15 percent

Major Components

Cotharin

Slope: 15 to 50 percent
Aspect (clockwise): Dominantly northwest to west
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from andesite
Typical vegetation: Bigpod chaparral

Selected properties and qualities
Surface pH: 6.0
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—4 to 14 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 1.2 inches (very low)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD038CA, Dry Chaparral 16-20" p.z.

Typical profile
Oe—0 to 1 inch; slightly decomposed plant material
A—1 to 9 inches; loam
AC—9 to 11 inches; loam
Cr—11 to 21 inches; soft, weathered bedrock

Talepop

Slope: 15 to 50 percent
Aspect (clockwise): Dominantly northwest to west
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from andesite
Typical vegetation: Chamise

Selected properties and qualities
Surface pH: 7.2
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—4 to 14 inches
Slowest permeability class: Moderately slow above the bedrock

Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 0.6 inch (very low)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Somewhat excessively drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD042CA, Shallow Chaparral 16-20" p.z.

Typical profile
A—0 to 1 inch; gravelly loam
Bt—1 to 5 inches; gravelly loam
Cr—5 to 15 inches; soft, weathered bedrock

Minor Components

Pachic Argixerolls
Percentage of map unit: About 7 percent
Slope: 30 to 75 percent
Landform: Hills

Rock outcrop
Percentage of map unit: About 5 percent
Landform: Hills and mountains

Kayiwish
Percentage of map unit: About 2 percent
Slope: 9 to 30 percent
Landform: Hills

Cumulic Haploxerolls
Percentage of map unit: About 1 percent
Slope: 9 to 30 percent
Landform: Inset fans

178—Cotharin-Talepop-Urban land complex, 0 to 50 percent slopes

Map Unit Setting

General location: High-elevation inland hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills and mountains
Elevation: 590 to 2,830 feet (180 to 864 meters)
Mean annual precipitation: 18 to 24 inches (457 to 610 millimeters)

Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Cotharin and similar soils—35 percent
Talepop and similar soils—35 percent
Urban land—15 percent
Minor components—15 percent

Major Components

Cotharin

Slope: 15 to 50 percent
Aspect (clockwise): Dominantly southeast to west
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from andesite
Typical vegetation: Bigpod chaparral

Selected properties and qualities
Surface pH: 6.0
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—4 to 14 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 1.2 inches (very low)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD038CA, Dry Chaparral 16-20" p.z.

Typical profile
Oe—0 to 1 inch; slightly decomposed plant material
A—1 to 9 inches; loam
AC—9 to 11 inches; loam
Cr—11 to 21 inches; soft, weathered bedrock

Talepop

Slope: 15 to 50 percent
Aspect (clockwise): Dominantly southeast to west
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from andesite
Typical vegetation: Chamise

Selected properties and qualities
Surface pH: 7.2
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—4 to 14 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 0.6 inch (very low)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Somewhat excessively drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD042CA, Shallow Chaparral 16-20" p.z.

Typical profile
A—0 to 1 inch; gravelly loam
Bt—1 to 5 inches; gravelly loam
Cr—5 to 15 inches; soft, weathered bedrock

Urban Land

Slope: 0 to 15 percent
Aspect (clockwise): None dominant
Description of areas: Houses and other buildings, streets, parking lots, and associated landscaped areas
Typical vegetation: None

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 8
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: Not assigned

Minor Components

Pachic Argixerolls
Percentage of map unit: About 7 percent
Slope: 30 to 75 percent
Landform: Hills

Rock outcrop
Percentage of map unit: About 5 percent
Landform: Hills and mountains

Kayiwish
Percentage of map unit: About 2 percent
Slope: 9 to 30 percent
Landform: Hills

Cumulic Haploxerolls
Percentage of map unit: About 1 percent
Slope: 9 to 30 percent
Landform: Inset fans

179—Cotharin loam, 30 to 75 percent slopes, dry

Map Unit Setting

General location: High-elevation inland hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills and mountains
Elevation: 590 to 2,830 feet (180 to 864 meters)
Mean annual precipitation: 18 to 24 inches (457 to 610 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Cotharin, dry, and similar soils—80 percent
Minor components—20 percent

Major Components

Cotharin, Dry

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly east to southwest
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from andesite
Typical vegetation: Bigpod chaparral

Selected properties and qualities
Surface pH: 6.0
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—4 to 14 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 1.2 inches (very low)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e

Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD039CA, Coastal Scrub 14-16" p.z.

Typical profile
Oe—0 to 1 inch; slightly decomposed plant material
A—1 to 9 inches; loam
AC—9 to 11 inches; loam
Cr—11 to 21 inches; soft, weathered bedrock

Minor Components

Lithic Haploxerepts
Percentage of map unit: About 10 percent
Slope: 30 to 75 percent
Landform: Hills

Rock outcrop
Percentage of map unit: About 5 percent
Landform: Hills and mountains

Pachic Argixerolls
Percentage of map unit: About 5 percent
Slope: 30 to 75 percent
Landform: Hills and mountains

180—Pits and Dumps

Map Unit Setting

General location: Urban areas
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Elevation: 185 to 590 feet (57 to 180 meters)
Mean annual precipitation: 14 to 24 inches (360 to 610 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Pits and Dumps—100 percent

Pits and Dumps

Aspect (clockwise): None dominant
Description of areas: Pits consist of open extractions from which soil and commonly underlying material have been removed, exposing rock or other material. Dumps consist of smoothed or uneven accumulations or piles of waste rock and general refuse.
Typical vegetation: Chaparral

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 8
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: Not assigned

190—Kayiwish association, 0 to 9 percent slopes

Map Unit Setting

General location: High-elevation inland hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills
Elevation: 380 to 2,095 feet (116 to 640 meters)
Mean annual precipitation: 18 to 24 inches (457 to 610 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Kayiwish, gently sloping, and similar soils—65 percent
Kayiwish, nearly level, and similar soils—20 percent
Minor components—15 percent

Major Components

Kayiwish, Gently Sloping

Slope: 2 to 9 percent
Aspect (clockwise): Dominantly south to north
Landform: Hills
Parent material: Colluvium and/or residuum derived from metavolcanic rock
Typical vegetation: Nonnative grassland

Selected properties and qualities
Surface pH: 6.8
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—20 to 40 inches
Slowest permeability class: Very slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 3.3 inches (low)
Shrink-swell potential: High (LEP 6 to 9)
Soil slippage potential: Low

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: High
Current water table: Not present
Natural drainage class: Moderately well drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 6e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD048CA, Clay Pediment 16-20" p.z.

Typical profile
A—0 to 4 inches; clay
Bss—4 to 21 inches; clay
B/C—21 to 24 inches; clay
Cr—24 to 33 inches; soft, weathered bedrock

Kayiwish, Nearly Level

Slope: 0 to 2 percent
Aspect (clockwise): Dominantly south to north
Landform: Hills
Parent material: Colluvium and/or residuum derived from metavolcanic rock
Typical vegetation: Nonnative grassland

Selected properties and qualities
Surface pH: 6.8
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—20 to 40 inches
Slowest permeability class: Very slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 2.9 inches (low)
Shrink-swell potential: High (LEP 6 to 9)
Soil slippage potential: Low

Selected hydrologic properties
Present annual flooding: Very rare
Present annual ponding: Rare
Surface runoff: Medium
Current water table: Not present
Natural drainage class: Moderately well drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 6e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD048CA, Clay Pediment 16-20" p.z.

Typical profile
A—0 to 2 inches; clay
Bss1—2 to 19 inches; clay
Bss2—19 to 21 inches; clay
Cr—21 to 31 inches; soft, weathered bedrock

Minor Components

Lithic Haploxerolls
Percentage of map unit: About 8 percent
Slope: 9 to 30 percent
Landform: Hills

Typic Argixerolls
Percentage of map unit: About 5 percent
Slope: 9 to 30 percent
Landform: Hills

Rock outcrop
Percentage of map unit: About 1 percent
Landform: Hills and mountains

Cumulic Haploxerolls
Percentage of map unit: About 1 percent
Slope: 5 to 15 percent
Landform: Inset fans

191—Kayiwish association, 9 to 30 percent slopes

Map Unit Setting

General location: High-elevation inland hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills
Elevation: 380 to 2,095 feet (116 to 640 meters)
Mean annual precipitation: 18 to 24 inches (457 to 610 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Kayiwish, gently sloping, and similar soils—65 percent
Kayiwish, steeply sloping, and similar soils—20 percent
Minor components—15 percent

Major Components

Kayiwish, Gently Sloping

Slope: 9 to 15 percent
Aspect (clockwise): Dominantly south to north
Landform: Hills
Parent material: Colluvium and/or residuum derived from metavolcanic rock
Typical vegetation: Nonnative grassland

Selected properties and qualities
Surface pH: 6.8
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—20 to 40 inches
Slowest permeability class: Very slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 3.3 inches (low)
Shrink-swell potential: High (LEP 6 to 9)
Soil slippage potential: Low

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: High
Current water table: Not present
Natural drainage class: Moderately well drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 6e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD048CA, Clay Pediment 16-20" p.z.

Typical profile
A—0 to 4 inches; clay
Bss—4 to 21 inches; clay

B/C—21 to 24 inches; clay
Cr—24 to 33 inches; soft, weathered bedrock

Kayiwish, Steeply Sloping

Slope: 9 to 30 percent
Aspect (clockwise): Dominantly south to north
Landform: Hills
Parent material: Colluvium and/or residuum derived from metavolcanic rock
Typical vegetation: Nonnative grassland

Selected properties and qualities
Surface pH: 6.8
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—20 to 40 inches
Slowest permeability class: Very slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 3.3 inches (low)
Shrink-swell potential: High (LEP 6 to 9)
Soil slippage potential: Low

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: High
Current water table: Not present
Natural drainage class: Moderately well drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 6e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD048CA, Clay Pediment 16-20" p.z.

Typical profile
A—0 to 2 inches; clay
Bss—2 to 24 inches; clay
Cr—24 to 33 inches; soft, weathered bedrock

Minor Components

Typic Haploxerolls
Percentage of map unit: About 10 percent
Slope: 9 to 30 percent
Landform: Hills

Rock outcrop
Percentage of map unit: About 3 percent
Landform: Hills and mountains

Cumulic Haploxerolls
Percentage of map unit: About 2 percent
Slope: 5 to 15 percent
Landform: Inset fans

200—Cumulic Haploxerolls, 0 to 9 percent slopes

Map Unit Setting

General location: Near rivers and streams
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Mountain valleys and canyons
Elevation: 5 to 895 feet (3 to 274 meters)
Mean annual precipitation: 14 to 24 inches (360 to 610 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Cumulic Haploxerolls—85 percent
Minor components—15 percent

Major Component

Cumulic Haploxerolls

Slope: 0 to 9 percent
Aspect (clockwise): Dominantly east to west
Position on landform: Inset fans
Parent material: Alluvium derived from volcanic and sedimentary rock
Typical vegetation: Arroyo willow and California sycamore

Selected properties and qualities
Surface pH: 7.0
Surface area covered with coarse fragments: None
Depth to restrictive feature: Abrupt textural change—59 to 79 inches
Slowest permeability class: Moderately slow
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 8.5 inches (high)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: Low

Selected hydrologic properties
Present annual flooding: Frequent
Present annual ponding: None
Surface runoff: Medium
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: B

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7w
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD049CA, Riparian Terrace 16-20" p.z.

Typical profile
A—0 to 16 inches; stratified sandy loam
2Bk—16 to 69 inches; stratified clay loam
3C—69 to 83 inches; extremely gravelly coarse sand

Minor Components

Cumulic Haploxerolls, clayey
Percentage of map unit: About 6 percent
Slope: 2 to 9 percent
Position on landform: Inset fans

Riverwash
Percentage of map unit: About 5 percent
Position on landform: Drainageways

Danville, coastal
Percentage of map unit: About 2 percent
Slope: 2 to 9 percent
Position on landform: Alluvial fans and fluvial terraces

Typic Argixerolls
Percentage of map unit: About 2 percent
Slope: 9 to 30 percent
Landform: Hills and mountains

202—Fluvaquents-Riverwash complex, 0 to 5 percent slopes

Map Unit Setting

General location: Near rivers and streams
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Mountain valleys and canyons
Elevation: 700 to 1,895 feet (213 to 579 meters)
Mean annual precipitation: 14 to 24 inches (360 to 610 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Fluvaquents—70 percent
Riverwash—20 percent
Minor components—10 percent

Major Components

Fluvaquents

Slope: 0 to 5 percent
Aspect (clockwise): Dominantly east to west
Position on landform: Flood plains
Parent material: Alluvium derived from sandstone and shale
Typical vegetation: Arroyo willow and California sycamore

Selected properties and qualities
Surface pH: 8.0
Surface area covered with coarse fragments: None
Restrictive feature: None
Slowest permeability class: Moderate
Salinity: Nonsaline

Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 4.1 inches (low)
Shrink-swell potential: Low (LEP less than 3)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: Frequent
Present annual ponding: None
Surface runoff: Very high
Current water table: Present
Natural drainage class: Very poorly drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 4w-2
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD049CA, Riparian Terrace 16-20" p.z.

Typical profile
A1—0 to 5 inches; loam
A2—5 to 10 inches; fine sandy loam
A3—10 to 14 inches; sandy loam
2C—14 to 19 inches; loamy sand
3Cg1—19 to 48 inches; extremely gravelly sand
4Cg2—48 to 55 inches; gravelly coarse sand

Riverwash

Slope: 0 to 2 percent
Aspect (clockwise): None dominant
Position on landform: Drainageways
Parent material: Alluvium derived from sandstone and shale
Typical vegetation: Few willows and mulefat

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 8w
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: Not assigned

Minor Components

Botella
Percentage of map unit: About 5 percent
Slope: 2 to 9 percent
Position on landform: Alluvial fans

Elder, coastal
Percentage of map unit: About 5 percent
Slope: 2 to 9 percent
Position on landform: Fluvial terraces

220—Elder fine sandy loam, coastal, 0 to 2 percent slopes

Map Unit Setting

General location: Near rivers and streams

Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Mountain valleys and canyons
Elevation: 45 to 295 feet (15 to 91 meters)
Mean annual precipitation: 14 to 18 inches (360 to 457 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Elder, coastal, and similar soils—85 percent
Minor components—15 percent

Major Components

Elder, Coastal

Slope: 0 to 2 percent
Aspect (clockwise): Dominantly east to west
Position on landform: Alluvial fans and flood plains
Parent material: Alluvium derived from sandstone and shale
Typical vegetation: Arroyo willow and California sycamore

Selected properties and qualities
Surface pH: 7.2
Surface area covered with coarse fragments: None
Restrictive feature: None
Slowest permeability class: Moderately rapid
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 8.1 inches (high)
Shrink-swell potential: Low (LEP less than 3)
Soil slippage potential: Low

Selected hydrologic properties
Present annual flooding: Rare
Present annual ponding: None
Surface runoff: Very low
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: B

California land use interpretive groups
Land capability class (irrigated): 2e-2
Land capability class (nonirrigated): 3e-2
Farmland classification: Prime farmland if irrigated
Ecological site: R020XD049CA, Riparian Terrace 16-20" p.z.

Typical profile
A—0 to 8 inches; fine sandy loam
C1—8 to 42 inches; fine sandy loam
2C2—42 to 43 inches; loamy sand
3C3—43 to 51 inches; fine sandy loam
4C4—51 to 52 inches; loamy sand
5C5—52` to 60 inches; fine sandy loam

Minor Components

Typic Argixerolls
Percentage of map unit: About 10 percent

Slope: 2 to 9 percent
Landform: Hills

Riverwash
Percentage of map unit: About 5 percent
Landform: Drainageways

230—Cotharin-Talepop association, 15 to 50 percent slopes

Map Unit Setting

General location: High-elevation inland hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills and mountains
Elevation: 540 to 2,830 feet (165 to 864 meters)
Mean annual precipitation: 18 to 24 inches (457 to 610 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Cotharin and similar soils—70 percent
Talepop and similar soils—15 percent
Minor components—15 percent

Major Components

Cotharin

Slope: 15 to 50 percent
Aspect (clockwise): Dominantly southwest to north
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from andesite
Typical vegetation: Bigpod chaparral

Selected properties and qualities
Surface pH: 6.0
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—4 to 14 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 1.2 inches (very low)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e-1

Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD038CA, Dry Chaparral 16-20" p.z.

Typical profile
Oe—0 to 1 inch; slightly decomposed plant material
A—1 to 9 inches; loam
AC—9 to 11 inches; loam
Cr—11 to 21 inches; soft, weathered bedrock

Talepop

Slope: 15 to 50 percent
Aspect (clockwise): Dominantly southwest to north
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from andesite
Typical vegetation: Chamise

Selected properties and qualities
Surface pH: 7.2
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—4 to 14 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 0.6 inch (very low)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Somewhat excessively drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD042CA, Shallow Chaparral 16-20" p.z.

Typical profile
A—0 to 1 inch; gravelly loam
Bt—1 to 5 inches; gravelly loam
Cr—5 to 15 inches; soft, weathered bedrock

Minor Components

Typic Argixerolls
Percentage of map unit: About 7 percent
Slope: 9 to 30 percent
Landform: Hills and mountains

Kayiwish
Percentage of map unit: About 6 percent
Slope: 9 to 30 percent
Landform: Hills

Rock outcrop
Percentage of map unit: About 2 percent
Landform: Hills and mountains

231—Talepop-Rock outcrop complex, 30 to 75 percent slopes

Map Unit Setting

General location: High-elevation inland hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills and mountains
Elevation: 390 to 2,470 feet (120 to 753 meters)
Mean annual precipitation: 18 to 24 inches (457 to 610 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Talepop and similar soils—50 percent
Rock outcrop—35 percent
Minor components—15 percent

Major Components

Talepop

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly east to northwest
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from andesite
Typical vegetation: Chamise

Selected properties and qualities
Surface pH: 7.2
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—4 to 14 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 0.6 inch (very low)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Somewhat excessively drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e

Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD042CA, Shallow Chaparral 16-20" p.z.

Typical profile
A—0 to 1 inch; gravelly loam
Bt—1 to 5 inches; gravelly loam
Cr—5 to 15 inches; soft, weathered bedrock

Rock Outcrop

Aspect (clockwise): None dominant
Landform: Hills and mountains
Kind of rock: Andesite
Typical vegetation: None

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 8
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: Not assigned

Minor Components

Pachic Argixerolls
Percentage of map unit: About 10 percent
Slope: 30 to 75 percent
Landform: Hills

Lithic Haploxerolls
Percentage of map unit: About 4 percent
Slope: 30 to 75 percent
Landform: Hills

Pachic Argixerolls
Percentage of map unit: About 1 percent
Slope: 15 to 30 percent
Landform: Hills

240—Tongva-Cotharin-Rock outcrop complex, 30 to 75 percent slopes

Map Unit Setting

General location: High-elevation inland hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills and mountains
Elevation: 490 to 3,100 feet (150 to 945 meters)
Mean annual precipitation: 18 to 24 inches (457 to 610 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Tongva and similar soils—45 percent
Cotharin and similar soils—30 percent
Rock outcrop—15 percent
Minor components—10 percent

Major Components

Tongva

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly west to northeast
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from basalt and/or andesite
Typical vegetation: Coast live oak

Selected properties and qualities
Surface pH: 6.0
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—20 to 40 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 3.3 inches (low)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: High
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: F020XD044CA, Quercus agrifolia-Juglans californica/Artemisia californica-Ceanothus spinosus/Leymus condensatus

Typical profile
Oe—0 to 2 inches; moderately decomposed plant material
A—2 to 4 inches; loam
Bt—4 to 30 inches; loam
Crt—30 to 39 inches; weathered bedrock

Cotharin

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly west to northeast
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from andesite
Typical vegetation: Bigpod chaparral

Selected properties and qualities
Surface pH: 6.0
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—4 to 14 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 1.2 inches (very low)

Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD038CA, Dry Chaparral 16-20" p.z.

Typical profile
Oe—0 to 1 inch; slightly decomposed plant material
A—1 to 9 inches; loam
AC—9 to 11 inches; loam
Cr—11 to 21 inches; soft, weathered bedrock

Rock Outcrop

Aspect (clockwise): None dominant
Landform: Hills and mountains
Kind of rock: Andesite
Typical vegetation: None assigned

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 8
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: Not assigned

Minor Components

Typic Haploxerolls
Percentage of map unit: About 9 percent
Slope: 30 to 75 percent
Landform: Hills and mountains

Cumulic Haploxerolls
Percentage of map unit: About 1 percent
Slope: 9 to 30 percent
Landform: Inset fans

241—Cotharin-Rock outcrop-Tongva complex, 30 to 75 percent slopes

Map Unit Setting

General location: High-elevation inland hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains

Landform: Hills and mountains
Elevation: 800 to 2,400 feet (244 to 732 meters)
Mean annual precipitation: 18 to 24 inches (457 to 610 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Cotharin and similar soils—55 percent
Rock outcrop—15 percent
Tongva and similar soils—15 percent
Minor components—15 percent

Major Components

Cotharin

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly southwest to east
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from andesite
Typical vegetation: Bigpod chaparral

Selected properties and qualities
Surface pH: 6.0
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—4 to 14 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 1.2 inches (very low)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD038CA, Dry Chaparral 16-20" p.z.

Typical profile
Oe—0 to 1 inch; slightly decomposed plant material
A—1 to 9 inches; loam
AC—9 to 11 inches; loam
Cr—11 to 21 inches; soft, weathered bedrock

Rock Outcrop

Aspect (clockwise): None dominant
Landform: Hills and mountains

Kind of rock: Andesite
Typical vegetation: None

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 8
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: Not assigned

Tongva

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly southwest to east
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from basalt and/or andesite
Typical vegetation: Coast live oak

Selected properties and qualities
Surface pH: 6.0
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—20 to 40 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 3.3 inches (low)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: High
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: F020XD044CA, Quercus agrifolia-Juglans californica/Artemisia californica-Ceanothus spinosus/Leymus condensatus

Typical profile
Oe—0 to 2 inches; moderately decomposed plant material
A—2 to 4 inches; loam
Bt—4 to 30 inches; loam
Crt—30 to 39 inches; weathered bedrock

Minor Components

Typic Argixerolls
Percentage of map unit: About 15 percent
Slope: 30 to 75 percent
Landform: Hills and mountains

250—Urban land-Xerorthents, landscaped, complex, 0 to 5 percent slopes

Map Unit Setting

General location: Urban areas
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills and valleys
Elevation: 30 to 1,965 feet (10 to 600 meters)
Mean annual precipitation: 14 to 24 inches (360 to 610 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Urban land—75 percent
Xerorthents, landscaped, and similar soils—25 percent

Major Components

Urban Land

Aspect (clockwise): None dominant
Description of areas: Houses and other buildings, streets, parking lots, and associated landscaped areas
Typical vegetation: None assigned

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 8
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: Not assigned

Xerorthents, Landscaped

Slope: 0 to 5 percent
Aspect (clockwise): Dominantly north to west
Position on landform: Leveled areas
Parent material: Colluvium and residuum derived from sedimentary rock and other mixed sources
Typical vegetation: Ornamental plants and lawns

Selected properties and qualities
Surface pH: 7.4
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—10 to 60 inches
Slowest permeability class: Slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 8.3 inches (high)
Shrink-swell potential: Low (LEP less than 3)

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Medium
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): 2e-1
Land capability class (nonirrigated): 2e-1
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: Not assigned

Typical profile
A—0 to 4 inches; loam
C—4 to 52 inches; loam
Cr—52 to 62 inches; soft, weathered bedrock

251—Urban land-Tongva complex, 0 to 15 percent slopes

Map Unit Setting

General location: High-elevation inland hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills, mountains, and valleys
Elevation: 500 to 2,400 feet (153 to 732 meters)
Mean annual precipitation: 18 to 24 inches (457 to 610 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Urban land—75 percent
Tongva and similar soils—20 percent
Minor components—5 percent

Major Components

Urban Land

Slope: 0 to 5 percent
Aspect (clockwise): None dominant
*Descriptio*n of areas: Houses and other buildings, streets, parking lots, and associated landscaped areas
Typical vegetation: None assigned

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 8
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: Not assigned

Tongva

Slope: 5 to 15 percent
Aspect (clockwise): Dominantly southeast to northwest
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from basalt and/or andesite
Typical vegetation: Coast live oak

Selected properties and qualities
Surface pH: 6.0
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—20 to 40 inches
Slowest permeability class: Moderately slow above the bedrock

Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 3.3 inches (low)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: High
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: F020XD044CA, Quercus agrifolia-Juglans californica/Artemisia californica-Ceanothus spinosus/Leymus condensatus

Typical profile
Oe—0 to 2 inches; moderately decomposed plant material
A—2 to 4 inches; loam
Bt—4 to 30 inches; loam
Crt—30 to 39 inches; weathered bedrock

Minor Components

Cotharin
Percentage of map unit: About 4 percent
Slope: 5 to 15 percent
Landform: Hills and mountains

Cumulic Haploxerolls
Percentage of map unit: About 1 percent
Slope: 2 to 9 percent
Landform: Inset fans

252—Urban land-Xerorthents, landscaped, complex, rarely flooded, 0 to 5 percent slopes

Map Unit Setting

General location: Urban areas
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Mountain valleys and canyons
Elevation: 30 to 1,965 feet (10 to 600 meters)
Mean annual precipitation: 14 to 24 inches (360 to 610 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Urban land—70 percent
Xerorthents, landscaped, and similar soils—25 percent
Minor component—5 percent

Major Components

Urban Land

Aspect (clockwise): None dominant
Description of areas: Houses and other buildings, streets, parking lots, and associated landscaped areas
Typical vegetation: None assigned

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 8
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: Not assigned

Xerorthents, Landscaped

Slope: 2 to 5 percent
Aspect (clockwise): Dominantly northeast to west
Position on landform: Leveled areas
Parent material: Colluvium and residuum derived from sedimentary rock and other mixed sources
Typical vegetation: Ornamental plants and lawns

Selected properties and qualities
Surface pH: 7.4
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—10 to 60 inches
Slowest permeability class: Slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 8.3 inches (high)
Shrink-swell potential: Low (LEP less than 3)

Selected hydrologic properties
Present annual flooding: Rare
Present annual ponding: None
Surface runoff: Medium
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): 2e-1
Land capability class (nonirrigated): 2e-1
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: Not assigned

Typical profile
A—0 to 4 inches; loam
C—4 to 52 inches; loam
Cr—52 to 62 inches; soft, weathered bedrock

Minor Component

Elder, coastal
Percentage of map unit: About 5 percent
Slope: 0 to 2 percent
Landform: Inset fans

270—Pacheco silty clay loam, 0 to 2 percent slopes

Map Unit Setting

General location: Coastal plains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 19—Southern California Coastal Plain
Landform: Valleys
Elevation: 10 to 20 feet (3 to 6 meters)
Mean annual precipitation: 14 to 18 inches (360 to 457 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 320 to 350 days

Map Unit Composition

Pacheco, coastal, and similar soils—90 percent
Minor component—10 percent

Major Component

Pacheco, Coastal

Slope: 0 to 2 percent
Aspect (clockwise): Dominantly east to southwest
Position on landform: Flood plains
Parent material: Alluvium derived from sedimentary rock
Typical vegetation: Saltgrass

Selected properties and qualities
Surface pH: 7.9
Surface area covered with coarse fragments: None
Restrictive feature: None
Slowest permeability class: Moderately slow
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 10.2 inches (very high)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: Low

Selected hydrologic properties
Present annual flooding: Rare
Present annual ponding: None
Surface runoff: Very low
Current water table: Not present
Natural drainage class: Poorly drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): 3w-2
Land capability class (nonirrigated): 3w-2
Farmland classification: Prime farmland if irrigated and drained
Ecological site: R019XD074CA, Salt Marsh 14-16" p.z.

Typical profile
Ap—0 to 17 inches; silty clay loam
Bky—17 to 46 inches; silty clay loam
2C—46 to 60 inches; stratified sand to silty clay loam

Minor Component

Camarillo, coastal
Percentage of map unit: About 10 percent
Slope: 0 to 2 percent
Landform: Tidal flats

290—Topanga-Mipolomol-Sapwi association, 30 to 75 percent slopes

Map Unit Setting

General location: Low-elevation coastal hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills and mountains
Elevation: 400 to 2,505 feet (122 to 765 meters)
Mean annual precipitation: 18 to 24 inches (457 to 610 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Topanga and similar soils—40 percent
Mipolomol and similar soils—30 percent
Sapwi and similar soils—15 percent
Minor components—15 percent

Major Components

Topanga

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly northeast to west
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from sandstone, shale, and slate
Typical vegetation: Bigpod chaparral

Selected properties and qualities
Surface pH: 6.5
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—10 to 20 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 2.1 inches (very low)
Shrink-swell potential: Low (LEP less than 3)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 8e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD038CA, Dry Chaparral 16-20" p.z.

Typical profile
A1—0 to 2 inches; gravelly loam
A2—2 to 15 inches; gravelly loam
Bt—15 to 18 inches; gravelly clay loam
Cr—18 to 27 inches; soft, weathered bedrock

Mipolomol

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly northeast to west
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from sandstone, shale, and slate
Typical vegetation: Bigpod chaparral

Selected properties and qualities
Surface pH: 6.6
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—4 to 14 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 1.4 inches (very low)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD038CA, Dry Chaparral 16-20" p.z.

Typical profile
A—0 to 12 inches; channery loam
Cr—12 to 22 inches; soft, weathered bedrock

Sapwi

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly northwest to east
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from sandstone
Typical vegetation: Coast live oak

Selected properties and qualities
Surface pH: 6.0
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (lithic)—20 to 39 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 5.2 inches (moderate)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: High
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7s
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: F020XD044CA, Quercus agrifolia-Juglans californica/Artemisia californica-Ceanothus spinosus/Leymus condensatus

Typical profile
Oe—0 to 1 inch; slightly decomposed plant material
A—1 to 4 inches; loam
Bt1—4 to 24 inches; stony clay loam
Bt2—24 to 38 inches; very stony clay loam
R—38 to 48 inches; unweathered bedrock

Minor Components

Pachic Argixerolls
Percentage of map unit: About 10 percent
Slope: 30 to 75 percent
Landform: Hills

Typic Argixerolls
Percentage of map unit: About 3 percent
Slope: 30 to 75 percent
Landform: Hills

Rock outcrop
Percentage of map unit: About 2 percent
Landform: Hills and mountains

300—Zumaridge-Kawenga association, 30 to 75 percent slopes

Map Unit Setting

General location: High-elevation inland hills and mountains
Major uses: Wildlife habitat, recreation, and building site development

Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills and mountains
Elevation: 495 to 3,100 feet (152 to 945 meters)
Mean annual precipitation: 18 to 24 inches (457 to 610 millimeters)
Mean annual air temperature: 57 to 64 degrees F (14 to 18 degrees C)
Frost-free period: 290 to 320 days

Map Unit Composition

Zumaridge and similar soils—55 percent
Kawenga and similar soils—30 percent
Minor components—15 percent

Major Components

Zumaridge

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly southwest to east
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from sandstone
Typical vegetation: Greenbark ceanothus

Selected properties and qualities
Surface pH: 6.0
Surface area covered with coarse fragments: 10 to 35 percent with coarse angular gravel, 5 to 15 percent with angular cobbles, and 5 to 15 percent with angular stones
Depth to restrictive feature: Bedrock (paralithic)—7 to 16 inches; bedrock (lithic)—10 to 20 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 1.3 inches (very low)
Shrink-swell potential: Low (LEP less than 3)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD051CA, Moist Chaparral 20-24" p.z.

Typical profile
Oe—0 to 2 inches; moderately decomposed plant material
A—2 to 10 inches; loam
Cr—10 to 13 inches; soft, weathered bedrock
R—13 to 23 inches; unweathered bedrock

Kawenga

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly southwest to east
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from sandstone
Typical vegetation: Greenbark ceanothus

Selected properties and qualities
Surface pH: 6.0
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—40 to 60 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 6.1 inches (moderate)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: High
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: B

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD051CA, Moist Chaparral 20-24" p.z.

Typical profile
Oe—0 to 2 inches; moderately decomposed plant material
A—2 to 27 inches; gravelly loam
Bt—27 to 37 inches; clay loam
BC—37 to 55 inches; gravelly loam
Cr—55 to 65 inches; soft, weathered bedrock

Minor Components

Sapwi
Percentage of map unit: About 10 percent
Slope: 30 to 75 percent
Landform: Hills

Rock outcrop
Percentage of map unit: About 3 percent
Landform: Hills and mountains

Typic Argixerolls
Percentage of map unit: About 1 percent
Slope: 30 to 75 percent
Landform: Hills

Typic Haploxerolls
Percentage of map unit: About 1 percent
Slope: 30 to 75 percent
Landform: Hills

301—Zumaridge-Kawenga association, 15 to 50 percent slopes

Map Unit Setting

General location: High-elevation inland hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills and mountains
Elevation: 495 to 3,100 feet (152 to 945 meters)
Mean annual precipitation: 18 to 24 inches (457 to 610 millimeters)
Mean annual air temperature: 57 to 64 degrees F (14 to 18 degrees C)
Frost-free period: 290 to 320 days

Map Unit Composition

Zumaridge and similar soils—55 percent
Kawenga and similar soils—30 percent
Minor components—15 percent

Major Components

Zumaridge

Slope: 15 to 50 percent
Aspect (clockwise): Dominantly northwest to northeast
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from sandstone
Typical vegetation: Greenbark ceanothus

Selected properties and qualities
Surface pH: 6.0
Surface area covered with coarse fragments: 10 to 35 percent with coarse angular gravel, 5 to 15 percent with angular cobbles, and 5 to 15 percent with angular stones
Depth to restrictive feature: Bedrock (paralithic)—7 to 16 inches; bedrock (lithic)—10 to 20 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 1.3 inches (very low)
Shrink-swell potential: Low (LEP less than 3)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD051CA, Moist Chaparral 20-24" p.z.

Typical profile
Oe—0 to 2 inches; moderately decomposed plant material
A—2 to 10 inches; loam
Cr—10 to 13 inches; soft, weathered bedrock
R—13 to 23 inches; unweathered bedrock

Kawenga

Slope: 15 to 50 percent
Aspect (clockwise): Dominantly northwest to northeast
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from sandstone
Typical vegetation: Greenbark ceanothus

Selected properties and qualities
Surface pH: 6.0
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—40 to 60 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 6.1 inches (moderate)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: High
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: B

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD051CA, Moist Chaparral 20-24" p.z.

Typical profile
Oe—0 to 2 inches; moderately decomposed plant material
A—2 to 27 inches; gravelly loam
Bt—27 to 37 inches; clay loam
BC—37 to 55 inches; gravelly loam
Cr—55 to 65 inches; soft, weathered bedrock

Minor Components

Sapwi
Percentage of map unit: About 10 percent
Slope: 15 to 50 percent
Landform: Hills

Rock outcrop
Percentage of map unit: About 3 percent
Landform: Hills and mountains

Typic Argixerolls
Percentage of map unit: About 1 percent
Slope: 30 to 75 percent
Landform: Hills

Typic Haploxerolls
Percentage of map unit: About 1 percent
Slope: 30 to 75 percent
Landform: Hills

302—Zumaridge-Rock outcrop-Sumiwawa complex, very stony, 15 to 50 percent slopes

Map Unit Setting

General location: High-elevation inland hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills and mountains
Elevation: 490 to 3,100 feet (150 to 945 meters)
Mean annual precipitation: 18 to 24 inches (457 to 610 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Zumaridge and similar soils—40 percent
Rock outcrop—35 percent
Sumiwawa and similar soils—15 percent
Minor component—10 percent

Major Components

Zumaridge

Slope: 15 to 50 percent
Aspect (clockwise): Dominantly east to west
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from sandstone
Typical vegetation: Greenbark ceanothus

Selected properties and qualities
Surface pH: 6.0
Surface area covered with coarse fragments: 10 to 35 percent with coarse angular gravel, 5 to 15 percent with angular cobbles, and 5 to 15 percent with angular stones
Depth to restrictive feature: Bedrock (paralithic)—7 to 16 inches; bedrock (lithic)—10 to 20 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 1.3 inches (very low)
Shrink-swell potential: Low (LEP less than 3)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD051CA, Moist Chaparral 20-24" p.z.

Typical profile
Oe—0 to 2 inches; moderately decomposed plant material
A—2 to 10 inches; loam
Cr—10 to 13 inches; soft, weathered bedrock
R—13 to 23 inches; unweathered bedrock

Rock Outcrop

Aspect (clockwise): None dominant
Landform: Hills and mountains
Kind of rock: Sandstone
Typical vegetation: None

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 8
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: Not assigned

Sumiwawa

Slope: 15 to 50 percent
Aspect (clockwise): Dominantly east to west
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from sandstone
Typical vegetation: Chamise

Selected properties and qualities
Surface pH: 6.3
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—10 to 20 inches; bedrock (lithic)—20 to 39 inches
Slowest permeability class: Rapid above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 0.6 inch (very low)
Shrink-swell potential: Low (LEP less than 3)

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Somewhat excessively drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD042CA, Shallow Chaparral 16-20" p.z.

Typical profile
A—0 to 9 inches; gravelly loamy sand
C—9 to 13 inches; loamy sand
Cr—13 to 22 inches; soft, weathered bedrock
R—22 to 31 inches; unweathered bedrock

Minor Component

Gaviota
Percentage of map unit: About 10 percent
Slope: 15 to 50 percent
Landform: Hills and mountains

303—Zumaridge-Rock outcrop-Sumiwawa complex, very stony, 30 to 75 percent slopes

Map Unit Setting

General location: High-elevation inland hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills and mountains
Elevation: 490 to 3,100 feet (150 to 945 meters)
Mean annual precipitation: 18 to 24 inches (457 to 610 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Zumaridge and similar soils—40 percent
Rock outcrop—35 percent
Sumiwawa and similar soils—15 percent
Minor component—10 percent

Major Components

Zumaridge

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly southeast to east
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from sandstone
Typical vegetation: Greenbark ceanothus

Selected properties and qualities
Surface pH: 6.0
Surface area covered with coarse fragments: 10 to 35 percent with coarse angular gravel, 5 to 15 percent with angular cobbles, and 5 to 15 percent with angular stones
Depth to restrictive feature: Bedrock (paralithic)—7 to 16 inches; bedrock (lithic)—10 to 20 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Nonsaline

Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 1.3 inches (very low)
Shrink-swell potential: Low (LEP less than 3)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD051CA, Moist Chaparral 20-24" p.z.

Typical profile
Oe—0 to 2 inches; moderately decomposed plant material
A—2 to 10 inches; loam
Cr—10 to 13 inches; soft, weathered bedrock
R—13 to 23 inches; unweathered bedrock

Rock Outcrop

Aspect (clockwise): None dominant
Landform: Hills and mountains
Kind of rock: Sandstone
Typical vegetation: None

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 8
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: Not assigned

Sumiwawa

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly southeast to east
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from sandstone
Typical vegetation: Chamise

Selected properties and qualities
Surface pH: 6.3
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—10 to 20 inches; bedrock (lithic)—20 to 39 inches
Slowest permeability class: Rapid above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 0.6 inch (very low)
Shrink-swell potential: Low (LEP less than 3)

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None

Surface runoff: Very high
Current water table: Not present
Natural drainage class: Somewhat excessively drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD042CA, Shallow Chaparral 16-20" p.z.

Typical profile
A—0 to 9 inches; gravelly loamy sand
C—9 to 13 inches; loamy sand
Cr—13 to 22 inches; soft, weathered bedrock
R—22 to 31 inches; unweathered bedrock

Minor Component

Gaviota
Percentage of map unit: About 10 percent
Slope: 30 to 75 percent
Landform: Hills and mountains

304—Zumaridge-Sapwi-Kawenga association, bouldery, 30 to 75 percent slopes

Map Unit Setting

General location: High-elevation inland hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills and mountains
Elevation: 495 to 3,100 feet (152 to 945 meters)
Mean annual precipitation: 18 to 24 inches (457 to 610 millimeters)
Mean annual air temperature: 57 to 64 degrees F (14 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Zumaridge and similar soils—45 percent
Sapwi and similar soils—20 percent
Kawenga and similar soils—20 percent
Minor components—15 percent

Major Components

Zumaridge

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly northwest to southeast
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from sandstone
Typical vegetation: Greenbark ceanothus

Selected properties and qualities
Surface pH: 6.0
Surface area covered with coarse fragments: 10 to 35 percent with coarse angular

gravel, 5 to 15 percent with angular cobbles, and 5 to 15 percent with angular stones
Depth to restrictive feature: Bedrock (paralithic)—7 to 16 inches; bedrock (lithic)—10 to 20 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 1.3 inches (very low)
Shrink-swell potential: Low (LEP less than 3)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD051CA, Moist Chaparral 20-24" p.z.

Typical profile
Oe—0 to 2 inches; moderately decomposed plant material
A—2 to 10 inches; loam
Cr—10 to 13 inches; soft, weathered bedrock
R—13 to 23 inches; unweathered bedrock

Sapwi

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly northwest to east
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from sandstone
Typical vegetation: Coast live oak

Selected properties and qualities
Surface pH: 6.0
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (lithic)—20 to 39 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 5.2 inches (moderate)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: High
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7s
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: F020XD044CA, Quercus agrifolia-Juglans californica/Artemisia californica-Ceanothus spinosus/Leymus condensatus

Typical profile
Oe—0 to 1 inch; slightly decomposed plant material
A—1 to 4 inches; loam
Bt1—4 to 24 inches; stony clay loam
Bt2—24 to 38 inches; very stony clay loam
R—38 to 48 inches; unweathered bedrock

Kawenga

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly northwest to southeast
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from sandstone
Typical vegetation: Greenbark ceanothus

Selected properties and qualities
Surface pH: 6.0
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—40 to 60 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 6.1 inches (moderate)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: High
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: B

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD051CA, Moist Chaparral 20-24" p.z.

Typical profile
Oe—0 to 2 inches; moderately decomposed plant material
A—2 to 27 inches; gravelly loam
Bt—27 to 37 inches; clay loam
BC—37 to 55 inches; gravelly loam
Cr—55 to 65 inches; soft, weathered bedrock

Minor Components

Rock outcrop
Percentage of map unit: About 10 percent
Landform: Hills and mountains

Zumaridge
Percentage of map unit: About 4 percent
Slope: 9 to 30 percent
Landform: Hills and mountains

Typic Haploxerolls
Percentage of map unit: About 1 percent
Slope: 15 to 30 percent
Landform: Hills

305—Zumaridge-Rock outcrop complex, bouldery, 30 to 75 percent slopes

Map Unit Setting

General location: High-elevation inland hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills and mountains
Elevation: 1,640 to 3,100 feet (500 to 945 meters)
Mean annual precipitation: 18 to 24 inches (457 to 610 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 320 days

Map Unit Composition

Zumaridge and similar soils—65 percent
Rock outcrop—20 percent
Minor components—15 percent

Major Components

Zumaridge

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly east to southwest
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from sandstone
Typical vegetation: Greenbark ceanothus

Selected properties and qualities
Surface pH: 6.0
Surface area covered with coarse fragments: 10 to 35 percent with coarse angular gravel, 5 to 15 percent with angular cobbles, and 5 to 15 percent with angular stones
Depth to restrictive feature: Bedrock (paralithic)—7 to 16 inches; bedrock (lithic)—10 to 20 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 1.3 inches (very low)
Shrink-swell potential: Low (LEP less than 3)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None

Surface runoff: Very high
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: None noted
Ecological site: R020XD051CA, Moist Chaparral 20-24" p.z.

Typical profile
Oe—0 to 2 inches; moderately decomposed plant material
A—2 to 10 inches; loam
Cr—10 to 13 inches; soft, weathered bedrock
R—13 to 23 inches; unweathered bedrock

Rock Outcrop

Aspect (clockwise): None dominant
Landform: Hills and mountains
Kind of rock: Sandstone
Typical vegetation: None

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 8
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: Not assigned

Minor Components

Sumiwawa
Percentage of map unit: About 10 percent
Slope: 30 to 75 percent
Landform: Hills

Gaviota
Percentage of map unit: About 3 percent
Slope: 30 to 75 percent
Landform: Hills and mountains

Kawenga
Percentage of map unit: About 2 percent
Slope: 30 to 75 percent
Landform: Hills

310—Gaviota stony sandy loam, 30 to 50 percent slopes

Map Unit Setting

General location: High-elevation inland hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills and mountains
Elevation: 1,200 to 2,400 feet (366 to 732 meters)
Mean annual precipitation: 14 to 24 inches (360 to 610 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Gaviota and similar soils—85 percent
Minor components—15 percent

Major Component

Gaviota

Slope: 30 to 50 percent
Aspect (clockwise): Dominantly southeast to west
Landform: Hills and mountains
Parent material: Residuum derived from sandstone
Typical vegetation: Hoaryleaf ceanothus

Selected properties and qualities
Surface pH: 7.0
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (lithic)—8 to 14 inches
Slowest permeability class: Moderately rapid above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 1.1 inches (very low)
Shrink-swell potential: Low (LEP less than 3)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Somewhat excessively drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD050CA, Dry Inland Chaparral 16-20" p.z.

Typical profile
A—0 to 8 inches; sandy loam
R—8 to 18 inches; unweathered bedrock

Minor Components

Gaviota, very steep
Percentage of map unit: About 7 percent
Slope: 50 to 75 percent
Landform: Hills and mountains

Rock outcrop
Percentage of map unit: About 7 percent
Landform: Hills and mountains

Elder, coastal
Percentage of map unit: About 1 percent
Slope: 2 to 9 percent
Landform: Fluvial terraces

311—Gaviota-Rock outcrop association, 50 to 100 percent slopes

Map Unit Setting

General location: High-elevation inland hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills and mountains
Elevation: 1,200 to 2,400 feet (366 to 732 meters)
Mean annual precipitation: 14 to 24 inches (360 to 610 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Gaviota, northerly aspect, and similar soils—75 percent
Rock outcrop—20 percent
Minor components—5 percent

Major Components

Gaviota, Northerly Aspect

Slope: 30 to 100 percent
Aspect (clockwise): Dominantly northwest to west
Landform: Hills and mountains
Parent material: Residuum derived from sandstone
Typical vegetation: Hoaryleaf ceanothus

Selected properties and qualities
Surface pH: 7.0
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (lithic)—8 to 14 inches
Slowest permeability class: Moderately rapid above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 1.1 inches (very low)
Shrink-swell potential: Low (LEP less than 3)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Somewhat excessively drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD052CA, Moist Inland Chaparral 16-20" p.z.

Typical profile
A—0 to 8 inches; sandy loam
R—8 to 18 inches; unweathered bedrock

Rock Outcrop

Aspect (clockwise): None dominant
Landform: Hills and mountains
Kind of rock: Sandstone
Typical vegetation: None

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 8
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: Not assigned

Minor Component

Elder, coastal
Percentage of map unit: About 5 percent
Slope: 2 to 9 percent
Landform: Fluvial terraces

320—Botella loam, 2 to 9 percent slopes

Map Unit Setting

General location: Urban areas
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Mountain valleys and canyons
Elevation: 600 to 2,095 feet (183 to 640 meters)
Mean annual precipitation: 14 to 22 inches (360 to 559 millimeters)
Mean annual air temperature: 60 to 62 degrees F (16 to 16 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Botella and similar soils—85 percent
Minor components—15 percent

Major Component

Botella

Slope: 2 to 9 percent
Aspect (clockwise): Dominantly east to west
Position on landform: Alluvial fans
Parent material: Alluvium derived from sandstone and shale
Typical vegetation: Soft chess

Selected properties and qualities
Surface pH: 6.5
Surface area covered with coarse fragments: None
Restrictive feature: None
Slowest permeability class: Moderately slow
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 10.4 inches (Very high)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: Low

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Medium
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): 2e-1
Land capability class (nonirrigated): 3e-1
Farmland classification: Prime farmland if irrigated
Ecological site: R020XD046CA, Loamy Upland 16-20" p.z.

Typical profile
Ap—0 to 8 inches; loam
Bt—8 to 60 inches; clay loam

Minor Components

Typic Xerorthents
Percentage of map unit: About 8 percent
Slope: 2 to 9 percent
Landform: Fans and fluvial terraces

Riverwash
Percentage of map unit: About 7 percent
Slope: 0 to 1 percent
Landform: Drainageways

330—Linne-Los Osos-Haploxerepts association, 30 to 75 percent slopes

Map Unit Setting

General location: High-elevation inland hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills
Elevation: 795 to 1,695 feet (243 to 518 meters)
Mean annual precipitation: 14 to 24 inches (360 to 610 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Linne and similar soils—40 percent
Los Osos and similar soils—25 percent
Haploxerepts and similar soils—20 percent
Minor components—15 percent

Major Components

Linne

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly east to northwest
Landform: Hills

Parent material: Residuum derived from shale
Typical vegetation: California sagebrush

Selected properties and qualities
Surface pH: 8.2
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—20 to 40 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 5.4 inches (moderate)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: High
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD043CA, Loamy Hill 16-20" p.z.

Typical profile
A—0 to 25 inches; silty clay loam
Bk—25 to 30 inches; silty clay loam
Cr—30 to 40 inches; soft, weathered bedrock

Los Osos

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly northwest to northeast
Landform: Hills
Parent material: Residuum derived from shale
Typical vegetation: Purple sage

Selected properties and qualities
Surface pH: 6.1
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—20 to 40 inches
Slowest permeability class: Slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 5.6 inches (moderate)
Shrink-swell potential: High (LEP 6 to 9)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present

Natural drainage class: Well drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD045CA, Shaly Loam 16-20" p.z.

Typical profile
A—0 to 9 inches; clay loam
Bk—9 to 35 inches; clay
Cr—35 to 45 inches; soft, weathered bedrock

Haploxerepts

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly southeast to south
Landform: Hills
Parent material: Colluvium and/or residuum derived from shale
Typical vegetation: Coastal buckwheat

Selected properties and qualities
Surface pH: 8.0
Surface area covered with coarse fragments: 10 to 30 percent with angular channers
Depth to restrictive feature: Bedrock (paralithic)—40 to 59 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 8.8 inches (high)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: B

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD032CA, Shallow Loam 16-20" p.z.

Typical profile
A—0 to 4 inches; loam
Bw1—4 to 19 inches; channery silty clay loam
Bw2—19 to 47 inches; channery silty clay loam
Cr—47 to 57 inches; soft, weathered bedrock

Minor Components

Linne
Percentage of map unit: About 6 percent
Slope: 15 to 50 percent
Landform: Hills

Badland
Percentage of map unit: About 4 percent

Xerorthents
Percentage of map unit: About 2 percent
Slope: 75 to 100 percent
Landform: Hills

Elder, coastal
Percentage of map unit: About 1 percent
Slope: 2 to 9 percent
Landform: Inset fans

Cropley
Percentage of map unit: About 1 percent
Slope: 9 to 30 percent
Landform: Fans

Los Osos
Percentage of map unit: About 1 percent
Slope: 75 to 100 percent
Landform: Hills

331—Linne silty clay loam, 15 to 50 percent slopes

Map Unit Setting

General location: High-elevation inland hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills
Elevation: 1,095 to 1,895 feet (335 to 579 meters)
Mean annual precipitation: 14 to 24 inches (360 to 610 millimeters)
Mean annual air temperature: 60 to 62 degrees F (16 to 16 degrees C)
Frost-free period: 290 to 330 days

Map Unit Composition

Linne and similar soils—75 percent
Minor components—25 percent

Major Component

Linne

Slope: 15 to 50 percent
Aspect (clockwise): Dominantly northeast to west
Landform: Hills
Parent material: Residuum derived from shale
Typical vegetation: California sagebrush

Selected properties and qualities
Surface pH: 8.2
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—20 to 40 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic

Available water capacity to a depth of 60 inches: About 5.4 inches (moderate)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: High
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 6e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD043CA, Loamy Hill 16-20" p.z.

Typical profile
A—0 to 25 inches; silty clay loam
Bk—25 to 30 inches; silty clay loam
Cr—30 to 40 inches; soft, weathered bedrock

Minor Components

Calcic Haploxerolls
Percentage of map unit: About 13 percent
Slope: 15 to 30 percent
Landform: Ridges

Los Osos
Percentage of map unit: About 7 percent
Slope: 30 to 50 percent
Landform: Hills

Badland
Percentage of map unit: About 5 percent

332—Linne silty clay loam, 9 to 15 percent slopes

Map Unit Setting

General location: High-elevation inland hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills
Elevation: 800 to 1,200 feet (244 to 366 meters)
Mean annual precipitation: 14 to 24 inches (360 to 610 millimeters)
Mean annual air temperature: 60 to 62 degrees F (16 to 16 degrees C)
Frost-free period: 290 to 330 days

Map Unit Composition

Linne and similar soils—85 percent
Minor components—15 percent

Major Component

Linne

Slope: 9 to 15 percent
Aspect (clockwise): Dominantly east to west
Landform: Hills
Parent material: Residuum derived from shale
Typical vegetation: California sagebrush

Selected properties and qualities
Surface pH: 8.2
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—20 to 40 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 5.4 inches (moderate)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: Low

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: High
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): 3e-1
Land capability class (nonirrigated): 3e-1
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD043CA, Loamy Hill 16-20" p.z.

Typical profile
A—0 to 25 inches; silty clay loam
Bk—25 to 30 inches; silty clay loam
Cr—30 to 40 inches; soft, weathered bedrock

Minor Components

Calcic Haploxerolls
Percentage of map unit: About 11 percent
Slope: 15 to 30 percent
Landform: Ridges

Los Osos
Percentage of map unit: About 4 percent
Slope: 9 to 15 percent
Landform: Hills

350—Los Osos clay loam, 30 to 50 percent slopes

Map Unit Setting

General location: High-elevation inland hills and mountains

Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Foothills
Elevation: 95 to 2,000 feet (30 to 610 meters)
Mean annual precipitation: 14 to 24 inches (360 to 610 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 270 to 350 days

Map Unit Composition

Los Osos and similar soils—85 percent
Minor components—15 percent

Major Component

Los Osos

Slope: 30 to 50 percent
Aspect (clockwise): Dominantly northeast to northwest
Landform: Hills
Parent material: Residuum derived from shale
Typical vegetation: Purple sage

Selected properties and qualities
Surface pH: 6.1
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—20 to 40 inches
Slowest permeability class: Slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 5.6 inches (moderate)
Shrink-swell potential: High (LEP 6 to 9)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 6e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD045CA, Shaly Loam 16-20" p.z.

Typical profile
A—0 to 9 inches; clay loam
Bk—9 to 35 inches; clay
Cr—35 to 45 inches; soft, weathered bedrock

Minor Components

Calcic Haploxerolls
Percentage of map unit: About 5 percent
Slope: 30 to 50 percent
Landform: Hills

Typic Argixerolls
Percentage of map unit: About 5 percent
Slope: 30 to 50 percent
Landform: Hills

Xerorthents
Percentage of map unit: About 5 percent
Slope: 30 to 50 percent
Landform: Hills

390—Danville-Urban land complex, 0 to 9 percent slopes

Map Unit Setting

General location: Urban areas
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Coastal plains and shore complex
Elevation: 45 to 295 feet (15 to 91 meters)
Mean annual precipitation: 14 to 18 inches (360 to 457 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Danville, coastal, and similar soils—80 percent
Urban land—15 percent
Minor components—5 percent

Major Components

Danville, Coastal

Slope: 2 to 9 percent
Aspect (clockwise): Dominantly east to southwest
Position on landform: Alluvial fans and fluvial terraces
Parent material: Alluvium derived from metavolcanic and/or sedimentary rock
Typical vegetation: California sagebrush

Selected properties and qualities
Surface pH: 6.7
Surface area covered with coarse fragments: None
Restrictive feature: None
Slowest permeability class: Slow
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 9.5 inches (high)
Shrink-swell potential: High (LEP 6 to 9)
Soil slippage potential: Low

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: High
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): 3e-1
Land capability class (nonirrigated): 3e-1
Farmland classification: Prime farmland if irrigated
Ecological site: R020XD047CA, Coastal Terrace 14-16" p.z.

Typical profile
A—0 to 4 inches; clay loam
Bt—4 to 31 inches; clay
Btk—31 to 60 inches; clay

Urban Land

Slope: 0 to 2 percent
Aspect (clockwise): None dominant
*Descriptio*n of areas: Houses and other buildings, streets, parking lots, and associated landscaped areas
Typical vegetation: None

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 8
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: Not assigned

Minor Components

Xerorthents, escarpments
Percentage of map unit: About 4 percent
Landform: Escarpments

Danville, very gravelly surface
Percentage of map unit: About 1 percent
Slope: 2 to 9 percent
Landform: Alluvial fans and fluvial terraces

391—Danville-Urban land complex, 9 to 15 percent slopes

Map Unit Setting

General location: Urban areas
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Shore complex
Elevation: 45 to 295 feet (15 to 91 meters)
Mean annual precipitation: 14 to 18 inches (360 to 457 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Danville, coastal, and similar soils—85 percent
Urban land—10 percent
Minor components—5 percent

Major Components

Danville, Coastal

Slope: 9 to 15 percent
Aspect (clockwise): Dominantly southeast to southwest

Position on landform: Alluvial fans and fluvial terraces
Parent material: Alluvium derived from volcanic and sedimentary rock
Typical vegetation: California sagebrush

Selected properties and qualities
Surface pH: 6.7
Surface area covered with coarse fragments: None
Restrictive feature: None
Slowest permeability class: Slow
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 9.5 inches (high)
Shrink-swell potential: High (LEP 6 to 9)
Soil slippage potential: Low

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Medium
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): 2e-1
Land capability class (nonirrigated): 3e-1
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD047CA, Coastal Terrace 14-16" p.z.

Typical profile
A—0 to 4 inches; clay loam
Bt—4 to 31 inches; clay
Btk—31 to 60 inches; clay

Urban Land

Slope: 0 to 2 percent
Aspect (clockwise): None dominant
*Descriptio*n of areas: Houses and other buildings, streets, parking lots, and associated landscaped areas
Typical vegetation: None

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 8
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: Not assigned

Minor Components

Xerorthents, escarpments
Percentage of map unit: About 5 percent
Landform: Escarpments

400—Pachic Argixerolls, coastal, 30 to 75 percent slopes

Map Unit Setting

General location: Urban areas
Major uses: Wildlife habitat, recreation, and building site development

Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills
Elevation: 45 to 295 feet (15 to 91 meters)
Mean annual precipitation: 14 to 18 inches (360 to 457 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Pachic Argixerolls, coastal, and similar soils—85 percent
Minor components—15 percent

Major Component

Pachic Argixerolls, Coastal

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly northeast to southwest
Landform: Hills
Parent material: Colluvium and/or residuum derived from shale
Typical vegetation: California sagebrush

Selected properties and qualities
Surface pH: 6.5
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—20 to 40 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 3.1 inches (low)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: Low

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: High
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD053CA, Coastal Bluff 14-16" p.z.

Typical profile
A—0 to 9 inches; gravelly loam
Bt—9 to 24 inches; gravelly clay loam
Crt—24 to 33 inches; unweathered bedrock

Minor Components

Gullied land
Percentage of map unit: About 10 percent
Slope: 50 to 100 percent
Landform: Marine terraces

Elder, coastal
Percentage of map unit: About 5 percent
Slope: 2 to 9 percent
Landform: Fluvial terraces

410—Lockwood-Urban land complex, 0 to 15 percent slopes

Map Unit Setting

General location: Urban areas
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Shore complex
Elevation: 50 to 1,695 feet (16 to 518 meters)
Mean annual precipitation: 14 to 18 inches (360 to 457 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 320 to 350 days

Map Unit Composition

Lockwood, coastal, and similar soils—80 percent
Urban land—20 percent

Major Components

Lockwood, Coastal

Slope: 9 to 15 percent
Aspect (clockwise): Dominantly southeast to southwest
Position on landform: Alluvial fans and fluvial terraces
Parent material: Alluvium derived from shale
Typical vegetation: Coastal scrub

Selected properties and qualities
Surface pH: 6.5
Surface area covered with coarse fragments: None
Restrictive feature: None
Slowest permeability class: Moderately slow
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 5.7 inches (moderate)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: Low

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Medium
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: B

California land use interpretive groups
Land capability class (irrigated): 3e-1
Land capability class (nonirrigated): 3e-1

Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD047CA, Coastal Terrace 14-16" p.z.

Typical profile
A—0 to 4 inches; gravelly loam
Bt—4 to 13 inches; gravelly clay loam
Btk—13 to 82 inches; gravelly sandy clay loam

Urban Land

Slope: 0 to 2 percent
Aspect (clockwise): None dominant
Description of areas: Houses and other buildings, streets, parking lots, and associated landscaped areas
Typical vegetation: None

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 8
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: Not assigned

411—Lockwood-Urban land complex, 0 to 9 percent slopes

Map Unit Setting

General location: Urban areas
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Shore complex
Elevation: 50 to 1,695 feet (16 to 518 meters)
Mean annual precipitation: 14 to 18 inches (360 to 457 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 320 to 350 days

Map Unit Composition

Lockwood, coastal, and similar soils—80 percent
Urban land—20 percent

Major Components

Lockwood, Coastal

Slope: 2 to 9 percent
Aspect (clockwise): Dominantly east to southwest
Position on landform: Alluvial fans and fluvial terraces
Parent material: Alluvium derived from shale
Typical vegetation: California sagebrush

Selected properties and qualities
Surface pH: 6.5
Surface area covered with coarse fragments: None
Restrictive feature: None
Slowest permeability class: Moderately slow
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 5.7 inches (moderate)

Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: Low

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Medium
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: B

California land use interpretive groups
Land capability class (irrigated): 2e-1
Land capability class (nonirrigated): 3e-1
Farmland classification: Prime farmland if irrigated
Ecological site: R020XD047CA, Coastal Terrace 14-16" p.z.

Typical profile
A—0 to 4 inches; gravelly loam
Bt—4 to 13 inches; gravelly clay loam
Btk—13 to 82 inches; gravelly sandy clay loam

Urban Land

Slope: 0 to 2 percent
Aspect (clockwise): None dominant
Description of areas: Houses and other buildings, streets, parking lots, and associated landscaped areas
Typical vegetation: None

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 8
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: Not assigned

430—Cropley clay, 2 to 9 percent slopes

Map Unit Setting

General location: Urban areas
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Valleys
Elevation: 960 to 1,245 feet (293 to 381 meters)
Mean annual precipitation: 14 to 18 inches (360 to 457 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Cropley, coastal, and similar soils—85 percent
Minor components—15 percent

Major Component

Cropley, Coastal

Slope: 2 to 9 percent
Aspect (clockwise): Dominantly southeast to west

Position on landform: Alluvial fans
Parent material: Alluvium derived from shale
Typical vegetation: None assigned

Selected properties and qualities
Surface pH: 7.5
Surface area covered with coarse fragments: None
Restrictive feature: None
Slowest permeability class: Slow
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 10 inches (high)
Shrink-swell potential: High (LEP 6 to 9)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: High
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): 2e-5
Land capability class (nonirrigated): 3e-5
Farmland classification: Prime farmland if irrigated
Ecological site: R020XD047CA, Coastal Terrace 14-16" p.z.

Typical profile
A—0 to 2 inches; clay
Bss—2 to 22 inches; clay
Bk—22 to 60 inches; silty clay loam

Minor Components

Danville, coastal
Percentage of map unit: About 8 percent
Slope: 9 to 30 percent
Landform: Alluvial fans and fluvial terraces

Botella
Percentage of map unit: About 7 percent
Slope: 2 to 9 percent
Landform: Alluvial fans

431—Cropley association, 2 to 15 percent slopes

Map Unit Setting

General location: Urban areas
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Valleys
Elevation: 600 to 895 feet (183 to 274 meters)

Mean annual precipitation: 14 to 18 inches (360 to 457 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Cropley, coastal, and similar soils—50 percent
Cropley and similar soils—35 percent
Minor components—15 percent

Major Components

Cropley, Coastal

Slope: 2 to 9 percent
Aspect (clockwise): Dominantly southwest to north
Position on landform: Alluvial fans
Parent material: Alluvium derived from shale
Typical vegetation: None assigned

Selected properties and qualities
Surface pH: 7.5
Surface area covered with coarse fragments: None
Restrictive feature: None
Slowest permeability class: Slow
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 10 inches (high)
Shrink-swell potential: High (LEP 6 to 9)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: High
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): 2e-5
Land capability class (nonirrigated): 3e-5
Farmland classification: Prime farmland if irrigated
Ecological site: R020XD047CA, Coastal Terrace 14-16" p.z.

Typical profile
A—0 to 2 inches; clay
Bss—2 to 22 inches; clay
Bk—22 to 60 inches; silty clay loam

Cropley

Slope: 9 to 15 percent
Aspect (clockwise): Dominantly southwest to north
Position on landform: Alluvial fans
Parent material: Alluvium derived from shale
Typical vegetation: None assigned

Selected properties and qualities
Surface pH: 7.5
Surface area covered with coarse fragments: None
Restrictive feature: None
Slowest permeability class: Slow
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 10 inches (high)
Shrink-swell potential: High (LEP 6 to 9)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: High
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): 4e-5
Land capability class (nonirrigated): 4e-5
Farmland classification: Prime farmland if irrigated
Ecological site: R020XD048CA, Clay Pediment 16-20" p.z.

Typical profile
A—0 to 2 inches; clay
Bss—2 to 22 inches; clay
Bk—22 to 60 inches; silty clay loam

Minor Components

Botella
Percentage of map unit: About 10 percent
Slope: 15 to 30 percent
Landform: Alluvial fans

Kayiwish
Percentage of map unit: About 4 percent
Slope: 9 to 30 percent
Landform: Hills

Cumulic Haploxerolls
Percentage of map unit: About 1 percent
Slope: 0 to 2 percent
Landform: Inset fans

432—Cropley clay, 0 to 2 percent slopes

Map Unit Setting

General location: Urban areas
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Valleys
Elevation: 960 to 1,245 feet (293 to 381 meters)
Mean annual precipitation: 14 to 18 inches (360 to 457 millimeters)

Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Cropley, coastal, and similar soils—85 percent
Minor components—15 percent

Major Component

Cropley, Coastal

Slope: 0 to 2 percent
Aspect (clockwise): Dominantly northeast to south
Position on landform: Alluvial fans
Parent material: Alluvium derived from shale
Typical vegetation: None assigned

Selected properties and qualities
Surface pH: 7.5
Surface area covered with coarse fragments: None
Restrictive feature: None
Slowest permeability class: Slow
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 10 inches (high)
Shrink-swell potential: High (LEP 6 to 9)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Medium
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): 2e-5
Land capability class (nonirrigated): 2e-5
Farmland classification: Prime farmland if irrigated
Ecological site: R020XD047CA, Coastal Terrace 14-16" p.z.

Typical profile
A—0 to 2 inches; clay
Bss—2 to 22 inches; clay
Bk—22 to 60 inches; silty clay loam

Minor Components

Danville, coastal
Percentage of map unit: About 10 percent
Slope: 0 to 2 percent
Landform: Alluvial fans and fluvial terraces

Botella
Percentage of map unit: About 5 percent
Slope: 2 to 5 percent
Landform: Alluvial fans

433—Cropley, coastal-Urban land-Haploxererts complex, 0 to 30 percent slopes

Map Unit Setting

General location: Urban areas
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills, shore complex, and valleys
Elevation: 45 to 695 feet (15 to 213 meters)
Mean annual precipitation: 14 to 18 inches (360 to 457 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Cropley, coastal, and similar soils—40 percent
Urban land—25 percent
Haploxererts and similar soils—20 percent
Minor components—15 percent

Major Components

Cropley, Coastal

Slope: 2 to 9 percent
Aspect (clockwise): Dominantly east to southwest
Position on landform: Alluvial fans
Parent material: Alluvium derived from shale
Typical vegetation: None assigned

Selected properties and qualities
Surface pH: 7.5
Surface area covered with coarse fragments: None
Restrictive feature: None
Slowest permeability class: Slow
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 10 inches (high)
Shrink-swell potential: High (LEP 6 to 9)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: High
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): 2e-5
Land capability class (nonirrigated): 3e-5
Farmland classification: Farmland of statewide importance
Ecological site: R020XD047CA, Coastal Terrace 14-16" p.z.

Typical profile
A—0 to 2 inches; clay
Bss—2 to 22 inches; clay
Bk—22 to 60 inches; silty clay loam

Urban Land

Slope: 0 to 2 percent
Aspect (clockwise): None dominant
*Descriptio*n of areas: Houses and other buildings, streets, parking lots, and associated landscaped areas
Typical vegetation: None

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 8
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: Not assigned

Haploxererts

Slope: 9 to 30 percent
Aspect (clockwise): Dominantly east to southwest
Landform: Hills
Parent material: Colluvium and/or residuum derived from sandstone and shale
Typical vegetation: None assigned

Selected properties and qualities
Surface pH: 7.5
Surface area covered with coarse fragments: 5 to 20 percent with angular channers and 5 to 20 percent with angular channers
Depth to restrictive feature: Bedrock (paralithic)—40 to 60 inches
Slowest permeability class: Slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 7.5 inches (high)
Shrink-swell potential: High (LEP 6 to 9)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Farmland of statewide importance
Ecological site: Not assigned

Typical profile
A—0 to 30 inches; clay
Bss—30 to 50 inches; clay
Cr—50 to 60 inches; soft, weathered bedrock

Minor Components

Pachic Argixerolls, coastal
Percentage of map unit: About 10 percent
Slope: 30 to 75 percent
Landform: Hills

Danville, coastal
Percentage of map unit: About 5 percent
Slope: 5 to 15 percent
Landform: Alluvial fans and fluvial terraces

434—Cropley, coastal-Xerorthents, landscaped-Urban land complex, 0 to 9 percent slopes

Map Unit Setting

General location: Urban areas
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Shore complex, foothills, and valleys
Elevation: 45 to 695 feet (15 to 213 meters)
Mean annual precipitation: 14 to 18 inches (360 to 457 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Cropley, coastal, and similar soils—35 percent
Xerorthents, landscaped, and similar soils—35 percent
Urban land—25 percent
Minor components—5 percent

Major Components

Cropley, Coastal

Slope: 2 to 9 percent
Aspect (clockwise): Dominantly southeast to west
Position on landform: Alluvial fans
Parent material: Alluvium derived from shale
Typical vegetation: None assigned

Selected properties and qualities
Surface pH: 7.5
Surface area covered with coarse fragments: None
Restrictive feature: None
Slowest permeability class: Slow
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 10 inches (high)
Shrink-swell potential: High (LEP 6 to 9)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: High

Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): 2e-1
Land capability class (nonirrigated): 3e-1
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD047CA, Coastal Terrace 14-16" p.z.

Typical profile
A—0 to 2 inches; clay
Bss—2 to 22 inches; clay
Bk—22 to 60 inches; silty clay loam

Xerorthents, Landscaped

Slope: 0 to 2 percent
Aspect (clockwise): Dominantly southeast to west
Position on landform: Leveled areas
Parent material: Colluvium and residuum derived from sedimentary rock and mixed sources
Typical vegetation: Ornamental plants and lawns

Selected properties and qualities
Surface pH: 7.4
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—10 to 60 inches
Slowest permeability class: Slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 8.3 inches (high)
Shrink-swell potential: Low (LEP less than 3)

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Low
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): 2e-1
Land capability class (nonirrigated): 2e-1
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: Not assigned

Typical profile
A—0 to 4 inches; loam
C—4 to 52 inches; loam
Cr—52 to 62 inches; soft, weathered bedrock

Urban Land

Slope: 0 to 2 percent
Aspect (clockwise): None dominant

Description of areas: Houses and other buildings, streets, parking lots, and associated landscaped areas
Typical vegetation: None

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 8
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: Not assigned

Minor Components

Pachic Argixerolls, coastal
Percentage of map unit: About 2 percent
Slope: 9 to 30 percent
Landform: Hills

Cropley, coastal
Percentage of map unit: About 2 percent
Slope: 9 to 15 percent
Landform: Fans

Badland
Percentage of map unit: About 1 percent
Slope: 50 to 100 percent
Landform: Cliffs

450—Sapwi loam, 30 to 75 percent slopes

Map Unit Setting

General location: Low-elevation coastal hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Mountains and hills
Elevation: 495 to 3,000 feet (152 to 915 meters)
Mean annual precipitation: 18 to 24 inches (457 to 610 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Sapwi and similar soils—85 percent
Minor components—15 percent

Major Component

Sapwi

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly northwest to east
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from sandstone
Typical vegetation: Coast live oak

Selected properties and qualities
Surface pH: 6.0
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (lithic)—20 to 39 inches
Slowest permeability class: Moderately slow above the bedrock

Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 5.2 inches (moderate)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: High
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7s
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: F020XD044CA, Quercus agrifolia-Juglans californica/Artemisia californica-Ceanothus spinosus/Leymus condensatus

Typical profile
Oe—0 to 1 inch; slightly decomposed plant material
A—1 to 4 inches; loam
Bt1—4 to 24 inches; stony clay loam
Bt2—24 to 38 inches; very stony clay loam
R—38 to 48 inches; unweathered bedrock

Minor Components

Kawenga
Percentage of map unit: About 10 percent
Slope: 30 to 75 percent
Landform: Hills

Topanga
Percentage of map unit: About 3 percent
Slope: 30 to 75 percent
Landform: Hills

Mipolomol
Percentage of map unit: About 2 percent
Slope: 30 to 75 percent
Landform: Hills

451—Urban land-Sapwi complex, 0 to 50 percent slopes

Map Unit Setting

General location: Low-elevation coastal hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills and mountains
Elevation: 495 to 3,000 feet (152 to 915 meters)
Mean annual precipitation: 18 to 24 inches (457 to 610 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Urban land—65 percent
Sapwi and similar soils—20 percent
Minor components—15 percent

Major Components

Urban Land

Aspect (clockwise): None dominant
*Descriptio*n of areas: Houses and other buildings, streets, parking lots, and associated landscaped areas
Typical vegetation: None

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 8
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: Not assigned

Sapwi

Slope: 15 to 50 percent
Aspect (clockwise): Dominantly northwest to east
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from sandstone
Typical vegetation: Coast live oak

Selected properties and qualities
Surface pH: 6.0
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (lithic)—20 to 39 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 5.2 inches (moderate)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: High
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7s
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: F020XD044CA, Quercus agrifolia-Juglans californica/Artemisia californica-Ceanothus spinosus/Leymus condensatus

Typical profile
Oe—0 to 1 inch; slightly decomposed plant material
A—1 to 4 inches; loam
Bt1—4 to 24 inches; stony clay loam

Bt2—24 to 38 inches; very stony clay loam
R—38 to 48 inches; unweathered bedrock

Minor Components

Kawenga
Percentage of map unit: About 10 percent
Slope: 30 to 75 percent
Landform: Hills

Topanga
Percentage of map unit: About 3 percent
Slope: 30 to 75 percent
Landform: Hills

Mipolomol
Percentage of map unit: About 2 percent
Slope: 30 to 75 percent
Landform: Hills

460—Typic Haploxerepts, 30 to 50 percent slopes

Map Unit Setting

General location: High-elevation inland hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills and mountains
Elevation: 600 to 1,200 feet (183 to 366 meters)
Mean annual precipitation: 18 to 24 inches (457 to 610 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Typic Haploxerepts—85 percent
Minor components—15 percent

Major Component

Typic Haploxerepts

Slope: 30 to 50 percent
Aspect (clockwise): Dominantly north to southwest
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from calcareous shale
Typical vegetation: California sagebrush

Selected properties and qualities
Surface pH: 6.7
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—22 to 40 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 6.8 inches (moderate)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: High
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 6e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD043CA, Loamy Hill 16-20" p.z.

Typical profile
A—0 to 10 inches; silty clay loam
Bw1—10 to 22 inches; silty clay loam
Bw2—22 to 38 inches; channery clay loam
Cr—38 to 47 inches; soft, weathered bedrock

Minor Components

Pachic Argixerolls
Percentage of map unit: About 10 percent
Slope: 30 to 75 percent
Landform: Hills

Typic Argixerolls
Percentage of map unit: About 3 percent
Slope: 30 to 75 percent
Landform: Hills

Rock outcrop
Percentage of map unit: About 2 percent
Landform: Hills and mountains

461—Typic Haploxerepts, 15 to 30 percent slopes

Map Unit Setting

General location: High-elevation inland hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills and mountains
Elevation: 600 to 1,200 feet (183 to 366 meters)
Mean annual precipitation: 18 to 24 inches (457 to 610 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Typic Haploxerepts—85 percent
Minor components—15 percent

Major Components

Typic Haploxerepts

Slope: 15 to 30 percent
Aspect (clockwise): Dominantly northeast to southwest

Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from calcareous shale
Typical vegetation: California sagebrush

Selected properties and qualities
Surface pH: 6.7
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—22 to 40 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 6.8 inches (moderate)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 4e-1
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD043CA, Loamy Hill 16-20" p.z.

Typical profile
A—0 to 10 inches; silty clay loam
Bw1—10 to 22 inches; silty clay loam
Bw2—22 to 38 inches; channery clay loam
Cr—38 to 47 inches; soft, weathered bedrock

Minor Components

Pachic Argixerolls
Percentage of map unit: About 10 percent
Slope: 30 to 75 percent
Landform: Hills

Typic Argixerolls
Percentage of map unit: About 3 percent
Slope: 30 to 75 percent
Landform: Hills

Rock outcrop
Percentage of map unit: About 2 percent
Landform: Hills and mountains

470—Sumiwawa-Hipuk-Rock outcrop complex, 30 to 75 percent slopes

Map Unit Setting

General location: High-elevation inland hills and mountains
Major uses: Wildlife habitat, recreation, and building site development

Major land resource area (MLRA): 20—Southern California Mountains
Landform: Mountains and hills
Elevation: 885 to 2,260 feet (270 to 690 meters)
Mean annual precipitation: 18 to 24 inches (457 to 610 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Sumiwawa and similar soils—40 percent
Hipuk and similar soils—30 percent
Rock outcrop—20 percent
Minor components—10 percent

Major Components

Sumiwawa

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly northeast to west
Landform: Hills and mountains
Parent material: Colluvium derived from sandstone and/or residuum derived from sandstone
Typical vegetation: Chamise

Selected properties and qualities
Surface pH: 6.3
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—10 to 20 inches; bedrock (lithic)—20 to 39 inches
Slowest permeability class: Rapid above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 0.6 inch (very low)
Shrink-swell potential: Low (LEP less than 3)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Somewhat excessively drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD042CA, Shallow Chaparral 16-20" p.z.

Typical profile
A—0 to 9 inches; gravelly loamy sand
C—9 to 13 inches; loamy sand
Cr—13 to 22 inches; soft, weathered bedrock
R—22 to 31 inches; unweathered bedrock

Hipuk

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly northeast to west

Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from sandstone
Typical vegetation: Chamise

Selected properties and qualities
Surface pH: 6.0
Surface area covered with coarse fragments: 15 to 60 percent with coarse very angular gravel, 1 to 10 percent with very angular cobbles, and 1 to 3 percent with very angular stones
Depth to restrictive feature: Bedrock (paralithic)—14 to 20 inches; bedrock (lithic)—20 to 40 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 2.1 inches (very low)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD042CA, Shallow Chaparral 16-20" p.z.

Typical profile
A1—0 to 1 inch; gravelly sandy loam
A2—1 to 4 inches; sandy loam
Bt1—4 to 8 inches; gravelly sandy clay loam
Bt2—8 to 18 inches; sandy clay loam
Cr—18 to 24 inches; soft, weathered bedrock
R—24 to 33 inches; unweathered bedrock

Rock Outcrop

Aspect (clockwise): None dominant
Landform: Hills and mountains
Kind of rock: Sandstone
Typical vegetation: None

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 8
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: Not assigned

Minor Components

Lithic Xerorthents
Percentage of map unit: About 5 percent
Slope: 30 to 75 percent
Landform: Hills

Typic Haploxeralfs
Percentage of map unit: About 5 percent
Slope: 30 to 75 percent
Landform: Hills

472—Rock outcrop-Sumiwawa-Hipuk complex, 30 to 75 percent slopes

Map Unit Setting

General location: High-elevation inland hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills and mountains
Elevation: 885 to 2,260 feet (270 to 690 meters)
Mean annual precipitation: 18 to 24 inches (457 to 610 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Rock outcrop—45 percent
Sumiwawa and similar soils—30 percent
Hipuk and similar soils—15 percent
Minor components—10 percent

Major Components

Rock Outcrop

Aspect (clockwise): None dominant
Landform: Hills and mountains
Kind of rock: Sandstone
Typical vegetation: None

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 8
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: Not assigned

Sumiwawa

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly northeast to west
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from sandstone
Typical vegetation: Chamise

Selected properties and qualities
Surface pH: 6.3
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—10 to 20 inches; bedrock (lithic)—20 to 39 inches
Slowest permeability class: Rapid above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 0.6 inch (very low)

Shrink-swell potential: Low (LEP less than 3)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Somewhat excessively drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD042CA, Shallow Chaparral 16-20" p.z.

Typical profile
A—0 to 9 inches; gravelly loamy sand
C—9 to 13 inches; loamy sand
Cr—13 to 22 inches; soft, weathered bedrock
R—22 to 31 inches; unweathered bedrock

Hipuk

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly northeast to west
Landform: Hills and mountains
Parent material: Colluvium and/or residuum derived from sandstone
Typical vegetation: Chamise

Selected properties and qualities
Surface pH: 6.0
Surface area covered with coarse fragments: 15 to 60 percent with coarse very angular gravel, 1 to 10 percent with very angular cobbles, and 1 to 3 percent with very angular stones
Depth to restrictive feature: Bedrock (paralithic)—14 to 20 inches; bedrock (lithic)—20 to 40 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 2.1 inches (very low)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD042CA, Shallow Chaparral 16-20" p.z.

Typical profile
A1—0 to 1 inch; gravelly sandy loam
A2—1 to 4 inches; sandy loam
Bt1—4 to 8 inches; gravelly sandy clay loam
Bt2—8 to 18 inches; sandy clay loam
Cr—18 to 24 inches; soft, weathered bedrock
R—24 to 33 inches; unweathered bedrock

Minor Components

Lithic Xerorthents
Percentage of map unit: About 5 percent
Slope: 30 to 75 percent
Landform: Hills

Typic Haploxeralfs
Percentage of map unit: About 5 percent
Slope: 30 to 75 percent
Landform: Hills

500—Balcom silty clay loam, 30 to 50 percent slopes

Map Unit Setting

General location: High-elevation inland hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills
Elevation: 885 to 1,570 feet (270 to 480 meters)
Mean annual precipitation: 14 to 18 inches (360 to 457 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Balcom and similar soils—85 percent
Minor components—15 percent

Major Component

Balcom

Slope: 30 to 50 percent
Aspect (clockwise): Dominantly east to west
Landform: Hills
Parent material: Colluvium, residuum, and/or slope alluvium derived from sandstone and shale
Typical vegetation: None assigned

Selected properties and qualities
Surface pH: 8.2
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—20 to 40 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 7 inches (moderate)

Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: High
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 6e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD043CA, Loamy Hill 16-20" p.z.

Typical profile
A—0 to 16 inches; silty clay loam
Bk—16 to 37 inches; silty clay loam
Cr—37 to 46 inches; soft, weathered bedrock

Minor Components

Cropley
Percentage of map unit: About 5 percent
Slope: 9 to 30 percent
Landform: Fans

Pachic Argixerolls
Percentage of map unit: About 5 percent
Slope: 30 to 75 percent
Landform: Hills

Typic Xerochrepts
Percentage of map unit: About 3 percent
Slope: 30 to 75 percent
Landform: Hills

Urban land
Percentage of map unit: About 2 percent
Description of areas: Houses and other buildings, streets, parking lots, and associated landscaped areas

503—Balcom-Balcom, dark surface association, 30 to 75 percent slopes

Map Unit Setting

General location: High-elevation inland hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills
Elevation: 1,200 to 2,095 feet (366 to 640 meters)
Mean annual precipitation: 14 to 18 inches (360 to 457 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Balcom and similar soils—70 percent
Balcom, dark surface, and similar soils—15 percent
Minor components—15 percent

Major Components

Balcom

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly north to south
Landform: Hills
Parent material: Colluvium, residuum, and/or slope alluvium derived from sandstone and shale
Typical vegetation: None assigned

Selected properties and qualities
Surface pH: 8.2
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—20 to 40 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 7 inches (moderate)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: High
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD043CA, Loamy Hill 16-20" p.z.

Typical profile
A—0 to 16 inches; silty clay loam
Bk—16 to 37 inches; silty clay loam
Cr—37 to 46 inches; soft, weathered bedrock

Balcom, Dark Surface

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly north to south
Landform: Hills
Parent material: Colluvium, residuum, and/or slope alluvium derived from sandstone and shale
Typical vegetation: None assigned

Selected properties and qualities
Surface pH: 8.2
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—20 to 40 inches

Slowest permeability class: Moderately slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 7.3 inches (moderate)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: High
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7e-1
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD043CA, Loamy Hill 16-20" p.z.

Typical profile
A—0 to 30 inches; silty clay loam
Bk—30 to 39 inches; silty clay loam
Cr—39 to 46 inches; soft, weathered bedrock

Minor Components

Botella
Percentage of map unit: About 10 percent
Slope: 2 to 9 percent
Landform: Alluvial fans

Typic Calcixerolls
Percentage of map unit: About 5 percent
Slope: 15 to 50 percent
Landform: Hills

530—Xerorthents-Urban land-Balcom complex, 0 to 30 percent slopes

Map Unit Setting

General location: High-elevation inland hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills
Elevation: 1,200 to 2,095 feet (366 to 640 meters)
Mean annual precipitation: 14 to 24 inches (360 to 610 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Xerorthents, landscaped, and similar soils—45 percent
Urban land—35 percent
Balcom and similar soils—15 percent
Minor component—5 percent

Major Components

Xerorthents, Landscaped

Slope: 15 to 30 percent
Aspect (clockwise): Dominantly southwest to southeast
Position on landform: Leveled areas
Parent material: Colluvium and residuum derived from sedimentary rock and mixed sources
Typical vegetation: Ornamental plants and lawns

Selected properties and qualities
Surface pH: 7.4
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—10 to 60 inches
Slowest permeability class: Slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 8.3 inches (high)
Shrink-swell potential: Low (LEP less than 3)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: High
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 4s-1
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: Not assigned

Typical profile
A—0 to 4 inches; loam
C—4 to 52 inches; loam
Cr—52 to 62 inches; soft, weathered bedrock

Urban Land

Aspect (clockwise): None dominant
*Descriptio*n of areas: Houses and other buildings, streets, parking lots, and associated landscaped areas
Typical vegetation: None assigned

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 8
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: Not assigned

Balcom

Slope: 15 to 30 percent
Aspect (clockwise): Dominantly southwest to southeast aspects
Landform: Hills

Parent material: Colluvium, residuum, and/or slope alluvium derived from sandstone and shale
Typical vegetation: None assigned

Selected properties and qualities
Surface pH: 8.2
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—20 to 40 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 7 inches (moderate)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: High
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): 4e
Land capability class (nonirrigated): 4e
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD043CA, Loamy Hill 16-20" p.z.

Typical profile
A—0 to 16 inches; silty clay loam
Bk—16 to 37 inches; silty clay loam
Cr—37 to 46 inches; soft, weathered bedrock

Minor Component

Rock outcrop
Percentage of map unit: About 5 percent
Landform: Hills and mountains

531—Xerorthents-Urban land-Balcom complex, 0 to 15 percent slopes

Map Unit Setting

General location: High-elevation inland hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills
Elevation: 1,200 to 2,095 feet (366 to 640 meters)
Mean annual precipitation: 14 to 24 inches (360 to 610 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Xerorthents, landscaped, and similar soils—40 percent

Urban land—35 percent
Balcom and similar soils—20 percent
Minor components—5 percent

Major Components

Xerorthents, Landscaped

Slope: 5 to 15 percent
Aspect (clockwise): Dominantly southeast to east
Position on landform: Leveled areas
Parent material: Colluvium and residuum derived from sedimentary rock and mixed sources
Typical vegetation: Ornamental plants and lawns

Selected properties and qualities
Surface pH: 7.4
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—10 to 60 inches
Slowest permeability class: Slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 8.3 inches (high)
Shrink-swell potential: Low (LEP less than 3)
Soil slippage potential: Low

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: Medium
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): 2e-1
Land capability class (nonirrigated): 2e-1
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: Not assigned

Typical profile
A—0 to 4 inches; loam
C—4 to 52 inches; loam
Cr—52 to 62 inches; soft, weathered bedrock

Urban Land

Aspect (clockwise): None dominant
*Descriptio*n of areas: Houses and other buildings, streets, parking lots, and associated landscaped areas
Typical vegetation: None assigned

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 8
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: Not assigned

Balcom

Slope: 9 to 15 percent
Aspect (clockwise): Dominantly southeast to east
Landform: Hills
Parent material: Colluvium, residuum, and/or slope alluvium derived from sandstone and shale
Typical vegetation: None assigned

Selected properties and qualities
Surface pH: 8.2
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—20 to 40 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 7 inches (moderate)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: High
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): 3e-1
Land capability class (nonirrigated): 3e-1
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD043CA, Loamy Hill 16-20" p.z.

Typical profile
A—0 to 16 inches; silty clay loam
Bk—16 to 37 inches; silty clay loam
Cr—37 to 46 inches; soft, weathered bedrock

Minor Component

Rock outcrop
Percentage of map unit: About 5 percent
Landform: Hills and mountains

532—Xerorthents-Urban land-Pachic Argixerolls, gullied complex, 0 to 30 percent slopes

Map Unit Setting

General location: High-elevation inland hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills
Elevation: 1,200 to 2,095 feet (366 to 640 meters)

Mean annual precipitation: 14 to 24 inches (360 to 610 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Xerorthents, landscaped, and similar soils—50 percent
Urban land—35 percent
Pachic Argixerolls, gullied, and similar soils—15 percent

Major Components

Xerorthents, Landscaped

Slope: 15 to 30 percent
Aspect (clockwise): Dominantly south to southeast
Position on landform: Leveled areas
Parent material: Colluvium and residuum derived from sedimentary rock and mixed sources
Typical vegetation: Ornamental plants and lawns

Selected properties and qualities
Surface pH: 7.4
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—10 to 60 inches
Slowest permeability class: Slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 8.3 inches (high)
Shrink-swell potential: Low (LEP less than 3)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: High
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: D

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 4e-1
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: Not assigned

Typical profile
A—0 to 4 inches; loam
C—4 to 52 inches; loam
Cr—52 to 62 inches; soft, weathered bedrock

Urban Land

Aspect (clockwise): None dominant
*Descriptio*n of areas: Houses and other buildings, streets, parking lots, and associated landscaped areas
Typical vegetation: None assigned

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 8
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: Not assigned

Pachic Argixerolls, Gullied

Slope: 15 to 30 percent
Aspect (clockwise): Dominantly south to southeast
Landform: Hills
Parent material: Colluvium and/or residuum derived from sandstone and shale
Typical vegetation: California sagebrush

Selected properties and qualities
Surface pH: 6.5
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—20 to 40 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 3.1 inches (low)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: Medium

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: High
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 4e-1
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD053CA, Coastal Bluff 14-16" p.z.

Typical profile
A—0 to 9 inches; gravelly loam
Bt—9 to 24 inches; gravelly clay loam
Crt—24 to 33 inches; unweathered bedrock

540—Calcic Argixerolls, 30 to 75 percent slopes

Map Unit Setting

General location: Low-elevation coastal hills and mountains
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Landform: Hills
Elevation: 45 to 590 feet (15 to 180 meters)
Mean annual precipitation: 14 to 24 inches (360 to 610 millimeters)

Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days

Map Unit Composition

Calcic Argixerolls—85 percent
Minor components—15 percent

Major Component

Calcic Argixerolls

Slope: 30 to 75 percent
Aspect (clockwise): Dominantly northeast to southwest
Landform: Hills
Parent material: Colluvium and/or residuum derived from calcareous sandstone
Typical vegetation: None assigned

Selected properties and qualities
Surface pH: 6.8
Surface area covered with coarse fragments: None
Depth to restrictive feature: Bedrock (paralithic)—20 to 40 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Nonsaline
Sodicity: Nonsodic
Available water capacity to a depth of 60 inches: About 6.3 inches (moderate)
Shrink-swell potential: Moderate (LEP 3 to less than 6)
Soil slippage potential: High

Selected hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff: High
Current water table: Not present
Natural drainage class: Well drained
Hydrologic soil group: C

California land use interpretive groups
Land capability class (irrigated): Not calculated
Land capability class (nonirrigated): 7s
Farmland classification: Not prime farmland or statewide important farmland
Ecological site: R020XD039CA, Coastal Scrub 14-16" p.z.

Typical profile
A—0 to 1 inch; silt loam
Btk—1 to 15 inches; silty clay loam
Bk—15 to 37 inches; silt loam
Cr—37 to 47 inches; soft, weathered bedrock

Minor Components

Calcic Haploxerolls
Percentage of map unit: About 8 percent
Slope: 30 to 75 percent
Landform: Hills

Calcic Pachic Haploxerolls
Percentage of map unit: About 7 percent
Slope: 30 to 75 percent
Landform: Hills

550—Dam

General location: Artificial levees
Major uses: Wildlife habitat, recreation, and building site development
Major land resource area (MLRA): 20—Southern California Mountains
Mean annual precipitation: 14 to 24 inches (360 to 610 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 290 to 350 days
Slope: 30 to 50 percent
Aspect (clockwise): None dominant
Map unit composition: Dam—100 percent

W—Water

General location: Reservoirs and ponds
Major uses: Wildlife habitat, recreation, and building site development
Landform: Mountain valleys and canyons
Mean annual precipitation: 14 to 24 inches (360 to 610 millimeters)
Mean annual air temperature: 61 to 63 degrees F (16 to 17 degrees C)
Frost-free period: 290 to 350 days
Map unit composition: *Water—100 percent*

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; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; 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

In some of the tables, rating classes are expressed in terms that indicate the suitability of the soils for the use. Thus, the tables may show suitability classes. The suitability ratings are expressed as *suited* and *not suited* 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.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit (USDA, 1961).

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

Class 1 soils have slight limitations that restrict their use.

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

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

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

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

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

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

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

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, 2e. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c,* used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

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

Capability units are soil groups within a subclass. The soils in a capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity. Capability units are generally designated by adding an Arabic numeral to the subclass symbol, for example, 2e-4 and 3e-6. These units are not given in all soil surveys.

The acreage of soils in each capability class or subclass is shown in table 4. The capability classification of map units in this survey area is given in the section "Detailed Soil Map Units" and in table 5.

Major Land Resource Areas

Parts of two Nationally designated major land resource areas (MLRAs) are within the survey area—Southern California Coastal Plain (MLRA 19) and Southern California Mountains (MLRA 20) (USDA, 1981).

Southern California Coastal Plain (MLRA 19).—This MLRA is in a small area in the extreme western end of the survey, at Point Mugu Naval Air Station, on Mugu Lagoon. This area is characterized by alluvial fans and tidal flats that consist of alluvium derived from mixed sources. The natural vegetation is mainly alkali heath and pickleweed. Elevation is 4 feet below sea level to 12 feet above sea level (-1 to 4 meters). The average annual precipitation is 14 to 18 inches (360 to 457 millimeters), the average annual air temperature is 60 to 64 degrees F (16 to 18 degrees C), and the frost-free season is 290 to 350 days.

Southern California Mountains (MLRA 20).—This MLRA makes up 99 percent of the survey area. It consists dominantly of uplifted sedimentary rock and intrusive volcanic rock that formed steep mountains with intervening narrow valleys. The natural vegetation is mainly chaparral. Elevation is at sea level to 3,111 feet above sea level (0 to 948 meters). The average annual precipitation is 14 to 24 inches (360 to 610 millimeters), increasing as elevation increases; the average annual air temperature is 60 to 64 degrees F (16 to 18 degrees C); and the average frost-free season is 290 to 350 days.

Prime Farmland and Other Important Farmland

Prime Farmland

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

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

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

The map units in the survey area that are considered prime farmland are listed in table 6. This list does not constitute a recommendation for a particular land use. On all of the soils included in the list, measures that overcome a hazard or limitation,

such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps. The soil qualities that affect use and management are described under the heading "Detailed Soil Map Units."

About 3,470 acres, or less than 2 percent of the survey area, would meet the requirements for prime farmland if an adequate and dependable supply of irrigation water were available.

Additional Farmland of Statewide Importance

In addition to prime farmland, this land is of statewide importance for the production of food, feed, fiber, forage, and oilseed crops. Criteria for defining and delineating this land are determined by the appropriate State agency or agencies. Generally, additional farmland of statewide importance includes land that nearly meets the requirements for prime farmland and produces high yields of crops economically when treated and managed according to acceptable farming methods. Some areas may produce yields as high as those of prime farmland if conditions are favorable.

The map units in the survey area that are considered additional farmland of statewide importance are listed in table 7. 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 wetness and droughtiness, are needed. Onsite evaluation is needed to determine whether the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps. The soil qualities that affect use and management are described under the heading "Detailed Soil Map Units."

Rangeland

Loretta J. Metz, Marchel Munnecke, and Kendra Moseley, rangeland management specialists, Natural Resources Conservation Service, helped to prepare this section.

Rangeland, sometimes referred to as "wildland," has native vegetation consisting of grasses, grasslike plants, forbs, shrubs, and trees with a total tree canopy cover of less than 25 percent. Essentially, rangeland is the interface between areas of cropland and forestland. The vegetation in areas of rangeland provides many habitat components, aids in controlling soil erosion, may be suitable for grazing or browsing by wildlife and domestic animals, and offers scenic and recreational opportunities. Rangeland is important environmentally and economically.

Characterization and Management

Rangeland is subject to an abundance of uses; therefore, it is important to characterize and quantify rangeland based on its ability to produce various kinds, proportions, and amounts of plants. The plant communities are largely dependent on the soils, climate, topography, aspect, slope, and other abiotic features of the landscape. To assist in the understanding of soil-plant interaction and the effect of selected management practices, the Natural Resources Conservation Service classifies rangeland into ecological sites. An ecological site is a distinctive kind of land with specific physical characteristics that differs from other kinds of land in its ability to produce a distinctive kind and amount of vegetation (National Range and Pasture Handbook http://www.glti.nrcs.usda.gov/).

Soil types and plant communities are correlated and serve as the basis for the development of each ecological site description. Soil properties that affect moisture

supply and plant nutrients, such as texture, depth, and amount of coarse fragments, have the greatest influence on the productivity of rangeland plants and the composition and distribution of the plant community. Soil reaction, salt content, fog drip, and a seasonal high water table are also important. Geography and climate influence the location of plant communities across the landscape and affect various soil properties. For example, soils on southerly and westerly slopes commonly support chaparral-type species and plant communities as a result of the intense heat, high evapotranspiration rate, and resultant droughtiness. Soils on northerly and easterly slopes are exposed to less solar radiation and generally support forestland species and plant communities. Differences in the soil properties that affect plant community composition, production, and distribution are considered in correlating ecological sites to individual soil map unit components.

Table 8 shows, for each soil in a map unit, the ecological site; the total annual production of vegetation in favorable, normal, and unfavorable years; the characteristic vegetation; and the expected percentage of each species. An explanation of the column headings in the table 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, which 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.

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. The relationship of green weight to air-dry weight varies according to such factors as exposure, amount of shade, recent rains, and unseasonable dry periods. The total production figures can be used to calculate carrying capacity and stocking rates for management of domestic animals or wildlife and to determine fuel loading for prescribed burning plans or fire modeling.

Characteristic vegetation is the grasses, grasslike plants, forbs, and shrubs that make up most of the potential natural plant community. The species are listed by common name (See "Appendix," page 484). All of the plant names are correlated directly with the PLANTS Database (http://plants.usda.gov). Under *species 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 (Society for Range Management, 1974).

Ecological Sites in the Survey Area

A brief description of the ecological sites in the survey area is given in the following paragraphs. A complete description of the ecological sites can be obtained

from the local office of the Natural Resources Conservation Service or downloaded from the Ecological Site Information System website at http://esis.sc.egov.usda.gov/. See table 8 for the specific soils in the survey area that are correlated to each ecological site.

Clay Pediment 16-20" p.z. (R020XD048CA).—This site is on hills and fans and supports dominantly annual grasses and forbs and an occasional shrub (Ceanothus, Rhus, or Artemisia). Slopes range from 0 to 30 percent, but slopes of 2 to 9 percent are most typical. Elevation is 375 to 1,700 feet. The average annual production is about 1,500 pounds per acre in normal years; 2,500 pounds per acre in favorable years; and 800 pounds per acre in unfavorable years.

Coastal Bluff 14-16" p.z. (R020XD053CA).—This site is generally the upland area closest to the ocean. Giant coreopsis (Coreopsis gigantea) is a distinguishing plant on this site. The dominant plants include coastal buckwheat (Eriogonum cinereum), California brittlebush (Encelia californica), and coastal sagebrush (Artemisia californica). This site is on hills. Slopes range from 2 to 75 percent, but gradients of 30 to 75 percent are most typical. Elevation is 50 to 1,500 feet. The average annual production is about 1,400 pounds per acre in normal years; 2,300 pounds per acre in favorable years; and 800 pounds per acre in unfavorable years.

Coastal Scrub 14-16" p.z. (R020XD039CA).—This site is in areas of deeper soils and on the more northerly aspects adjacent to the Shallow Coastal Scrub 14-16" p.z. (R020XD041CA) ecological site. This site is on fluvial terraces, alluvial fans, hills, and mountains. Slopes range from 4 to 75 percent, but gradients of 30 to 50 percent are most typical. Elevation is 200 to 900 feet. The dominant plants include California sagebrush (Artemisia californica), purple sage (Salvia leucophylla), purple needlegrass (Nasella pulchra), and black sage (Salvia mellifera). The average annual production is about 1,400 pounds per acre in normal years; 2,300 pounds per acre in favorable years; and 800 pounds per acre in unfavorable years. This site receives less annual rainfall than the sites that are more inland because of the movement of hot and cold airmasses and the pressure systems influenced by the ocean.

Coastal Strand 14-16" p.z. (R019XD075CA).—This site is adjacent to the ocean, on beaches and dunes. Slopes range from 0 to 40 percent, but gradients of 0 to 4 percent are most typical. Elevation is 5 to 50 feet. The average annual production is about 700 pounds per acre in normal years; 1,200 pounds per acre in favorable years; and 400 pounds per acre in unfavorable years. The vegetation is dominantly beach evening primrose (beach suncup) (Camissonia cherianthifolia), silver beachbur (beach-bur) (Ambrosia chamissonis), and seacliff (coast) buckwheat (Eriogonum parvifolium). This site receives less annual rainfall than the sites that are more inland because of the movement of hot and cold airmasses and the pressure systems influenced by the ocean.

Coastal Terrace 14-16" p.z. (R020XD047CA).—This site lies geographically above the Coastal Bluff 14-16" p.z. (R020XD053CA) site and is characterized by level topography and deep soils. It is on alluvial fans, fluvial terraces, and fans. Slopes range from 2 to 30 percent, but gradients of 2 to 15 percent are most typical. Elevation ranges from 50 to 1,700 feet, but elevations of 100 to 500 feet are most typical. The average annual production is about 1,500 pounds per acre in normal years; 2,500 pounds per acre in favorable years; and 800 pounds per acre in unfavorable years. The vegetation is dominantly California sagebrush (Artemisia californica), laurel sumac (Malosma laurina), and purple needlegrass (Nasella pulchra). This site receives less annual rainfall than the sites that are more inland because of the movement of hot and cold airmasses and the pressure systems influenced by the ocean.

Dry Chaparral 16-20" p.z. (R020XD038CA).—This site is on hills and mountains, dominantly on south-facing slopes. Slopes range from 4 to 75 percent, but gradients of 30 to 75 percent are most typical. Elevation is 600 to 2,500 feet. The average

annual production is about 1,400 pounds per acre in normal years; 2,300 pounds per acre in favorable years, and 800 pounds per acre in unfavorable years. The vegetation is dominantly bigpod ceanothus (Ceanothus megacarpus) and red shanks (Adenostoma sparsifolium). If red shanks is present initially, it tends to become dominant with frequent burning. It has been suggested that a 20-year fire frequency occurs in areas of chaparral that dominantly support bigpod ceanothus. This site receives slightly more annual rainfall than the more coastal sites because of the movement of hot and cold airmasses and the pressure systems influenced by the ocean and surrounding mountains.

Dry Inland Chaparral 16-20" p.z. (R020XD050CA).—This site is on the interior hills and mountains. Slopes are 30 to 50 percent. Elevation is about 1,800 feet. The vegetation is dominantly hoaryleaf ceanothus (Ceanothus crassifolius), chamise (Adenostema fasciculatum), and black sage (Salvia mellifera). Average annual production data are not available. Areas that dominantly support chamise communities produce fuel loads that support fires at a 15-year frequency. This site receives slightly more annual rainfall than the more coastal sites because of the movement of hot and cold airmasses and the pressure systems influenced by the ocean and surrounding mountains.

Loamy Hill 16-20" p.z. (R020XD043CA).—This site is on hills. Slopes range from 9 to 75 percent, but gradients of 15 to 50 percent are most typical. Elevation is 900 to 1,700 feet. The site is distinguished by the presence of coast live oak (Quercus agrifolia) that has a canopy cover of less than 30 percent. Other dominant plants include California sagebrush (Artemisia californica) and purple sage (Salvia leucophylla). Average annual production data are not available. It has been suggested that the coast live oak community historically burned annually. This site receives slightly more annual rainfall than the more coastal sites because of the movement of hot and cold airmasses and the pressure systems influenced by the ocean and surrounding mountains.

Loamy Upland 16-20" p.z. (R020XD046CA).—This site is in the interior valleys on alluvial fans, fluvial terraces, and hills. The vegetation is dominantly annual grasses with valley oak (Quercus lobata). Slopes range 0 to 30 percent, but gradients of 5 to 15 percent are most typical. Elevation is 1,000 to 1,800 feet. The average annual production is about 3,600 pounds per acre in normal years; 6,000 pounds per acre in favorable years; and 2,000 pounds per acre in unfavorable years. The growing season is essentially year round. This site receives slightly more annual rainfall than the more coastal sites because of the movement of hot and cold airmasses and the pressure systems influenced by the ocean and surrounding mountains. About 94 percent of annual precipitation falls in November through April. The driest months, June, July, and August, historically receive only trace amounts of rainfall.

Moist Chaparral 20-24" p.z. (R020XD051CA).—This site is dominantly on northerly slopes of hills and mountains. Slopes are 20 to 75 percent. Elevation is 1,400 to 3,000 feet. The dominant vegetation is greenbark ceanothus (Ceanothus spinosus) and toyon (Heteromeles arbutifolia). The site is also characterized by the presence of coast live oak (Quercus agrifolia), California walnut (Juglans californica), and California bay (Umbellaria californica) in the overstory. Average annual production data are not available. This site receives slightly more annual rainfall than the coastal sites and many of the inland sites because of the movement of hot and cold airmasses and the pressure systems influenced by the ocean and surrounding mountains.

Moist Inland Chaparral 16-20" p.z. (R020XD052CA).—This site is on northerly slopes of hills and mountains. Slopes are 30 to 75 percent. Elevation is 1,000 to 3,000 feet. The average annual production is about 3,600 pounds per acre in normal years; 6,000 pounds per acre in favorable years; and 2,000 pounds per acre in unfavorable years. The vegetation is dominantly hairy ceanothus (Ceanothus oliganthus), chamise

(Adenostoma fasciculatum), and hoaryleaf ceanothus (Ceanothus crassifolius). Areas that support dominantly chamise communities produce fuel loads that support fires at a 15-year frequency. This site receives slightly more annual rainfall than the more coastal sites because of the movement of hot and cold airmasses and the pressure systems influenced by the ocean and surrounding mountains.

Quercus agrifolia-Juglans californica/Artemisia californica-Ceanothus spinosus/ Leymus condensatus (F020XD044CA).—This forestland site is on hills and mountains, dominantly on northerly aspects. It is the only forestland site in the survey area, based on a tree canopy cover of more than 25 percent using vertical projection. Slopes range from 0 to 75 percent, but gradients of 15 to 50 percent are most typical. Elevation is 600 to 1,650 feet. The average annual production is about 2,400 pounds per acre in normal years; 3,300 pounds per acre in favorable years; and 1,800 pounds per acre in unfavorable years. The dominant vegetation is coast live oak (Quercus agrifolia), with more than 30 percent canopy cover, and greenbark ceanothus (Ceanothus spinosus), which is the dominant understory shrub. Other species include California walnut (Juglans californica), California sagebrush (Artemisia californica), and giant wildrye (Leymus condensatus). This site receives slightly more annual rainfall than the coastal sites and many of the inland sites because of the movement of hot and cold airmasses and the pressure systems influenced by the ocean and surrounding mountains.

Riparian Terrace 16-20" p.z. (R020XD049CA).—This site is on flood plains, fluvial terraces, fans, and inset fans. Slopes range from 0 to 75 percent, but gradients of 2 to 9 percent are most typical. Elevation is 50 to 1,450 feet. The average annual production is about 4,000 pounds per acre in normal years; 6,700 pounds per acre in favorable years; and 2,200 pounds per acre in unfavorable years. The dominant vegetation is arroyo willow (Salix lasiolepis) and mulefat (Baccharis glutinosa). It is also characterized by the presence of western sycamore (Platanus racemosa) and coast live oak (Quercus agrifolia). This site receives slightly more annual rainfall than the more coastal sites because of the movement of hot and cold airmasses and the pressure systems influenced by the ocean and surrounding mountains.

Salt Marsh 14-16" p.z. (R019XD074CA).—This site is on tidal flats and flood plains. It is frequently flooded for long durations. Slopes range from 0 to 2 percent. Elevation is 0 to 20 feet. It commonly is separated from the ocean by the Coastal Strand 14-16" p.z. (R019XD075CA) ecological site. The average annual production is about 1,900 pounds per acre in normal years; 2,300 pounds per acre in favorable years; and 1,100 pounds per acre in unfavorable years. The vegetation is dominantly saltgrass (Distichlis spicata), pickleweed (Salicornia spp.), and quailbush (Atriplex lentiformis). This site receives less annual rainfall than the more inland sites because of the movement of hot and cold airmasses and the pressure systems influenced by the ocean.

Shallow Chaparral 16-20" p.z. (R020XD042CA).—This site is on ridges, hills, and mountains, dominantly on southerly slopes. Slopes range from 2 to 75 percent, but gradients of 15 to 50 percent are most typical. Elevation is 1,000 to 2,000 feet. The average annual production is about 1,500 pounds per acre in normal years; 2,300 pounds per acre in favorable years; and 900 pounds per acre in unfavorable years. The vegetation is dominantly chamise (Adenostoma fasciculatum), black sage (Salvia mellifera), bigpod ceanothus (Ceanothus megacarpus), and California buckwheat (Eriogonum fasciculatum). This site receives slightly more annual rainfall than the more coastal sites because of the movement of hot and cold airmasses and the pressure systems influenced by the ocean and surrounding mountains.

Shallow Coastal Scrub 14-16" p.z. (R020XD041CA).—This site is on hills and mountains, dominantly on south-facing slopes. Slopes range from 4 to 75 percent,

but gradients of 30 to 50 percent are most typical. Elevation is 200 to 800 feet. This site occurs geographically above the Coastal Terrace 14-16" p.z. site. The average annual production is about 1,000 pounds per acre in normal years; 1,600 pounds per acre in favorable years; and 500 pounds per acre in unfavorable years. The vegetation is dominantly coastal buckwheat (grey coast eriogonum) (Eriogonum cinereum), coastal pricklypear (Opuntia littoralis), and common deerweed (Lotus scoparius). The site is distinguished by the presence of our Lord's candle (Yucca whipplei). This site receives less annual rainfall than the more inland sites because of the movement of hot and cold airmasses and the pressure systems influenced by the ocean.

Shallow Loam 16-20" p.z. (R020XD032CA).—This site is on inland hills, dominantly southerly slopes. Slopes range from 30 to 75 percent. Elevation is 1,250 to 1,800 feet. It is adjacent to the Shaly Loam 16-20" p.z. (R020XD045CA) site, but on the drier, more southerly aspects. Coastal buckwheat (grey coast eriogonum) (Eriogonum cinereum) is the dominant plant. Average annual production data are not available. This site receives slightly more annual rainfall than the more coastal sites because of the movement of hot and cold airmasses and the pressure systems influenced by the ocean and surrounding mountains.

Shaly Loam 16-20" p.z. (R020XD045CA).—This site is on inland hills and hillsides. dominantly on northerly aspects. Slopes range from 30 to 75 percent. Elevation is 1,250 to 3,500 feet. It is adjacent to the Shallow Loam 16-20" p.z. (R020XD032CA) site, but on the moister, more northerly aspects. The average annual production is about 1,600 pounds per acre in normal years; 2,700 pounds per acre in favorable years; and 900 pounds per acre in unfavorable years. The vegetation is dominantly purple sage (Salvia leucophylla), California sagebrush (Artemisia californica), coastal buckwheat (grey coast eriogonum) (Eriogonum cinereum), California buckwheat (Eriogonum fasciculatum), and bush mallow (Malacothamnus fasciculatus). Studies indicate that California sagebrush requires a fire frequency of 30 years or more in order to remain a viable component of the plant community. This site receives slightly more annual rainfall than the more coastal sites because of the movement of hot and cold airmasses and the pressure systems influenced by the ocean and surrounding mountains.

Following is a list of the ecological sites in the survey area in numerical order of the ecological site numbers:

Salt Marsh 14-16" p.z. R019XD074CA
Coastal Strand 14-16" p.z. R019XD075CA
Shallow Loam 16-20" p.z. R020XD032CA
Dry Chaparral 16-20" p.z. R020XD038CA
Coastal Scrub 14-16" p.z. R020XD039CA
Shallow Coastal Scrub 14-16" p.z. R020XD041CA
Shallow Chaparral 16-20" p.z. R020XD042CA
Loamy Hill 16-20" p.z. R020XD043CA
Quercus agrifolia-Juglans californica/Artemisia californica-
Ceanothus spinosus/Leymus condensatus F020XD044CA
Shaly Loam 16-20" p.z. R020XD045CA
Loamy Upland 16-20" p.z. R020XD046CA
Coastal Terrace 14-16" p.z. R020XD047CA
Clay Pediment 16-20" p.z. R020XD048CA
Riparian Terrace 16-20" p.z. R020XD049CA
Dry Inland Chaparral 16-20" p.z. R020XD050CA
Moist Chaparral 20-24" p.z. R020XD051CA
Moist Inland Chaparral 16-20" p.z. R020XD052CA
Coastal Bluff 14-16" p.z. R020XD053CA

Following is a list of the ecological sites in the survey area in alphabetical order of the ecological site names:

Clay Pediment 16-20" p.z. R020XD048CA
Coastal Bluff 14-16" p.z. R020XD053CA
Coastal Scrub 14-16" p.z. R020XD039CA
Coastal Strand 14-16" p.z. R019XD075CA
Coastal Terrace 14-16" p.z. R020XD047CA
Dry Chaparral 16-20" p.z. R020XD038CA
Dry Inland Chaparral 16-20" p.z. R020XD050CA
Loamy Hill 16-20" p.z. R020XD043CA
Loamy Upland 16-20" p.z. R020XD046CA
Moist Chaparral 20-24" p.z. R020XD051CA
Moist Inland Chaparral 16-20" p.z. R020XD052CA
Quercus agrifolia-Juglans californica/Artemisia californica-
Ceanothus spinosus/Leymus condensatus F020XD044CA
Riparian Terrace 16-20" p.z. R020XD049CA
Salt Marsh 14-16" p.z. R019XD074CA
Shallow Chaparral 16-20" p.z. R020XD042CA
Shallow Coastal Scrub 14-16" p.z. R020XD041CA
Shallow Loam 16-20" p.z. R020XD032CA
Shaly Loam 16-20" p.z. R020XD045CA

Wildlife

The Santa Monica Mountains National Recreation Area is a unique example of the Mediterranean ecosystem consisting of large, connected areas of habitat critical to the survival of the larger mammals. More than 450 vertebrate species live within the recreation area, including 50 mammals, 384 birds, and 36 reptiles and amphibians. The abundance and diversity of wildlife in the area is especially unique given its proximity to one of the world's largest urban centers.

The recreation area supports 13 raptor species and 25 rare, threatened, or endangered plants and animals. More than 50 other species are candidates under study or consideration for similar classification. Two significant coastal salt marshes are on the Pacific Coast in this area. Both of the lagoons in the area provide critical habitat for several species and are important stopovers on the Pacific Flyway. The 49 coastal drainageways in the area provide diverse riparian habitat (Mayer, 1988).

Many of the soils in the valley areas are Vertisols, such as those of the Cropley and Kayiwish series. These soils typically have cracks of varying widths and depths in the soil surface, depending on dryness of the soil. As the summer progresses and the soils dry out, the cracks become wider and deeper. These cracks provide unique habitat for several species of salamanders and related species as well as species that prey on them, such as snakes.

Many of the hills and mountains in the recreation area are very rocky; some Rock outcrop occurs in most of the soil map units. These rocky areas provide good habitat for many species of snakes; rattlesnakes are common. Soils of the Cotharin series are an example. Sandy areas on peaks provide good habitat for native carpenter and harvester ants, as well as for horned lizards. Soils of the Sumiwawa series are an example.

Riparian areas along the perennial streams, which are typified by Fluvaquents, provide habitat for many water-loving birds, such as Kingfisher, as well as for fish, such as steelhead trout and other species (fig. 7).

Many of the soils in Cheeseboro Canyon that weathered from the marine sediment

Figure 7.—Solstice Canyon, showing an area of Fluvaquents that is flooded.

in the area, especially those on the toeslopes and footslopes of hills, are very soft and easy to dig. An example is soils of the Los Osos series. These areas provide habitat for many burrowing animals.

Some of the map units in the area have components on north-facing slopes and on south-facing slopes. An example is the Chumash-Boades-Malibu association, 30 to 75 percent slopes. The Chumash soils in this unit are dominantly on south-facing side slopes of hills and mountains, and the Boades and Malibu soils are dominantly on north-facing side slopes of hills and mountains. Production of shrubs and forbs is much higher in the plant communities on the north-facing slopes than it is in those on the south-facing slopes. The north-facing slopes provide better habitat for many species of birds common to the area. It is common to see hummingbirds and orioles on the north-facing slopes, but they are seldom seen on the south-facing slopes. In addition, the deer in the area prefer the more productive north-facing slopes. As the soils become deeper and softer on the north-facing slopes, more burrowing animals can be found. This relationship between the wildlife and the north-facing slopes occurs throughout the survey area, especially in the areas of coast live oak woodland, which occur dominantly on north-facing slopes. Examples of these soils are those of the Sapwi and Tongva series.

Urban and Recreational Uses

The soils of the survey area are rated in tables 9a and 9b according to limitations that affect their suitability for urban and recreational uses. The numerical ratings ("Value" columns) in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

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

The information in the tables 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

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, soil wetness, ponding, flooding, permeability, and fragments. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Following is a description of the major limiting features for camp areas:

Depth to bedrock.—Bedrock is at a shallow enough depth to restrict use.

Depth to pan.—Dense, hard, somewhat impervious cemented soil material at a specific depth restricts use.

Dusty.—Soil particles detach easily, which results in dustiness.

Flooding.—The soil is flooded by moving water from stream overflow, runoff, or high tides.

Fragments.—The profile contains enough fragments of a specific size to adversely affect site preparation or trafficability.

Organic matter (OM).—High organic matter content at some depth, sometimes expressed as a Unified soil class (PT, OL, or OH), can result in poor engineering properties and subsidence. Low organic matter content can affect plant growth.

Permeability.—The movement of water through the soil adversely affects the specified use. The rate may be either too slow or too fast.

Ponding.—Standing water on soils in closed depressions that is removed only by percolation or evapotranspiration.

Salinity (EC).—Excess water-soluble salts in the soil restrict the growth of most plants.

Sand or sandy texture.—At some depth the content of sand in the soil or the sandy texture of the soil is such that the soil is soft and loose, droughty, and low in fertility or is too fine to use as a source of gravel.

Slope.—The slope is steep enough that special practices are required to ensure satisfactory performance of the soil.

Sodicity (SAR).—Excess exchangeable sodium, which imparts poor physical properties, restricts the growth of plants.

Surface clay.—The content of clay or the clayey texture of the surface layer is such that the soil is slippery and sticky when wet and slow to dry. The soil climate may modify the limitation.

Wetness.—Wetness near the surface or a high water table affects the growth of plants and construction of facilities.

Picnic areas

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, soil wetness, ponding, flooding, permeability, and fragments. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Following is a description of the major limiting features for picnic areas:

Depth to bedrock.—Bedrock is at a shallow enough depth to restrict use.

Depth to pan.—Dense, hard, somewhat impervious cemented soil material at a specific depth restricts use.

Dusty.—Soil particles detach easily, which results in dustiness.

Flooding.—The soil is flooded by moving water from stream overflow, runoff, or high tides.

Fragments.—The profile contains enough fragments of a specific size to adversely affect site preparation or trafficability.

Organic matter (OM).—High organic matter content at some depth, sometimes expressed as a Unified soil class (PT, OL, or OH), can result in poor engineering properties and subsidence. Low organic matter content can affect plant growth.

Permeability.—The movement of water through the soil adversely affects the specified use. The rate may be either too slow or too fast.

pH.—The pH of the soil is too low (acid) or too high (basic) for the growth of most plants.

Ponding.—Standing water on soils in closed depressions that is removed only by percolation or evapotranspiration.

Salinity (EC).—Excess water-soluble salts in the soil restrict the growth of most plants.

Sand or sandy texture.—At some depth the content of sand in the soil or the sandy texture of the soil is such that the soil is soft and loose, droughty, and low in fertility or is too fine to use as a source of gravel.

Slope.—The slope is steep enough that special practices are required to ensure satisfactory performance of the soil.

Sodicity (SAR).—Excess exchangeable sodium, which imparts poor physical properties, restricts the growth of plants.

Surface clay.—The content of clay or the clayey texture of the surface layer is such

that the soil is slippery and sticky when wet and slow to dry. The soil climate may modify the limitation.

Wetness.—Wetness near the surface or a high water table affects the growth of plants and construction of facilities.

Playgrounds

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 fragments 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, percent clay or sand, organic matter content, soil wetness, ponding, flooding, permeability, and fragments. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Following is a description of the major limiting features for playgrounds:

Depth to bedrock.—Bedrock is at a shallow enough depth to restrict use.

Depth to pan.—Dense, hard, somewhat impervious cemented soil material at a specific depth restricts use.

Dusty.—Soil particles detach easily, which results in dustiness.

Flooding.—The soil is flooded by moving water from stream overflow, runoff, or high tides.

Fragments.—The profile contains enough fragments of a specific size to adversely affect site preparation or trafficability.

Organic matter (OM).—High organic matter content at some depth, sometimes expressed as a Unified soil class (PT, OL, or OH), can result in poor engineering properties and subsidence. Low organic matter content can affect plant growth.

Permeability.—The movement of water through the soil adversely affects the specified use. The rate may be either too slow or too fast.

pH.—The pH of the soil is too low (acid) or too high (basic) for the growth of most plants.

Ponding.—Standing water on soils in closed depressions that is removed only by percolation or evapotranspiration.

Salinity (EC).—Excess water-soluble salts in the soil restricts the growth of most plants.

Sand or sandy texture.—At some depth the content of sand in the soil or the sandy texture of the soil is such that the soil is soft and loose, droughty, and low in fertility or is too fine to use as a source of gravel.

Slope.—The slope is steep enough that special practices are required to ensure satisfactory performance of the soil.

Sodicity (SAR).—Excess exchangeable sodium, which imparts poor physical properties, restricts the growth of plants.

Surface clay.—The content of clay or the clayey texture of the surface layer is such that the soil is slippery and sticky when wet and slow to dry. The soil climate may modify the limitation.

Wetness.—Wetness near the surface or a high water table affects the growth of plants and construction of facilities.

Paths and trails

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 fragments on the surface,

soil wetness, ponding, flooding, slope, texture of the surface layer, percent sand or clay, and organic matter content.

Following is a description of the major limiting features for paths and trails:

Dusty.—Soil particles detach easily, which results in dustiness.

Flooding.—The soil is flooded by moving water from stream overflow, runoff, or high tides.

Fragments.—The profile contains enough fragments of a specific size to adversely affect site preparation or trafficability.

K factor.—The soil is subject to a risk of water erosion.

Organic matter (OM).—High organic matter content at some depth, sometimes expressed as a Unified soil class (PT, OL, or OH), can result in poor engineering properties and subsidence. Low organic matter content can affect plant growth.

Ponding.—Standing water on soils in closed depressions that is removed only by percolation or evapotranspiration.

Sand or sandy texture.—At some depth the content of sand in the soil or the sandy texture of the soil is such that the soil is soft and loose, droughty, and low in fertility or is too fine to use as a source of gravel.

Slope.—The slope is steep enough that special practices are required to ensure satisfactory performance of the soil.

Surface clay.—The content of clay or the clayey texture of the surface layer is such that the soil is slippery and sticky when wet and slow to dry. The soil climate may modify the limitation.

Wetness.—Wetness near the surface or a high water table affects the growth of plants and construction of facilities.

Off-road motorcycle trails

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 fragments on the surface, slope, soil wetness, ponding, flooding, texture of the surface layer, percent of sand or clay, and organic matter content.

Following is a description of the major limiting features for off-road motorcycle trails:

Dusty.—Soil particles detach easily, which results in dustiness.

Flooding.—The soil is flooded by moving water from stream overflow, runoff, or high tides.

Fragments.—The profile contains enough fragments of a specific size to adversely affect site preparation or trafficability.

Organic matter (OM).—High organic matter content at some depth, sometimes expressed as a Unified soil class (PT, OL, or OH), can result in poor engineering properties and subsidence. Low organic matter content can affect plant growth.

Ponding.—Standing water on soils in closed depressions that is removed only by percolation or evapotranspiration.

Sand or sandy texture.—At some depth the content of sand in the soil or the sandy texture of the soil is such that the soil is soft and loose, droughty, and low in fertility or is too fine to use as a source of gravel.

Slope.—The slope is steep enough that special practices are required to ensure satisfactory performance of the soil.

Surface clay.—The content of clay or the clayey texture of the surface layer is such that the soil is slippery and sticky when wet and slow to dry. The soil climate may modify the limitation.

Wetness.—Wetness near the surface or a high water table affects the growth of plants and construction of facilities.

Lawns, landscaping, and golf fairways

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; soil wetness; 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 material. The properties that affect trafficability are flooding, soil wetness, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in 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; soil wetness; 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 material. The properties that affect trafficability are flooding, soil wetness, ponding, slope, fragments on the surface, 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.

Following is a description of the major limiting features for lawns, landscaping, and golf fairways:

Available water capacity (AWC).—Available water capacity may restrict the growth of plants.

Calcium carbonates.—The amount of calcium carbonates may be high enough to restrict plant growth.

Depth to bedrock.—Bedrock is at a shallow enough depth to restrict use.

Depth to pan.—Dense, hard, somewhat impervious cemented soil material at a specific depth restricts use.

Flooding.—The soil is flooded by moving water from stream overflow, runoff, or high tides.

Fragments.—The profile contains enough fragments of a specific size to adversely affect site preparation or trafficability.

Organic matter (OM).—High organic matter content at some depth, sometimes expressed as a Unified soil class (PT, OL, or OH), can result in poor engineering properties and subsidence. Low organic matter content can affect plant growth.

pH.—The pH of the soil is too low (acid) or too high (basic) for most plant growth.

Ponding.—Standing water on soils in closed depressions that is removed only by percolation or evapotranspiration.

Salinity (EC).—Excess water-soluble salts in the soil restrict the growth of most plants.

Sand or sandy texture.—At some depth the content of sand in the soil or the sandy texture of the soil is such that the soil is soft and loose, droughty, and low in fertility or is too fine to use as a source of gravel.

Slope.—The slope is steep enough that special practices are required to ensure satisfactory performance of the soil.

Sodicity (SAR).—Excess exchangeable sodium, which imparts poor physical properties, restricts the growth of plants.

Sulfur content.—The level of sulfur in the soil may be high enough to restrict plant growth.

Surface clay.—The content of clay or the clayey texture of the surface layer is such that the soil is slippery and sticky when wet and slow to dry. The soil climate may modify the limitation.

Wetness.—Wetness near the surface or a high water table affects the growth of plants and construction of facilities.

Engineering

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

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 or 6 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 or 6 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 10b show the degree and kind of soil limitations

that affect dwellings with and without basements, small commercial buildings, local roads and streets, and shallow excavations.

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

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include soil wetness, 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 soil wetness, 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 soil wetness, 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, soil wetness, 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, soil wetness, 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, soil wetness, 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.

Sanitary Facilities

Tables 11a and 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 numerical ratings ("Value" columns) in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Septic tank absorption fields

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 bedrock or a cemented pan, and flooding affect absorption of the effluent. Coarse fragments 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.

Following is a description of the major limiting features for septic tank absorption fields. Major management considerations are also given for some of the features.

Depth to bedrock.—Bedrock is at a shallow enough depth to restrict use.

- Onsite investigation is needed to identify areas where the soil is deep enough for septic tank absorption fields.
- The depth to bedrock restricts the filtering capacity of the leach lines and can restrict placement of the lines. If the leach lines are placed too close to the bedrock, the groundwater may become contaminated by effluent.
- Enlarging the septic tank absorption fields may help to overcome the limited depth to bedrock.
- If slopes are more than 8 percent, cuts needed to provide essentially level sites can expose bedrock.

Depth to pan.—Dense, hard, somewhat impervious cemented soil material at a specific depth restricts use.

- The pan limits the amount of soil material available for filtering effluent. The soil material below the pan should be evaluated to determine whether the leach lines should be placed below the pan.

Flooding.—The soil is flooded by moving water from stream overflow, runoff, or high tides.

- The potential for flooding should be considered before capital improvements are planned and septic tank absorption fields are installed.
- The fields should be placed above the expected flood level.
- Dikes and channels that have outlets for floodwater can be used to protect the septic tank absorption fields from flooding.

Fragments.—The profile contains enough fragments of a specific size to adversely affect site preparation or trafficability.

Organic matter (OM).—High organic matter content at some depth, sometimes expressed as a Unified soil class (PT, OL, or OH), can result in poor engineering properties and subsidence. Low organic matter content can affect plant growth.

Permeability.—The movement of water through the soil adversely affects the specified use. The rate may be either too slow or too fast.

• Restricted permeability increases the risk of failure of septic tank absorption fields.

• Increasing the size of the absorption field and using coarser backfill material or placing the leach lines in more permeable material can help to overcome the limitation of restricted permeability.

• Building up or mounding the site with suitable fill material helps to increase the filtering capacity of the absorption field.

Ponding.—Standing water on soils in closed depressions that is removed only by percolation or evapotranspiration.

• Use of suitable fill material to raise the absorption field helps to improve performance.

Slope.—The slope is steep enough that special practices are required to ensure satisfactory performance of the soil.

• Onsite investigation is needed to identify areas where the soil is suitable for septic tank absorption fields.

• Installing leach lines on the contour helps to prevent seepage of effluent in downslope areas.

• All bare ground should be mulched during construction. A ground cover should be established to prevent excessive erosion during periods of high rainfall.

Wetness.—Wetness near the surface or a high water table affects the growth of plants and construction of facilities.

• Use of suitable fill material to raise the absorption field to a sufficient depth above the seasonal high water table helps to improve performance.

Sewage lagoons

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, soil wetness, ponding, depth to bedrock or a cemented pan, flooding, coarse fragments, 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.

Following is a description of the major limiting features for sewage lagoons. Major management considerations are also given for some of the features.

Depth to bedrock.—Bedrock is at a shallow enough depth to restrict use.

• Onsite investigation is needed to identify areas where the soil is deep enough for sewage lagoons.

• Enlarging the sewage lagoon helps to overcome the limited depth to bedrock.

• If slopes are more than 2 percent, cuts needed to provide essentially level sites can expose bedrock.

Depth to pan.—Dense, hard, somewhat impervious cemented soil material at a specific depth restricts use.

- Onsite investigation is needed to identify areas where the soil is deep enough for sewage lagoons.
- Enlarging the sewage lagoon helps to overcome the limited depth to the pan.
- If slopes are more than 2 percent, cuts needed to provide essentially level sites can expose the pan.

Flooding.—The soil is flooded by moving water from stream overflow, runoff, or high tides.

- The potential for flooding should be considered before capital improvements are planned and sewage lagoons are installed.
- The sewage lagoons should be placed above the expected flood level.
- Dikes and channels that have outlets for floodwater can be used to protect the sewage lagoon from flooding.

Fragments.—The profile contains enough fragments of a specific size to adversely affect site preparation or trafficability.

Organic matter (OM).—High organic matter content at some depth, sometimes expressed as a Unified soil class (PT, OL, or OH), can result in poor engineering properties and subsidence. Low organic matter content can affect plant growth.

Permeability.—The movement of water through the soil adversely affects the specified use. The rate may be either too slow or too fast.

- A suitable lining should be used to prevent seepage and contamination of the groundwater.

Ponding.—Standing water on soils in closed depressions that is removed only by percolation or evapotranspiration.

- Use of suitable fill material to raise the sewage lagoon helps to improve performance.

Slope.—The slope is steep enough that special practices are required to ensure satisfactory performance of the soil.

- Onsite investigation is needed to identify areas where the soil is suitable for sewage lagoons.
- Installing sewage lagoons on the contour helps to prevent seepage of effluent in downslope areas.
- All bare ground should be mulched during construction. A ground cover should be established to prevent excessive erosion during periods of high rainfall.

Wetness.—Wetness near the surface or a high water table affects the growth of plants and construction of facilities.

- Use of suitable fill material to raise the sewage lagoon to a sufficient depth above the seasonal high water table helps to improve performance.

Trench sanitary landfill

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, soil wetness, 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.

Following is a description of the major limiting features for trench sanitary landfills. Major management considerations are also given for some of the features.

Clay or clayey texture.—At some depth the content of clay or clayey texture of the soil is such that the soil is slippery and sticky when wet and slow to dry.

Depth to bedrock.—Bedrock is at a shallow enough depth to restrict use.

- Onsite investigation is needed to identify areas where the soil is deep enough for trench sanitary landfills.
- Enlarging the trench sanitary landfill helps to overcome the limited depth to bedrock.
- If slopes are more than 8 percent, cuts needed to provide essentially level sites can expose bedrock.

Depth to pan.—Dense, hard, somewhat impervious cemented soil material at a specific depth restricts use.

- Onsite investigation is needed to identify areas where the soil is deep enough for trench sanitary landfills.
- If the cemented pan is thick, enlarging the trench sanitary landfill helps to overcome the limited depth to the pan.
- If the cemented pan is thin and suitable material is beneath the pan, ripping the pan may improve performance of the landfill.

Flooding.—The soil is flooded by moving water from stream overflow, runoff, or high tides.

- The potential for flooding should be considered before capital improvements are planned and trench sanitary landfills are installed.
- The trench sanitary landfill should be placed above the expected flood level.
- Dikes and channels that have outlets for floodwater can be used to protect the landfill from flooding.

Fragments.—The profile contains enough fragments of a specific size to adversely affect site preparation or trafficability.

Organic matter (OM).—High organic matter content at some depth, sometimes expressed as a Unified soil class (PT, OL, or OH), can result in poor engineering properties and subsidence. Low organic matter content can affect plant growth.

Permeability.—The movement of water through the soil adversely affects the specified use. The rate may be either too slow or too fast.

- A suitable lining needs to be installed to prevent seepage and contamination of the ground water.

pH.—The pH of the soil is too low (acid) or too high (basic) for the growth of most plants.

Ponding.—Standing water on soils in closed depressions that is removed only by percolation or evapotranspiration.

- Use of suitable fill material to raise the trench sanitary landfill helps to improve performance.

Salinity (EC).—Excess water-soluble salts in the soil restrict the growth of most plants.

Sand or sandy texture.—At some depth the content of sand in the soil or the sandy texture of the soil is such that the soil is soft and loose, droughty, and low in fertility or is too fine to use as a source of gravel.

Slope.—The slope is steep enough that special practices are required to ensure satisfactory performance of the soil.

- Onsite investigation is needed to identify areas where the soil is suitable for trench sanitary landfills.
- Installing trench sanitary landfills on the contour helps to prevent seepage of effluent in downslope areas.
- All bare ground should be mulched during construction. A ground cover should be established to prevent excessive erosion during periods of high rainfall.

Sodicity (SAR).—Excess exchangeable sodium, which imparts poor physical properties, restricts the growth of plants.

Wetness.—Wetness near the surface or a high water table affects the growth of plants and construction of facilities.

- Use of suitable fill material to raise the trench sanitary landfill to a sufficient depth above the seasonal high water table helps to improve performance.

Area sanitary landfill

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, soil wetness, 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.

Following is a description of the major limiting features for area sanitary landfills. Major management considerations are also given for some of the features.

Depth to bedrock.—Bedrock is at a shallow enough depth to restrict use.

- Onsite investigation is needed to identify areas where the soil is deep enough for area sanitary landfills.
- Enlarging the area sanitary landfill helps to overcome the limited depth to bedrock.

Depth to pan.—Dense, hard, somewhat impervious cemented soil material at a specific depth restricts use.

- Onsite investigation is needed to identify areas where the soil is deep enough for area sanitary landfills.
- Enlarging the area sanitary landfill helps to overcome the limited depth to the pan.

Flooding.—The soil is flooded by moving water from stream overflow, runoff, or high tides.

- The potential for flooding should be considered before capital improvements are planned and area sanitary landfills are installed.
- Area sanitary landfills should be located above the expected flood level.

• Dikes and channels that have outlets for floodwater can be used to protect the landfills.

Permeability.—The movement of water through the soil adversely affects the specified use. The rate may be either too slow or too fast.

• A suitable lining needs to be installed to prevent seepage and contamination of the ground water.

Ponding.—Standing water on soils in closed depressions that is removed only by percolation or evapotranspiration.

• Use of suitable fill material to raise the area sanitary landfill helps to improve performance.

Slope.—The slope is steep enough that special practices are required to ensure satisfactory performance of the soil.

• Onsite investigation is needed to identify areas where the soil is suitable for area sanitary landfills.

• Installing area sanitary landfills on the contour helps to prevent seepage of effluent in downslope areas.

• All bare ground should be mulched during construction. A ground cover should be established to prevent excessive erosion during periods of high rainfall.

Wetness.—Wetness near the surface or a high water table affects the growth of plants and construction of facilities.

• Use of suitable fill material to raise the area sanitary landfill to a sufficient depth above the seasonal high water table helps to improve performance.

Daily cover for landfill

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, soil wetness, 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 coarse fragments 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 soil wetness 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.

Following is a description of the major limiting features for daily cover for landfill. Major management considerations are also given for some of the features.

Calcium carbonates.—The amount of calcium carbonates may be high enough to restrict plant growth.

Clay or clayey texture.—At some depth the content of clay or clayey texture of the soil is such that the soil is slippery and sticky when wet and slow to dry.

Depth to bedrock.—Bedrock is at a shallow enough depth to restrict use.

• Onsite investigation is needed to identify areas where the soil is deep enough to obtain cover material.

Depth to pan.—Dense, hard, somewhat impervious cemented soil material at a specific depth restricts use.

• Onsite investigation is needed to identify areas where the soil is deep enough to obtain cover material.

Fragments.—The profile contains enough fragments of a specific size to adversely affect site preparation or trafficability.

Packing.—Unified soil classes of OL, OH, CH, MH indicate that the soil may be difficult to compact with regular earthwork construction equipment.

Organic matter (OM).—High organic matter content at some depth, sometimes expressed as a Unified soil class (PT, OL, or OH), can result in poor engineering properties and subsidence. Low organic matter content can affect plant growth.

Permeability.—The movement of water through the soil adversely affects the specified use. The rate may be either too slow or too fast.

- The material is too coarse to use as landfill cover. Seepage may contaminate the ground water.

pH.—The pH of the soil is too low (acid) or too high (basic) for the growth of most plants.

Ponding.—Standing water on soils in closed depressions that is removed only by percolation or evapotranspiration.

- Seasonal ponding may restrict access to cover material.

Salinity (EC).—Excess water-soluble salts in the soil restrict the growth of most plants.

Sand or sandy texture.—At some depth the content of sand in the soil or the sandy texture of the soil is such that the soil is soft and loose, droughty, and low in fertility or is too fine to use as a source of gravel.

Slope.—The slope is steep enough that special practices are required to ensure satisfactory performance of the soil.

- Onsite investigation is needed to identify areas where the soil is suitable as cover material.
- If slopes are more than 8 percent, cuts may expose undesirable material.
- All bare ground should be mulched during construction. A ground cover should be established to prevent excessive erosion during periods of high rainfall.

Sodicity (SAR).—Excess exchangeable sodium, which imparts poor physical properties, restricts the growth of plants.

Wetness.—Wetness near the surface or a high water table affects the growth of plants and construction of facilities.

- Seasonal wetness may restrict access to cover material.

Construction Materials

Tables 12a and 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.

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 likelihood of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of 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 bottom layer of the soil contains sand or gravel, the soil is considered a likely source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

The soils are rated *good, fair,* or *poor* as potential sources of sand and gravel. A rating of *good* or *fair* means that the source material is likely to be in or below the soil. The bottom layer and the thickest layer of the soils are assigned numerical ratings. These ratings indicate the likelihood that the layer is a source of sand or gravel. The

numbers 0.00 to 0.07 indicate that the layer is a poor source. The numbers 0.75 to 1.00 indicate that the layer is a good source. The numbers 0.08 to 0.74 indicate the degree to which the layer is a likely source.

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 ("Value" columns) 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.

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 embankments, dikes, and levees and pond reservoir areas. The numerical ratings ("Value" columns) in the table indicate the severity of individual limitations. The ratings are shown as

decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. Embankments that have zoned construction (core and shell) are not considered. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

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.

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, 2001) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2000).

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

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

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional

refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

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

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

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

Physical Properties

Table 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.

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.

Saturated hydraulic conductivity 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 micrometers per second (um/sec), 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.

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.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In table 16, 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.

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

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

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

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

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

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

Erosion Properties

Erosion factors are shown in table 17 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.

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

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. A description of the wind erodibility groups is available in the National Soil Survey Handbook (http://soils.usda.gov/technical/handbook/).

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.

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.

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 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.

Soil Features

Table 19 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.

Soil slippage potential is the possibility that a mass of soil will slip when the vegetation is removed, the soil is nearly saturated or saturated, and normal practices are applied. Practices that contribute to the risk of slippage but are not considered in the rating are undercutting the lower part of a slope or loading the upper part and altering drainage or irrigating.

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.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff, 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 20 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 Xeralf (*Xer*, meaning humid, 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 Haploxeralfs (*Hapl*, meaning minimal horizonation, plus *xeralf*, the suborder of the Alfisols that has a xeric moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Mollic Haploxeralfs.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-loamy, mixed, superactive, thermic Mollic Haploxeralfs.

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.

Taxonomic Units and Their Morphology

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

survey area is described. The detailed description of each soil horizon follows standards in the “Soil Survey Manual” (Soil Survey Division Staff, 1993). Many of the technical terms used in the descriptions are defined in “Soil Taxonomy” (Soil Survey Staff, 1999) and in “Keys to Soil Taxonomy” (Soil Survey Staff, 1998). Following the pedon description is the range of important characteristics of the soils in the taxonomic unit.

Laboratory characterization for the Boades, Malibu, Cotharin, Kayiwish, and Mipolomol series are available in the database of the National Soil Survey Laboratory (USDA, 1996).

Abaft Series

The Abaft series consists of very deep, somewhat excessively drained soils that formed in alluvium derived from sedimentary rock. These soils are on dunes. Slopes are 0 to 5 percent. The mean annual precipitation is 14 to 18 inches (360 to 457 millimeters), the mean annual air temperature is 60 to 64 degrees F (15.5 to 17.5 degrees C), and the frost-free season is 290 to 350 days. Elevation is 0 to 90 feet (0 to 27 meters).

Taxonomic classification: Mixed, thermic Typic Xeropsamments

Typical pedon location: Abaft loamy sand in an area of Abaft-Beaches-Urban land complex, 0 to 5 percent slopes, on a dune at an elevation of about 25 feet (8 meters), in an unsectionalized area; latitude 34 degrees, 1 minute, 57 seconds north and longitude 118 degrees, 50 minutes, 56 seconds west; soil was dry throughout when described (colors for moist soil unless otherwise indicated).

Typical Pedon Description

A1—0 to 3 inches (0 to 8 centimeters); dark grayish brown (10YR 4/2) loamy sand, grayish brown (10YR 5/2) dry; weak very fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many fine and very fine and few coarse roots; many very fine irregular pores; slightly acid (pH 6.5); abrupt smooth boundary.

A2—3 to 18 inches (8 to 46 centimeters); dark grayish brown (10YR 4/2) loamy coarse sand, grayish brown (10YR 5/2) dry; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many fine and very fine roots; many very fine irregular pores; slightly acid (pH 6.5); gradual wavy boundary.

C1—18 to 30 inches (46 to 76 centimeters); grayish brown (10YR 5/2) loamy coarse sand, light brownish gray (10YR 6/2) dry; massive; soft, very friable, nonsticky and nonplastic; few fine and common very fine roots; many very fine irregular pores; 5 percent carbonate masses around rock fragments; 5 percent well rounded cobbles that are 75 to 250 millimeters in diameter; neutral (pH 7.0); clear smooth boundary.

C2—30 to 45 inches (76 to 114 centimeters); light brownish gray (10YR 6/2) gravelly coarse sand, light gray (10YR 7/2) dry; single grain; loose; nonsticky and nonplastic; few very fine roots; many very fine irregular pores; 5 percent stones that are 250 to 600 millimeters in diameter and 5 percent cobbles that are 75 to 250 millimeters in diameter; neutral (pH 6.8); clear smooth boundary.

C3—45 to 57 inches (114 to 145 centimeters); brownish gray (10YR 5/2) fine sand, light brownish gray (10YR 6/2) dry; massive; soft, nonsticky and nonplastic; few fine roots; many very fine irregular pores; neutral (pH 6.8).

Range in Characteristics

Mean annual soil temperature: 65 to 66 degrees F (18.0 to 18.9 degrees C)

Soil moisture content: Moist in mid-November to late in November through late in May

A horizon:
Color—10YR 6/2 or 5/2 dry

C horizon:
Color—10YR 7/2 or 6/2 dry
Texture—loamy coarse sand, gravelly coarse sand, and fine sand

Balcom Series

The Balcom series consists of moderately deep, well drained soils that formed in material weathered from calcareous shale and sandstone. These soils are on hills. Slopes are 9 to 75 percent. The mean annual precipitation is 14 to 18 inches (360 to 457 millimeters), the mean annual air temperature is 60 to 64 degrees F (15.5 to 17.5 degrees C), and the frost-free season is 290 to 330 days. Elevation is 886 to 2,100 feet (270 to 640 meters).

Taxonomic classification: Fine-loamy, mixed, superactive, thermic Typic Calcixerepts.

Typical pedon location: Balcom silty clay loam, 15 to 30 percent slopes, on a hillside at an elevation of 750 feet (229 meters); in the Los Angeles, West San Fernando Valley Area, soil survey area; in an unsectionalized area; latitude 34 degrees, 9 minutes, 7 seconds north and longitude 118 degrees, 36 minutes, 49 seconds west; soil was dry throughout when described (colors for dry soil unless otherwise indicated).

Typical Pedon Description

A—0 to 16 inches (0 to 40 centimeters); light brownish gray (2.5Y 6/2) silty clay loam, very dark grayish brown (2.5Y 3/2) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine and very fine roots between peds; many fine and very fine tubular pores; strongly effervescent (by HC1, 1 normal); moderately alkaline (pH 8.0 by pH meter, saturated paste); clear smooth boundary.

Bk—16 to 36 inches (40 to 93 centimeters); light brownish gray (2.5Y 6/2) silty clay loam, dark grayish brown (2.5Y 4/2) moist; weak coarse subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine and very fine roots between peds; many fine and very fine tubular pores; 15 percent fine carbonate masses; violently effervescent (by HC1, 1 normal); moderately alkaline (pH 8.0 by pH meter, saturated paste); clear broken boundary.

Cr—36 to 46 inches (93 to 118 centimeters); weakly cemented pale olive (5Y 6/3) shale, olive (5Y 5/3) moist; massive; hard; violently effervescent; carbonates disseminated and segregated as many fine filaments on shale fragments.

Range in Characteristics

Mean annual soil temperature: 62 to 66 degrees F (16.7 to 18.9 degrees C)

Soil moisture content: Usually dry all of the time from mid-April or May until late in November or early in December between depths of about 5 and 15 inches

Depth to a paralithic contact of soft shale or sandstone: 20 to 40 inches (51 to 102 centimeters)

Profile:
Rock fragments—0 to 10 percent
Texture—loam, silt loam, clay loam, or silty clay loam
Carbonates—slightly effervescent to violently effervescent throughout, except in

some pedons the upper few inches are noneffervescent; segregations range from few small filaments to many seams, masses, and blotches

A horizon:
Color—2.5Y 5/2, 5/3, 6/2, 6/3, 6/4, or 7/2 or 10Y 6/1, 6/2, 6/3, 6/4, 7/2, 7/3, or 7/4 dry; 10YR 5/3, 5/2, 4/3, or 4/2 moist

In some pedons, the upper part of the A horizon is one unit value darker than the Bk horizon.

Bk horizon:
Color—2.5Y 4/3, 5/2, 5/3, 6/2, 6/3, 6/4, or 7/2 or 10YR 6/1, 6/2, 6/3, 6/4, 7/2, 7/3, or 7/4

Boades Series

The Boades series consists of well drained soils that are shallow to soft bedrock. These soils formed in residuum and colluvium derived from bedded shale and sandstone. They are on hills and mountains. Slopes are 5 to 75 percent. The mean annual precipitation is 14 to 18 inches (360 to 457 millimeters), the mean annual air temperature is 60 to 64 degrees F (15.5 to 17.5 degrees C), and the frost-free season is 290 to 350 days. Elevation is 10 to 1,570 feet (3 to 479 meters).

Taxonomic classification: Loamy, mixed, superactive, thermic, shallow Entic Haploxerolls

Typical pedon location: Boades gravelly loam in an area of Chumash-Boades-Malibu association, 30 to 75 percent slopes; on a mountainside at an elevation of 1,155 feet (352 meters), in an unsectionalized area about 1/2 mile northwest of Laguna Peak; latitude 34 degrees, 6 minutes, 12 seconds north and longitude 119 degrees, 3 minutes, 52 seconds west; NAD 27; Point Mugu Quadrangle; soil was dry throughout when described (colors for dry soil unless otherwise indicated).

Typical Pedon Description

A1—0 to 2 inches (0 to 5 centimeters); brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; slightly hard, very friable, moderately sticky and slightly plastic; common very fine to medium roots; common very fine to medium tubular pores; moderately acid (pH 6.0 by Hellige-Truog); clear smooth boundary.

A2—2 to 14 inches (5 to 36 centimeters); brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, moderately sticky and slightly plastic; common very fine to medium roots; common very fine to medium tubular pores; 10 percent sandstone and shale fragments 2 to 75 millimeters in diameter; moderately acid (pH 5.8 by Hellige-Truog); abrupt wavy boundary.

Cr—14 to 60 inches (35 to 150 centimeters); highly fractured, bedded, weathered shale; fractures 1 to 2 inches apart; about 10 to 15 percent soil and common very fine roots in fractures.

Range in Characteristics

Mean annual soil temperature: 62 to 66 degrees F (16.7 to 18.9 degrees C)
Soil moisture content: Moist from mid-November to late in November through late in May
Depth to soft rock: 10 to 20 inches (25 to 50 centimeters)
Reaction: Slightly acid or moderately acid

A horizon:
Color—10YR 5/2 or 5/3 dry; 10YR 3/2 or 3/3 moist
Texture—loam or clay loam in the upper part and clay loam, loam, or gravelly loam in the lower part
Clay content—18 to 35 percent
Coarse fragment content—5 to 10 percent in the upper part and 10 to 35 percent in the lower part

Botella Series

The Botella series consists of very deep, well drained soils that formed in alluvium derived from sedimentary rock. These soils are on alluvial fans. Slopes are 2 to 9 percent. The mean annual precipitation is 14 to 22 inches (360 to 559 millimeters), the mean annual air temperature is 60 to 62 degrees F (15.5 to 16.0 degrees C), and the frost-free season is 290 to 350 days. Elevation is 600 to 2,100 feet (183 to 640 meters).

Taxonomic classification: Fine-loamy, mixed, superactive, thermic Pachic Argixerolls

Typical pedon location: Botella loam, 2 to 9 percent slopes, on an alluvial fan at an elevation of 725 feet (221 meters); about 1.3 miles north of the intersection of Las Virgenes Road and Mulholland Highway and 800 feet east of Las Virgenes Creek; about 1,850 feet north and 250 feet west of the southeast corner of sec. 36, T. 1 N., R. 18 W.; latitude 34 degrees, 7 minutes, 25 seconds north and longitude 118 degrees, 42 minutes, 39 seconds west; NAD 27; Malibu Beach Quadrangle; soil was dry throughout when described (colors for dry soil unless otherwise indicated).

Typical Pedon Description

Ap—0 to 8 inches (0 to 20 centimeters); dark grayish brown (10YR 4/2) loam, very dark grayish brown (10YR 3/2) moist; moderate medium granular structure; slightly hard, very friable, moderately sticky and moderately plastic; many fine and very fine roots between peds; many fine and very fine tubular pores; neutral (pH 7.0 by pH meter, saturated paste); clear wavy boundary.

Bt1—8 to 17 inches (20 to 43 centimeters); grayish brown (10YR 5/2) clay loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, very friable, moderately sticky and moderately plastic; many fine and very fine roots between peds; many fine and very fine tubular pores; 55 percent patchy clay films in pores and 55 percent patchy clay films on faces of peds; slightly acid (pH 6.5 by pH meter, saturated paste); clear wavy boundary.

Bt2—17 to 30 inches (43 to 76 centimeters); grayish brown (10YR 5/2) clay loam, very dark grayish brown (10YR 3/2) moist; strong medium prismatic structure parting to strong medium angular blocky; slightly hard, very friable, very sticky and very plastic; many fine and very fine roots between peds; many fine and very fine tubular pores; 55 percent continuous clay films on faces of peds and 55 percent continuous clay films in pores; slightly acid (pH 6.5 by pH meter, saturated paste); clear wavy boundary.

Bt3—30 to 50 inches (76 to 127 centimeters); yellowish brown (10YR 5/4) clay loam, brown (10YR 4/3) moist; strong medium angular blocky structure and strong coarse angular blocky; hard, friable, very sticky and very plastic; many fine and very fine roots between peds; many fine and very fine tubular pores; 55 percent continuous clay films on faces of peds and 55 percent continuous clay films in pores; slightly acid (pH 6.5 by pH meter, saturated paste); clear wavy boundary.

Bt4—50 to 60 inches (127 to 152 centimeters); light yellowish brown (10YR 6/4) clay loam, brown (10YR 4/3) moist; strong medium angular blocky structure; hard, friable, very sticky and very plastic; many fine and very fine roots between peds; many fine and very fine tubular pores; 55 percent continuous clay films in pores and 55 percent continuous clay films on faces of peds; neutral (pH 7.0 by pH meter, saturated paste).

Range in Characteristics

Mean annual soil temperature: 62 to 64 degrees F (16.7 to 17.5 degrees C)
Soil moisture content: Moist in November through June

A horizon:
Color—10YR 5/3 or 4/2 dry; 10YR 3/3, 3/2, or 2/2 moist
Texture—loam or sandy loam
Clay content—18 to 27 percent
Reaction—slightly acid to neutral

Bt horizon:
Color—10YR 5/2, 5/4, or 6/4 dry; 10YR 3/2, 4/3, or 4/4 moist
Texture—clay loam or sandy clay loam
Clay content—averages 27 to 35 percent

Calcic Argixerolls

Calcic Argixerolls consists of well drained soils that are moderately deep to bedrock. These soils formed in residuum and colluvium weathered from marine sandstone. They are on hills. Slopes are 30 to 75 percent. The mean annual precipitation is 14 to 24 inches (360 to 610 millimeters), the mean annual air temperature is 60 to 64 degrees F (15.5 to 17.5 degrees C), and the frost-free season is 290 to 350 days. Elevation is 50 to 600 feet (15 to 183 meters).

Taxonomic classification: Fine-silty, mixed, superactive, thermic Calcic Argixerolls

Example pedon location: Calcic Argixerolls, 30 to 75 percent slopes, on a hillside at an elevation of 850 feet (259 meters); near the city of Malibu, in an unsectionalized area about 2,110 feet north of the southeast corner of sec. 2, T. 1 S., R. 18 W.; latitude 34 degrees, 2 minutes, 20 seconds north and longitude 118 degrees, 43 minutes, 2 seconds west; NAD 27; Malibu Beach Quadrangle; soil was dry throughout when described (colors for dry soil unless otherwise indicated).

Example Pedon Description

A—0 to 1 inch (0 to 2 centimeters); dark grayish brown (10YR 4/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine and very fine roots between peds; many fine and very fine tubular pores; very slightly effervescent (by HC1, 1 normal); neutral (pH 6.8 by pH meter, saturated paste); clear smooth boundary.

Btk1—1 to 5 inches (2 to 13 centimeters); dark grayish brown (10YR 4/2) silty clay loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine and very fine roots between peds; many fine and very fine tubular pores; 5 percent clay films on faces of peds; slightly effervescent (by HC1, 1 normal); neutral (pH 7.0 by pH meter, saturated paste); clear smooth boundary.

Btk2—5 to 15 inches (13 to 37 centimeters); brown (10YR 4/3) silty clay loam, dark brown (10YR 3/3) moist; strong medium subangular blocky structure; slightly

hard, very friable, slightly sticky and slightly plastic; many fine and very fine roots between peds; many fine and very fine tubular pores; 5 percent clay films on faces of peds; violently effervescent (by HC1, 1 normal); slightly alkaline (pH 7.6 by pH meter, saturated paste); clear smooth boundary.

Bk—15 to 37 inches (37 to 95 centimeters); yellowish brown (10YR 5/4) silt loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine and very fine roots between peds; many fine and very fine tubular pores; violently effervescent (by HC1, 1 normal); slightly alkaline (pH 7.8 by pH meter, saturated paste); clear smooth boundary.

Cr—37 to 44 inches (95 to 120 centimeters); highly fractured sandstone that can be dug with a shovel; few fine and very fine roots in fractures; violently effervescent (by HC1, 1 normal).

Range in Characteristics

Mean annual soil temperature: 62 to 66 degrees F (16.7 to 18.9 degrees C)

Soil moisture content: Moist from mid-November to late in November through late in May

Profile:

Depth to bedrock—20 to 40 inches (51 to 102 centimeters)

Texture—silt loam or silty clay loam throughout

Coarse fragment content—0 to 15 percent

Reaction—slightly alkaline or neutral

Effervescence—noneffervescent or slightly effervescent on the surface to violently effervescent in the subsoil, generally increases as depth increases

Sand content—less than 15 percent throughout; dominantly very fine sand where present

A horizon:

Color—10YR 5/2, 5/3, 4/3, or 4/2 dry; 10YR 4/2, 4/3, 3/3, or 3/2 moist

Clay content—18 to 27 percent

Bt horizon:

Color—10YR 5/2, 5/3, 4/3, or 4/2 dry; 10YR 4/2, 4/3, 3/3, or 3/2 moist

Clay content—27 to 35 percent

Bk horizon:

Color—10YR 5/4 or 6/3 dry; 10YR 4/4 or 4/3 moist

Clay content—18 to 27 percent

Calcic Haploxerepts

Calcic Haploxerepts consists of well drained soils that are moderately deep to bedrock. These soils formed in residuum and colluvium weathered from shale. They are on hills. Slopes are 30 to 75 percent. The mean annual precipitation is 18 to 22 inches (457 to 559 millimeters), the mean annual air temperature is 60 to 64 degrees F (15.5 to 17.5 degrees C), and the frost-free season is 290 to 350 days. Elevation is 600 to 2,200 feet.

Taxonomic classification: Fine-loamy, mixed, superactive, thermic Calcic Haploxerepts

Example pedon location: Calcic Haploxerepts gravelly silt loam in an area of Calcic Haploxerepts-Mollic Haploxeralfs association, 30 to 75 percent slopes; on a hillside at an elevation of 900 feet (274 meters); about 1,320 feet east and 1,980 feet south of the northwest corner of sec. 2, T. 1 N., R. 18 W.; latitude 34 degrees, 7 minutes, 2 seconds north and longitude 118 degrees, 44 minutes,

30 seconds west; NAD 27; Malibu Beach Quadrangle; soil was dry throughout when described (colors for dry soil unless otherwise indicated).

Example Pedon Description

A—0 to 4 inches (0 to 10 centimeters); pale brown (10YR 6/3) gravelly silt loam, brown (10YR 4/3) moist; slightly hard, very friable, slightly sticky and slightly plastic; 25 percent nonflat subangular strongly cemented shale fragments 2 to 75 millimeters in diameter; violently effervescent (by HC1, 1 normal); moderately alkaline (pH 8.0 by pH meter, saturated paste); clear smooth boundary.

Bk1—4 to 12 inches (10 to 30 centimeters); gravelly silt loam; slightly hard, very friable, slightly sticky and slightly plastic; 25 percent nonflat subangular strongly cemented shale fragments 2 to 75 millimeters in diameter; violently effervescent (by HC1, 1 normal); moderately alkaline (pH 8.0 by pH meter, saturated paste); clear smooth boundary.

Bk2—12 to 31 inches (30 to 78 centimeters); gravelly silt loam; slightly hard, very friable, slightly sticky and slightly plastic; 25 percent nonflat subangular strongly cemented shale fragments 2 to 75 millimeters in diameter; violently effervescent (by HC1, 1 normal); moderately alkaline (pH 8.0 by pH meter, saturated paste); clear smooth boundary.

Cr—31 to 60 inches (78 to 152 centimeters); moderately cemented, hard, fractured, calcareous shale; fractures 0.5 inch to 1.5 inches apart; few fine roots in fractures.

Range in Characteristics

Mean annual soil temperature: 62 to 66 degrees F (16.7 to 18.9 degrees C)

Soil moisture content: Moist from mid-November to late in November through late in May

Profile:

Depth to bedrock—20 to 40 inches (51 to 102 centimeters)

Coarse fragment content—15 to 30 percent

Reaction—slightly alkaline or moderately alkaline

A horizon:

Color—10YR 5/2, 5/3, 6/3, or 6/4; 10YR 4/2, 4/3, or 3/3 moist

Bw horizon:

Color—10YR 5/3, 5/4, 6/3, 6/4, 6/6, or 7/4; 10YR 4/3, 4/4, 5/4, or 5/6 moist

Camarillo Series

The Camarillo series consists of very deep, somewhat poorly drained soils that formed in stratified alluvium derived dominantly from sedimentary rock. These soils are on alluvial fans and alluvial plains. Slopes are 0 to 2 percent. The mean annual precipitation is 14 to 18 inches (360 to 457 millimeters), the mean annual air temperature is 60 to 64 degrees F (15.5 to 17.5 degrees C), and the frost-free season is 300 to 350 days. Elevation is 25 to 200 feet.

Taxonomic classification: Fine-loamy, mixed, superactive, calcareous, thermic Aquic Xerofluvents

Typical pedon location: Camarillo sandy loam, 0 to 2 percent slopes, about 0.75 mile west of Wood Road on Etting Road, 0.28 mile south on farm road and 100 feet east into field in the Ventura Area soil survey area, on an alluvial fan at an elevation of 102 feet (31 meters); about 3,960 feet west and 1,480 feet south of the northeast corner of sec. 11, T. 1 N., R. 22 W.; latitude 34 degrees, 18 minutes,

57 seconds north and longitude 119 degrees, 15 minutes, 48 seconds west; NAD 27; Camarillo Quadrangle; soil was dry throughout when described (colors are for moist soil unless otherwise indicated).

Typical Pedon Description

Ap—0 to 7 inches (0 to 18 centimeters); very dark grayish brown (10YR 3/2) sandy loam, grayish brown (10YR 5/2) dry; massive; hard, very friable, slightly sticky and slightly plastic; many fine and very fine roots between peds; many fine and very fine tubular pores; very slightly effervescent (by HC1, 1 normal); slightly alkaline (pH 7.8); clear smooth boundary.

A—7 to 17 inches (18 to 43 centimeters); very dark grayish brown (10YR 3/2) sandy loam, grayish brown (10YR 5/2) dry; massive; hard, very friable, slightly sticky and slightly plastic; many fine and very fine roots between peds; many fine and very fine tubular pores; strongly effervescent (by HC1, 1 normal); moderately alkaline (pH 8.0); gradual wavy boundary.

Bkg—17 to 24 inches (43 to 61 centimeters); very dark grayish brown (10YR 3/2) stratified sandy loam, grayish brown (10YR 5/2) dry; massive; hard, very friable, slightly sticky and slightly plastic; many fine and very fine roots between peds; many fine and very fine tubular pores; 10 percent coarse masses of oxidized iron that are light olive brown (2.5Y 5/3), light yellowish brown (2.5Y 6/4) dry; slightly effervescent (by HC1, 1 normal); moderately alkaline (pH 8.0); clear wavy boundary.

Bkyg1—24 to 36 inches (61 to 91 centimeters); very dark grayish brown (2.5Y 3/2) stratified loam, grayish brown (2.5Y 5/2) dry; weak coarse prismatic structure; very hard, friable, moderately sticky and moderately plastic; many fine and very fine roots between peds; many fine and very fine tubular pores; 20 percent fine distinct masses of oxidized iron that are light yellowish brown (10YR 6/4) dry; 20 percent fine gypsum masses; slightly effervescent (by HC1, 1 normal); moderately alkaline (pH 8.0); clear wavy boundary.

Bkyg2—36 to 44 inches (91 to 112 centimeters); light olive brown (2.5Y 5/3) stratified sandy clay loam, pale brown (10YR 6/3) dry; massive; very hard, firm, moderately sticky and moderately plastic; 20 percent fine distinct masses of oxidized iron that are reddish yellow (7.5YR 6/6) dry, brown (7.5YR 5/4) moist; 20 percent fine gypsum masses; strongly effervescent (by HC1, 1 normal); moderately alkaline (pH 8.2); clear smooth boundary.

Bkg—44 to 50 inches (112 to 127 centimeters); grayish brown (2.5Y 5/2) stratified sandy loam, light gray (2.5Y 7/2) dry; massive; very hard, friable, slightly sticky and slightly plastic; many fine and very fine roots between peds; many fine and very fine tubular pores; 20 percent medium distinct masses of oxidized iron that are reddish yellow (7.5YR 6/6) dry, strong brown (7.5YR 5/6) moist; strongly effervescent (by HC1, 1 normal); moderately alkaline (pH 8.2); clear smooth boundary.

2Bg1—50 to 60 inches (127 to 152 centimeters); gray (2.5Y 6/1) stratified fine sand, light gray (2.5Y 7/1) dry; massive; slightly hard, very friable, nonsticky and nonplastic; 20 percent coarse distinct masses of oxidized iron that are reddish yellow (7.5YR 6/6) dry, strong brown (7.5YR 5/6) moist; moderately alkaline (pH 8.4); gradual smooth boundary.

2Bg2—60 to 80 inches (152 to 203 centimeters); olive (5Y 5/4) stratified fine sand, light gray (5Y 7/2) dry; massive; soft, very friable, nonsticky and nonplastic; 10 percent medium distinct masses of oxidized iron that are brown (7.5YR 5/4) dry, dark reddish brown (5YR 3/4) moist; strongly alkaline (pH 8.5).

Range in Characteristics

Mean annual soil temperature: 62 to 66 degrees F (16.7 to 18.9 degrees C)

Soil moisture content: Moist in mid-November to late in November through late in May

A horizon:
Color—grayish brown to very dark grayish brown with hue of 10YR
Reaction—slightly alkaline or moderately alkaline.
Carbonates—very slightly calcareous to strongly calcareous

B horizon:
Color—light gray to gray and grayish brown, and very pale brown to brown with hue of 10YR or 2.5Y; and light olive gray to olive gray, and pale yellow to olive with hue of 5Y
Texture—stratified fine sand to fine sandy clay loam
Clay—18 to 35 percent when mixed
Reaction—moderately alkaline or strongly alkaline
Redoximorphic features—distinct to prominent accumulations of iron within a depth of 20 to 30 inches

Chumash Series

The Chumash series consists of soils that are very shallow and shallow to soft bedrock and are well drained. These soils formed in residuum and colluvium derived from shale and sandstone. They are on hills and mountains. Slopes are 5 to 75 percent. The mean annual precipitation is 14 to 18 inches (360 to 457 millimeters), the mean annual air temperature is 60 to 64 degrees F (15.5 to 17.5 degrees C), and the frost-free season is 290 to 350 days. Elevation is 10 to 1,570 feet (3 to 479 meters).

Taxonomic classification: Loamy, mixed, superactive, nonacid, thermic, shallow Typic Xerorthents

Typical pedon location: Chumash gravelly loam in an area of Chumash-Boades-Malibu association, 30 to 75 percent slopes; on a mountainside at an elevation of 1,110 feet (338 meters), in an unsectionalized area 1/2 mile south of Laguna Peak; latitude 34 degrees, 6 minutes, 7 seconds north and longitude 119 degrees, 3 minutes, 54 seconds west; NAD 27; Point Mugu Quadrangle; soil was dry throughout when described (colors are for moist soil unless otherwise indicated).

Typical Pedon Description

A—0 to 7 inches (0 to 18 centimeters); dark yellowish brown (10YR 3/4) gravelly loam, yellowish brown (10YR 5/4) dry; moderate fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine and very fine roots between peds; many fine and very fine tubular pores; 15 percent nonflat subangular strongly cemented gravel 2 to 20 millimeters in diameter; neutral (pH 6.8 by pH meter, saturated paste); clear wavy boundary.
Cr—7 to 22 inches (18 to 55 centimeters); moderately cemented, highly fractured, bedded, weathered shale with fractures 1 to 3 inches apart; about 10 to 15 percent soil in fractures; many very fine roots in fractures.

Range in Characteristics

Mean annual soil temperature: 62 to 66 degrees F (16.7 to 18.9 degrees C)
Soil moisture content: Moist in mid-November to late in November through late in May
Depth to soft rock: 4 to 14 inches (10 to 35 centimeters)

A horizon:
Color—10YR 5/4, 6/2, or 6/3 dry; 10YR 3/4, 4/2, or 4/3 moist

Clay content—12 to 27 percent, but averages 18 to 27 percent
Coarse fragment content—15 to 30 percent

Cotharin Series

The Cotharin series consists of soils that are shallow to fractured bedrock and are well drained. These soils formed in residuum and colluvium derived from metavolcanic rock. They are on hills and mountains. Slopes are 15 to 75 percent. The mean annual precipitation is 18 to 24 inches (457 to 610 millimeters), the mean annual air temperature is 60 to 64 degrees F (15.5 to 17.5 degrees C), and the frost-free season is 290 to 350 days. Elevation is 380 to 3,110 feet (116 to 948 meters).

Taxonomic classification: Loamy, smectitic, thermic, shallow Entic Haploxerolls

Typical pedon location: Cotharin loam in an area of Cotharin-Talepop association, 15 to 50 percent slopes; on a hillside at an elevation of 740 feet (226 meters), about 1 1/4 miles west of Arroyo Sequit and 500 feet northeast of Mulholland Highway; 3,750 feet east and 700 feet south of the northwest corner of sec. 18, T. 1 S., R. 19 W.; latitude 34 degrees, 5 minutes, 14 seconds north and longitude 118 degrees, 54 minutes, 42 seconds west; NAD 27; Triunfo Pass Quadrangle; soil was dry throughout when described (colors for dry soil unless otherwise indicated).

Typical Pedon Description

Oe—0 to 1 inch (0 to 3 centimeters); moderately decomposed plant material; few fine to medium pieces of charcoal throughout the horizon.

A—1 to 9 inches (3 to 23 centimeters); brown (10YR 4/3) loam when crushed, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine to coarse roots between peds; common fine tubular pores; 5 percent nonflat subangular moderately cemented gravel 2 to 20 millimeters in diameter; neutral (pH 7.0 by pH meter, saturated paste); clear smooth boundary.

A/C—9 to 11 inches (23 to 28 centimeters); dark yellowish brown (10YR 4/4) loam when crushed, dark yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine to coarse roots between peds; common fine tubular pores; 5 percent nonflat subangular moderately cemented gravel 2 to 20 millimeters in diameter; neutral (pH 6.8 by pH meter, saturated paste); clear smooth boundary.

Cr—11 to 60 inches (28 to 150 centimeters); highly fractured volcanic rock with fractures 1 to 3 inches apart; about 10 to 15 percent soil in fractures; few very fine to coarse roots in fractures.

Range in Characteristics

Mean annual soil temperature: 62 to 66 degrees F (16.7 to 18.9 degrees C)
Soil moisture content: Moist in mid-November to late in November through late in May
Depth to paralithic contact: 4 to 14 inches (10 to 36 centimeters)

A horizon:
Color—10YR 5/2, 5/3, 4/2, or 4/3 dry; 10YR 3/2 or 3/3 moist
Texture—loam or clay loam
Clay content—18 to 35 percent
Coarse fragment content—5 to 15 percent

The A/C horizon is absent in some pedons.

Cropley Series

The Cropley series consists of very deep, well drained soils that formed in alluvium derived from sedimentary rock, dominantly shale. These soils are on alluvial fans. Slopes are 0 to 9 percent. The mean annual precipitation is 14 to 18 inches (360 to 457 millimeters), the mean annual air temperature is 60 to 64 degrees F (15.5 to 17.5 degrees C), and the frost-free season is 290 to 350 days. Elevation is 25 to 1,250 feet (8 to 381 meters).

Taxonomic classification: Fine, smectitic, thermic Aridic Haploxererts

Typical pedon location: Cropley clay, 2 to 9 percent slopes, on a fan at an elevation of 400 feet (122 meters); 4,400 feet south and 150 feet west of intersection of La Loma Avenue and Los Angeles Avenue in the Ventura Area soil survey area; about 150 east and 200 feet south of the northwest corner of sec. 22, T. 2 N., R. 21 W.; latitude 34 degrees, 24 minutes, 36 seconds north and longitude 119 degrees, 6 minutes, 15 seconds west; NAD 27; Moorpark Quadrangle; soil was dry throughout when described (colors for dry soil unless otherwise indicated).

Typical Pedon Description

A—0 to 2 inches (0 to 5 centimeters); very dark gray (10YR 3/1) clay, black (10YR 2/1) moist; moderate medium granular structure; extremely hard, very firm, very sticky and very plastic; many fine and very fine roots; few very fine, fine, and medium tubular pores; neutral (pH 7.0); abrupt smooth boundary.

Bss1—2 to 14 inches (5 to 36 centimeters); very dark gray (10YR 3/1) clay, black (10YR 2/1) moist; moderate medium angular blocky structure and weak coarse prismatic; extremely hard, very firm, very sticky and very plastic; common fine and very fine and few medium roots between peds; few very fine, fine, and medium tubular pores; 40 percent distinct slickensides (pedogenic); neutral (pH 7.0); gradual irregular boundary.

Bss2—14 to 22 inches (36 to 56 centimeters); very dark gray (10YR 3/1) clay, black (10YR 2/1) moist; moderate coarse angular blocky structure; hard, very firm, very sticky and very plastic; common very fine to coarse roots between peds; 40 percent distinct slickensides (pedogenic); slightly alkaline (pH 7.5; clear wavy boundary.

Bk1—22 to 28 inches (56 to 71 centimeters); very dark grayish brown (10YR 3/2) clay, very dark brown (10YR 2/2) moist; moderate medium angular blocky structure; extremely hard, very firm, very sticky and moderately plastic; few very fine roots; few fine and very fine tubular pores; 5 percent fine threadlike carbonate masses; strongly effervescent; moderately alkaline (pH 8.0); gradual wavy boundary.

Bk2—28 to 40 inches (71 to 102 centimeters); grayish brown (2.5Y 5/2) silty clay loam, dark grayish brown (10YR 4/2) moist; massive; very hard, very firm, moderately sticky and very plastic; few fine and very fine tubular pores; 5 percent fine threadlike carbonate masses; strongly effervescent; moderately alkaline (pH 8.0); gradual wavy boundary.

Bk3—40 to 60 inches (102 to 152 centimeters); grayish brown (2.5Y 5/2) silt loam, dark grayish brown (2.5Y 4/2) moist; massive; hard, firm, moderately sticky and moderately plastic; many very fine irregular pores; 5 percent fine threadlike carbonate masses; strongly effervescent; moderately alkaline (pH 8.0).

Range in Characteristics

Mean annual soil temperature: 62 to 66 degrees F (16.7 to 18.9 degrees C)
Soil moisture content: Moist late in November through early in June

Soil cracks: 1/2 inch to 2 inches wide to a depth of 10 to 20 inches; open in most years from June or July through late in November

A and Bss horizons:
Color—10YR 3/1 or 4/1 or 2.5Y 3/1 or 4/1; dark gray or very dark gray with hue of 10YR or 2.5Y

Bk horizon:
Color—10YR 5/2 or 3/2 or 2.5Y 5/2 or 3/2
Texture—clay loam or silty clay loam in the upper part of the horizon and dominantly clay loam, silty clay loam, loam, or silt loam in the lower part; some pedons do not strata of loam or silt loam below a depth of 40 inches
Gravel—0 to 15 percent
Reaction—slightly alkaline or moderately alkaline

Cumulic Haploxerolls

Cumulic Haploxerolls consists of very deep, well drained soils that formed in alluvium derived from mixed volcanic and sedimentary rock. These soils are on inset fans. Slopes are 2 to 9 percent. The mean annual precipitation is 14 to 24 inches (360 to 610 millimeters), the mean annual air temperature is 60 to 64 degrees F (15.5 to 17.5 degrees C), and the frost-free season is 290 to 350 days. Elevation is 10 to 900 feet (3 to 274 meters).

Taxonomic classification: Fine-loamy, mixed, superactive, thermic Cumulic Haploxerolls

Example pedon location: Cumulic Haploxerolls sandy loam, 0 to 9 percent slopes; on an axial stream flood plain at an elevation of 10 feet (3 meters), in Sycamore Canyon, about 1/2 mile north of the ocean; 2,300 feet west and 550 feet north of the northeast corner of sec. 19, T. 1 S., R. 20 W.; latitude 34 degrees, 4 minutes, 33 seconds north and longitude 119 degrees, 0 minutes, 48 seconds west; NAD 27; Point Mugu Quadrangle; soil was dry throughout when described (colors for dry soil unless otherwise indicated).

Example Pedon Description

A1—0 to 4 inches (0 to 10 centimeters); dark grayish brown (10YR 4/2) sandy loam, very dark grayish brown (10YR 3/2) moist; single grain; loose, nonsticky and nonplastic; many very fine to medium roots throughout; many fine and very fine interstitial pores; 5 percent nonflat subangular very strongly cemented gravel 2 to 75 millimeters in diameter; neutral (pH 7.2 by pH meter, saturated paste); abrupt wavy boundary.
A2—4 to 16 inches (10 to 41 centimeters); brown (10YR 5/3) stratified sandy loam, dark brown (10YR 3/3) moist; single grain; loose, nonsticky and nonplastic; many very fine to medium roots throughout; many fine and very fine interstitial pores; 5 percent nonflat subangular very strongly cemented gravel 2 to 75 millimeters in diameter; neutral (pH 7.2 by pH meter, saturated paste); abrupt wavy boundary.
2Bk—16 to 69 inches (41 to 175 centimeters); brown (10YR 5/3) stratified clay loam, dark brown (10YR 3/3) moist; massive; hard, friable, slightly sticky and slightly plastic; many fine and very fine roots between peds; many fine and very fine tubular pores; 10 percent fine spherical carbonate masses and 5 percent medium spherical strongly cemented carbonate nodules; 10 percent nonflat subangular very strongly cemented gravel 2 to 75 millimeters in diameter; neutral (pH 7.3 by pH meter, saturated paste); clear wavy boundary.
3C—69 to 83 inches (175 to 211 centimeters); pale brown (10YR 6/3) stratified

extremely stony coarse sand, brown (10YR 4/3) moist; massive; loose, nonsticky and nonplastic; many fine and very fine roots between peds; 25 percent nonflat subangular very strongly cemented stones 250 to 500 millimeters in diameter, 25 percent nonflat subangular very strongly cemented cobbles 75 to 250 millimeters in diameter, and 35 percent nonflat subangular very strongly cemented gravel 2 to 75 millimeters in diameter; neutral (pH 7.0 by pH meter, saturated paste).

Range in Characteristics

Mean annual soil temperature: 62 to 66 degrees F (16.7 to 18.9 degrees C)
Soil moisture content: Moist in mid-November to late in November through late in May

A horizon:
Color—10YR 4/2 or 5/3 dry; 10YR 3/2 or 3/3 moist

B horizon:
Color—10YR 4/2 or 5/3 dry; 10YR 3/2 or 3/3 moist

Danville Series

The Danville series consists of very deep, well drained soils that formed in alluvium derived from sedimentary and metavolcanic rock. These soils are on fans. Slopes are 2 to 15 percent. The mean annual precipitation is 14 to 18 inches (360 to 457 millimeters), the mean annual air temperature is 60 to 64 degrees F (15.5 to 17.5 degrees C), and the frost-free season is 290 to 350 days. Elevation is 50 to 1,700 feet (15 to 518 meters).

Taxonomic classification: Fine, smectitic, thermic Pachic Argixerolls

Typical pedon location: Danville clay loam in an area of Danville-Urban land complex, 0 to 9 percent slopes, on a terrace at an elevation of 100 feet (30.5 meters); about 400 feet southeast of the junction of State Highways 23 and 1, at El Pescador State Beach, and about 50 feet south of Highway 1 and 100 feet west of the parking lot; in an unsectionalized area about 7,000 feet south and 2,300 feet west of the northeast corner of sec. 29, T. 1 S., R. 21 W.; latitude 34 degrees, 2 minutes, 28 seconds north and longitude 118 degrees, 53 minutes, 33 seconds west; NAD 27; Triunfo Pass Quadrangle; soil was dry throughout when described (colors for dry soil unless otherwise indicated).

Typical Pedon Description

A—0 to 4 inches (0 to 10 centimeters); dark grayish brown (10YR 4/2) clay loam, very dark grayish brown (10YR 3/2) moist; moderate coarse subangular blocky structure and moderate medium subangular blocky; very hard, firm, moderately sticky and very plastic; common very fine roots; few fine and common very fine irregular pores; neutral (pH 7.0); clear wavy boundary.

Bt1—4 to 10 inches (10 to 25 centimeters); dark grayish brown (10YR 4/2) clay loam, very dark grayish brown (10YR 3/2) moist; strong medium angular blocky structure and strong coarse angular blocky; very hard, very firm, very sticky and very plastic; few very fine roots; common very fine tubular pores; 30 percent patchy faint clay films on faces of peds and 30 percent faint clay films in pores; neutral (pH 7.0); clear wavy boundary.

Bt2—10 to 21 inches (25 to 53 centimeters); dark gray (10YR 4/1) clay, very dark grayish brown (10YR 3/2) moist; strong medium prismatic structure parting to strong medium angular blocky; very hard, very firm, very sticky and very plastic; few very fine roots; common very fine tubular pores; 40 percent continuous

distinct clay films on faces of peds and 40 percent continuous distinct clay films in pores; moderately alkaline (pH 8.0); clear wavy boundary.

Bt3—21 to 32 inches (53 to 80 centimeters); dark grayish brown (10YR 4/2) and very dark grayish brown (10YR 3/2) clay, very dark grayish brown (10YR 3/2) moist; strong coarse prismatic structure parting to strong coarse angular blocky and strong medium angular blocky; very hard, extremely firm, very sticky and very plastic; few very fine roots; common very fine tubular pores; 40 percent continuous distinct clay films on faces of peds and 40 percent continuous distinct clay films in pores; moderately alkaline (pH 8.0); clear wavy boundary.

Btk1—32 to 41 inches (80 to 104 centimeters); brown (10YR 4/3) clay, dark brown (10YR 3/3) moist; strong medium angular blocky structure; moderately hard, firm, very sticky and very plastic; few very fine roots; common very fine tubular pores; 40 percent continuous distinct clay films on faces of peds and 40 percent continuous distinct clay films in pores; 7 percent fine threadlike carbonate masses; strongly effervescent; moderately alkaline (pH 8.0); clear wavy boundary.

Btk2—41 to 60 inches (104 to 152 centimeters); dark yellowish brown (10YR 4/4) clay loam, dark brown (10YR 3/3) moist; strong medium angular blocky structure; moderately hard, firm, very sticky and very plastic; common very fine tubular pores; 40 percent continuous distinct clay films on faces of peds and 40 percent continuous distinct clay films in pores; 7 percent fine spherical carbonate masses; slightly effervescent; moderately alkaline (pH 8.0).

Range in Characteristics

Mean annual soil temperature: 62 to 66 degrees F (16.7 to 18.9 degrees C)
Soil moisture content: Moist late in November through early in June

A horizon:
Color—10YR 4/2 or 5/2 dry; 10YR 2/2 or 3/2 moist
Reaction—slightly acid or neutral

Bt horizon:
Color—10YR 4/1, 4/2, 4/3, 5/2, or 5/4 dry; 10YR 2/1, 3/2, or 3/4 moist
Reaction—neutral to moderately alkaline
Texture—clay, clay loam, or silty clay loam

Btk horizon:
Color—10YR 4/3, 4/4, or 6/4 or 7.5YR 5/3, 5/4, or 6/3 dry; 10YR 3/3 or 4/3 or 7.5YR 3/4 or 4/3 moist
Texture—clay, clay loam, or silty clay loam

Elder Series

The Elder series consists of very deep, well drained soils that formed in alluvium derived from shale and sandstone. These soils are on fans and flood plains. Slopes are 0 to 2 percent. The mean annual precipitation is 14 to 18 inches (360 to 457 millimeters), the mean annual air temperature is 60 to 64 degrees F (15.5 to 17.5 degrees C), and the frost-free season is 290 to 350 days. Elevation is 50 to 300 feet (15 to 92 meters).

Taxonomic classification: Coarse-loamy, mixed, superactive, thermic Cumulic Haploxerolls

Typical pedon location: Elder fine sandy loam, coastal, 0 to 2 percent slopes; in Leo Carrillo State Beach campground, in Little Sycamore Canyon, on a flood plain at an elevation of 110 feet (33.5 meters); in an unsectionalized area about

2,640 feet north and 2,640 feet east of the southwest corner of sec. 5, T. 1 S., R. 20 W.; latitude 34 degrees, 2 minutes, 45 seconds north and longitude 119 degrees, 56 minutes, 1 second west; NAD 27; Triunfo Pass Quadrangle; soil was dry throughout when described (colors for dry soil unless otherwise indicated).

Typical Pedon Description

A—0 to 8 inches (0 to 20 centimeters); grayish brown (10YR 5/2) fine sandy loam, very dark gray (10YR 3/1) moist; massive; loose, nonsticky and nonplastic; many very fine interstitial pores; neutral (pH 7.1 by pH meter, saturated paste); clear smooth boundary.

C1—8 to 42 inches (20 to 108 centimeters); dark brown (10YR 5/3) fine sandy loam, brown (10YR 3/3) moist; massive; loose, nonsticky and nonplastic; many very fine interstitial pores; neutral (pH 7.0 by pH meter, saturated paste); clear smooth boundary.

C2—42 to 43 inches (108 to 110 centimeters); dark brown (10YR 5/3) loamy sand, brown (10YR 3/3) moist; massive; loose, nonsticky and nonplastic; many very fine interstitial pores; neutral (pH 6.8 by pH meter, saturated paste); clear smooth boundary.

C3—43 to 51 inches (110 to 130 centimeters); dark brown (10YR 5/3) fine sandy loam, brown (10YR 3/3) moist; massive; loose, nonsticky and nonplastic; many very fine interstitial pores; neutral (pH 6.8 by pH meter, saturated paste); clear smooth boundary.

C4—51 to 52 inches (130 to 133 centimeters); brown (10YR 5/3) loamy sand, dark brown (10YR 3/3) moist; massive; loose, nonsticky and nonplastic; many very fine interstitial pores and common very fine tubular pores; neutral (pH 6.8 by pH meter, saturated paste); clear smooth boundary.

C5—52 to 60 inches (133 to 152 centimeters); brown (10YR 5/3) fine sandy loam, dark brown (10YR 3/3) moist; massive; loose, nonsticky and nonplastic; many very fine interstitial pores and common very fine tubular pores; neutral (pH 6.8 by pH meter, saturated paste).

Range in Characteristics

Mean annual soil temperature: 62 to 66 degrees F (16.7 to 18.9 degrees C)
Soil moisture content: Moist in mid-November to late in November through late in May

A horizon:
Color—10YR 5/2 or 4/2 dry; 10YR 3/2, 3/1, or 2/2 moist

C horizon:
Color—10YR 5/3, 5/2, or 4/2 dry; 10YR 3/3, 3/2, 3/1, or 2/2 moist
Texture—stratified loamy sand and fine sandy loam

Fluvaquents

Fluvaquents consists of very deep, very poorly drained soils that formed in alluvium derived from sandstone and shale. These soils are on flood plains. Slopes are 0 to 5 percent. The mean annual precipitation is 14 to 24 inches (360 to 610 millimeters), the mean annual air temperature is 60 to 64 degrees F (15.5 to 17.5 degrees C), and the frost-free season is 290 to 350 days. Elevation is 1,000 to 1,900 feet (213 to 579 meters).

Taxonomic classification: Fine-loamy, mixed, superactive, nonacid, thermic Aeric Fluvaquents

Example pedon location: Fluvaquents in an area of Fluvaquents-Riverwash complex, 0 to 5 percent slopes; at an elevation of about 1,000 feet (305 meters), about 3,300 feet northeast of the confluence of Palo Comado and Cheeseboro Creeks and 100 feet southeast of the dirt road; 1,700 feet south and 4,550 feet west of the northeast corner of sec. 24, T. 1 north and range 18 W.; latitude 34 degrees, 9 minutes, 26 seconds north and longitude 118 degrees, 43 minutes, 33 seconds west; NAD 27; Calabasas Quadrangle; soil was moist throughout when described (colors for moist soil unless otherwise indicated).

Example Pedon Description

A1—0 to 5 inches (0 to 13 centimeters); very dark grayish brown (10YR 3/2) loam, grayish brown (10YR 5/2) dry; moderate medium subangular blocky structure and moderate fine subangular blocky; hard, firm, slightly sticky and slightly plastic; many fine and few medium and very fine roots; common very fine interstitial and tubular pores; 5 percent noncemented charcoal fragments 2 to 75 millimeters in diameter; moderately alkaline (pH 8.0); abrupt smooth boundary.

A2—5 to 10 inches (13 to 25 centimeters); dark grayish brown (10YR 4/2) fine sandy loam, pale brown (10YR 6/3) dry; moderate fine subangular blocky structure and moderate medium subangular blocky; slightly hard, firm, slightly sticky and slightly plastic; common fine, many medium, and few coarse and very fine roots; common very fine tubular and interstitial pores; 22 percent faint spherical weakly cemented masses of oxidized iron that are brown (10YR 4/3), light yellowish brown (10YR 6/4) dry; moderately alkaline (pH 8.0); abrupt smooth boundary.

A3—10 to 14 inches (25 to 36 centimeters); dark grayish brown (10YR 4/2) sandy loam, light brownish gray (10YR 6/2) dry; moderate medium subangular blocky structure and moderate fine subangular blocky; slightly hard, firm, slightly sticky and slightly plastic; common fine, many medium, and few coarse and very fine roots; common very fine tubular and interstitial pores; 15 percent faint spherical masses of oxidized iron that are dark yellowish brown (10YR 4/4), light yellowish brown (10YR 6/4) dry, and 22 percent faint spherical masses of oxidized iron that are very dark grayish brown (10YR 3/2), grayish brown (10YR 5/2) dry; moderately alkaline (pH 8.0); abrupt smooth boundary.

2C—14 to 19 inches (36 to 48 centimeters); light olive brown (2.5Y 5/3) loamy sand, light yellowish brown (2.5Y 6/3) dry; single grain; soft, very friable, nonsticky and nonplastic; many fine and medium and few coarse and very fine roots; many very fine interstitial pores; 10 percent spherical masses of oxidized iron that are dark yellowish brown (10YR 3/4), yellowish brown (10YR 5/4) dry; 10 percent nonflat rounded very strongly cemented gravel 20 to 75 millimeters in diameter; moderately alkaline (pH 8.0); abrupt smooth boundary.

3Cg1—19 to 48 inches (48 to 122 centimeters); dark greenish gray (10Y 4/1) extremely gravelly sand, greenish gray (10Y 6/1) dry; single grain; loose, nonsticky and nonplastic; common coarse roots; many fine interstitial pores; 10 percent nonflat rounded very strongly cemented gravel 2 to 5 millimeter in diameter and 60 percent nonflat rounded very strongly cemented gravel 20 to 75 millimeters in diameter; moderately alkaline (pH 8.0); abrupt smooth boundary.

4Cg2—48 to 55 inches (122 to 140 centimeters); dark greenish gray (10Y 4/1) gravelly coarse sand, greenish gray (10Y 6/1) dry; single grain; loose, nonsticky and nonplastic; many fine interstitial pores; 10 percent nonflat rounded very strongly cemented gravel 2 to 5 millimeters in diameter; moderately alkaline (pH 8.0).

Range in Characteristics

Mean annual soil temperature: 62 to 66 degrees F (16.7 to 18.9 degrees C)

Soil moisture content: Moist year round in most years, but occasionally dries out during periods of drought, usually late in August through November
Depth to permanent water table: 12 to 24 inches

A horizon:
Color—10YR 6/3, 6/2, or 5/2 dry; 10YR 4/2, 4/3, or 3/2 moist
Texture—dominantly loam, but fine sandy loam, sandy loam, loamy sandy, or sand in some areas

2C horizon:
Color—2.5Y 6/2 or 6/3 dry; 2.5Y 5/3 or 4/2 moist
Texture—silt loam, silty clay loam, loamy sand, or gravelly loamy sand
Gravel content—0 to 30 percent

Cg horizon:
Color—2.5Y 4/1, 5Y 5/1, or 10Y 6/1 dry; 2.5Y 2.5/1, 5Y 3/1, or 10Y 4/1 moist
Texture—sandy loam, gravelly sandy loam, coarse sand, very gravelly coarse sand, or extremely gravelly sand
Gravel content—10 to 75 percent

Gaviota Series

The Gaviota series consists of soils that are very shallow to bedrock and are well drained. These soils formed in residuum derived from sandstone. They are on hills and mountains. Slopes are 30 to 100 percent. The mean annual precipitation is 14 to 24 inches (360 to 610 millimeters), the mean annual air temperature is 60 to 64 degrees F (15.5 to 17.5 degrees C), and the frost-free season is 290 to 350 days. Elevation is 1,200 to 2,400 feet (366 to 732 meters).

Taxonomic classification: Loamy, mixed, superactive, nonacid, thermic Lithic Xerorthents

Typical pedon location: Gaviota sandy loam in an area of Gaviota-Rock outcrop association, 50 to 100 percent slopes, in the Ventura Area soil survey area, on a mountainside at an elevation of about 2,000 feet (610 meters); about 3,900 feet east and 200 feet south of the southeast corner of sec. 9, T. 2 N., R. 19 W.; latitude 34 degrees, 27 minutes, 26 seconds north and longitude 118 degrees, 57 minutes, 53 seconds west; NAD 27; soil was dry throughout when described (colors for moist soil unless otherwise indicated).

Typical Pedon Description

A—0 to 8 inches (0 to 20 centimeters); brown (10YR 4/3) sandy loam, yellowish brown (10YR 5/4) dry; massive; slightly hard, very friable, nonsticky and nonplastic; many very fine roots between peds; many very fine interstitial pores; neutral (pH 7.0 by pH meter, saturated paste); abrupt smooth boundary.
R—8 to 9 inches (20 to 23 centimeters); indurated sandstone that does not have apparent fractures.

Range in Characteristics

Mean annual soil temperature: 62 to 66 degrees F (16.7 to 18.9 degrees C)
Soil moisture content: Moist late in November through early in June
Depth to hard bedrock: 10 to 20 inches (25 to 50 centimeters)
Reaction: Slightly acid or neutral throughout

A horizon:
Color—7.5YR 6/4, 6/3, or 5/6 or 10YR 7/4, 6/4, or 6/3 dry; 7.5YR 4/4, 4/3, or 3/4 or 10YR 5/4, 5/3, 4/4, or 4/3 moist

Gravel content—0 to 20 percent
Cobble content—0 to 15 percent
Stone content—0 to 10 percent

Haploxerepts

Haploxerepts consists of soils that are moderately deep to bedrock and are well drained. These soils formed in residuum and colluvium weathered from shale. They are on hills and mountains. Slopes are 30 to 75 percent. The mean annual precipitation is 18 to 22 inches (457 to 559 millimeters), the mean annual air temperature is 60 to 64 degrees F (15.5 to 17.5 degrees C), and the frost-free season is 290 to 350 days. Elevation is 800 to 1,700 feet (243 to 518 meters).

Taxonomic classification: Fine-loamy, mixed, thermic Typic Haploxerepts

Example pedon location: Haploxerepts loam in an area of Linne-Los Osos-Haploxerepts association, 30 to 75 percent slopes, on a hillside at an elevation of 853 feet (260 meters); about 2,300 feet west and 1,300 feet north of the southeast corner of sec. 1, T. 1 S., R. 18 W.; latitude 34 degrees, 7 minutes, 25 seconds north and longitude 118 degrees, 43 minutes, 54 seconds west; NAD 27; Malibu Beach Quadrangle; soil was dry throughout when described (colors for dry soil unless otherwise indicated).

Example Pedon Description

Soil surface has 20 percent channers of shale.

A—0 to 4 inches (0 to 10 centimeters); light brownish gray (2.5Y 6/2) loam, dark grayish brown (10YR 4/2) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine and very fine roots between peds; many fine and very fine tubular pores; 10 percent flat very angular very strongly cemented shale channers 2 to 150 millimeters in diameter; violently effervescent (by HC1, 1 normal); moderately alkaline (pH 8.0 by pH meter, saturated paste); clear wavy boundary.

Bw1—4 to 19 inches (10 to 48 centimeters); light brownish gray (2.5Y 6/2) channery silty clay loam, dark grayish brown (10YR 4/2) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many fine and very fine roots between peds; many fine and very fine tubular pores; 20 percent flat very angular very strongly cemented shale channers 2 to 150 millimeters in diameter; violently effervescent (by HC1, 1 normal); moderately alkaline (pH 8.0 by pH meter, saturated paste); clear wavy boundary.

Bw2—19 to 47 inches (48 to 119 centimeters); pale yellow (2.5Y 7/3) channery silty clay loam, light olive brown (2.5Y 5/3) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many fine and very fine roots between peds; many fine and very fine tubular pores; 20 percent nonflat very angular very strongly cemented shale channers 2 to 150 millimeters in diameter; violently effervescent (by HC1, 1 normal); moderately alkaline (pH 8.0 by pH meter, saturated paste); clear wavy boundary.

Cr—47 to 51 inches (119 to 130 centimeters); weakly cemented, highly fractured shale that can be dug with a shovel; less than 1 inch between fractures; many very fine and fine roots in fractures; violently effervescent (by HC1, 1 normal).

Range in Characteristics

Mean annual soil temperature: 62 to 66 degrees F (16.7 to 18.9 degrees C)
Soil moisture content: Moist in mid-November to late in November through late in May
Depth to bedrock—40 to 60 inches (102 to 150 centimeters)

Texture—channery silt loam or channery silty clay loam throughout
Coarse fragment content—15 to 35 percent shale channers

A horizon:
Color—2.5Y 6/2 or 6/4; 2.5Y 4/2 or 4/4 moist

Bw horizon:
Color—2.5Y 5/4, 6/4, 7/2, or 7/4; 2.5Y 4/2, 4/4, 5/2, or 5/4 moist

Haploxererts

Haploxererts consists of soils that are deep to bedrock and are well drained. These soils formed in residuum and colluvium weathered from sandstone and shale. They are on hills. Slopes are 9 to 30 percent. The mean annual precipitation is 14 to 18 inches (360 to 457 millimeters), the mean annual air temperature is 60 to 64 degrees F (15.5 to 17.5 degrees C), and the frost-free season is 290 to 350 days. Elevation is 50 to 700 feet (15 to 213 meters).

Taxonomic classification: Fine, smectitic, thermic Typic Haploxererts

Example pedon location: Haploxererts clay in an area of Cropley, coastal-Urban land-Haploxererts complex, 0 to 30 percent slopes; in the city of Malibu; about 2,500 feet north and 300 feet west of the southeast corner of sec. 12, T. 1 S., R. 21 W.; latitude 34 degrees, 2 minutes, 25 seconds north and longitude 118 degrees, 45 minutes, 7 seconds west; NAD 27; Malibu Beach Quadrangle; soil was dry throughout when described (colors for dry soil unless otherwise indicated).

Example Pedon Description

Soil surface has 20 percent channers of shale and sandstone.

Ap—0 to 30 inches (0 to 76 centimeters); brown (10YR 5/3) clay, dark brown (10YR 3/3) moist; moderate medium angular blocky structure; hard, friable, moderately sticky and moderately plastic; many fine and very fine roots between peds; many fine and very fine tubular pores; slightly effervescent (by HC1, 1 normal); slightly alkaline (pH 7.5 by pH meter, saturated paste); clear smooth boundary.

Bkss—30 to 49 inches (76 to 125 centimeters); light yellowish brown (10YR 6/4) clay, dark yellowish brown (10YR 4/4) moist; moderate medium angular blocky structure; hard, friable, moderately sticky and moderately plastic; many fine and very fine roots between peds; many fine and very fine tubular pores; 5 percent slickensides (pedogenic) on faces of peds; 10 percent fine spherical carbonate masses; 5 percent nonflat subangular very strongly cemented gravel 2 to 75 millimeters in diameter; violently effervescent (by HC1, 1 normal); moderately alkaline (pH 8.0 by pH meter, saturated paste); clear wavy boundary.

Cr—49 to 51 inches (125 to 130 centimeters); extremely weakly cemented, very soft sandstone that can easily be bored with an auger; violently effervescent (by HC1, 1 normal).

Range in Characteristics

Mean annual soil temperature: 62 to 66 degrees F (16.7 to 18.9 degrees C)
Soil moisture content: Moist in mid-November to late in November through late in May
Soil cracks: 0.5 to 2.0 inches wide to a depth of 10 to 20 inches; open in most years from June or July through late in November
Depth to soft bedrock: 40 to 60 inches (102 to 150 centimeters)
Texture: Clay or clay loam with 35 to 55 percent clay
Coarse fragment content: 0 to 5 percent gravel

Hipuk Series

The Hipuk series consists of soils that are shallow to soft sandstone and are well drained. These soils formed in residuum and colluvium derived from sandstone. They are on hills and mountains. Slopes are 30 to 75 percent. The mean annual precipitation is 18 to 24 inches (270 to 610 millimeters), the mean annual air temperature is 60 to 64 degrees F (15.5 to 17.5 degrees C), and the frost-free season is 290 to 350 days. Elevation is 1,400 to 2,500 feet (427 to 762 meters).

Taxonomic classification: Loamy, mixed, superactive, thermic, shallow Typic Haploxeralfs

Typical pedon location: Hipuk gravelly sandy loam in an area of Rock outcrop-Sumiwawa-Hipuk complex, 30 to 75 percent slopes; on a mountainside at an elevation of 1,460 feet (445 meters), about 1/2 mile south of Calabasas Peak; 2,850 feet west and 830 feet north of the southeast corner of sec. 3, T. 1 S., R. 17 W.; latitude 34 degrees, 6 minutes, 26 seconds north and longitude 118 degrees, 39 minutes, 0 seconds west; NAD 27; Malibu Beach Quadrangle; soil was dry throughout when described (colors for dry soil unless otherwise noted).

Typical Pedon Description

Soil surface has 2 percent stones, 5 percent cobbles, and 40 percent gravel.

A1—0 to 1 inch (0 to 2 centimeters); dark grayish brown (10YR 4/2) gravelly sandy loam, very dark gray (10YR 3/1) moist; moderate thin platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine interstitial pores; 1 percent nonflat subangular indurated stones 250 to 600 millimeters in diameter, 3 percent nonflat subangular indurated cobbles 75 to 250 millimeters in diameter, and 20 percent nonflat subangular indurated gravel 2 to 40 millimeters in diameter; moderately acid (pH 6.0 by Hellige-Truog); abrupt smooth boundary.

A2—1 to 4 inches (2 to 10 centimeters); dark grayish brown (10YR 4/2) sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure and weak fine subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; common fine tubular pores; 2 percent nonflat subangular indurated cobbles 75 to 250 millimeters in diameter and 10 percent nonflat subangular indurated gravel 2 to 40 millimeters in diameter; moderately acid (pH 6.0 by Hellige-Truog); clear wavy boundary.

Bt1—4 to 8 inches (10 to 20 centimeters); brown (10YR 4/3) sandy clay loam, dark yellowish brown (10YR 3/4) moist; weak medium subangular blocky structure and weak fine subangular blocky; slightly hard, very friable, moderately sticky and slightly plastic; few very fine roots; many fine tubular pores; 1 percent faint clay films on faces of peds and 1 percent faint clay films in pores; 2 percent nonflat subangular indurated cobbles 75 to 250 millimeters in diameter and 10 percent nonflat subangular indurated gravel 2 to 40 millimeters in diameter; strongly acid (pH 5.5 by Hellige-Truog); clear wavy boundary.

Bt2—8 to 18 inches (20 to 45 centimeters); light yellowish brown (10YR 6/4) gravelly sandy clay loam, dark yellowish brown (10YR 4/4) moist; weak medium angular blocky structure; slightly hard, very friable, moderately sticky and slightly plastic; few very fine, fine, and medium roots; many fine tubular pores; 55 percent distinct clay films in pores and 55 percent distinct clay films on faces of peds; 9 percent nonflat subangular indurated cobbles 75 to 250 millimeters in diameter and 25 percent nonflat subangular indurated gravel 2 to 40 millimeters in diameter; strongly acid (pH 5.5 by Hellige-Truog); clear irregular boundary.

Cr—18 to 24 inches (45 to 60 centimeters); highly fractured sandstone; fractures 1 to

3 inches apart; about 10 to 15 percent soil and few very fine to coarse roots in fractures; abrupt wavy boundary.

R—24 to 26 inches (60 to 65 centimeters); moderately cemented, hard, nonfractured sandstone.

Range in Characteristics

Mean annual soil temperature: 62 to 66 degrees F (16.7 to 18.9 degrees C)
Soil moisture content: Moist in mid-November to late in November through late in May
Depth to paralithic contact: 14 to 20 inches (36 to 51 centimeters)
Depth to lithic contact: 20 to 40 inches (51 to 102 centimeters)

A horizon:
Color—10YR 5/2, 5/3, 4/2, or 4/3 dry; 10YR 3/1, 3/2, or 3/3 moist
Texture—sandy loam or gravelly sandy loam
Clay content—8 to 18 percent
Coarse fragment content—5 to 35 percent

B horizon:
Color—10YR 6/4, 6/3, 5/2, 5/3, 4/2, or 4/3 dry; 10YR 4/4, 4/3, 4/2, 3/1, 3/2, or 3/3 moist
Texture—sandy clay loam, gravelly sandy clay loam, gravelly sandy loam, or sandy loam
Clay content—18 to 27 percent
Coarse fragment content—10 to 35 percent

Kawenga Series

The Kawenga series consists of soils that are deep to bedrock and are well drained. These soils formed in residuum and colluvium derived from sandstone. They are on hills and mountains. Slopes are 15 to 75 percent. The mean annual precipitation is 18 to 24 inches (457 to 610 millimeters), the mean annual air temperature is 57 to 61 degrees F (14.0 to 16.0 degrees C), and the frost-free season is 290 to 320 days. Elevation is 500 to 3,000 feet (152 to 915 meters).

Taxonomic classification: Fine-loamy, mixed, superactive, thermic Pachic Argixerolls

Typical pedon location: Kawenga gravelly loam in an area of Zumaridge-Kawenga association, 30 to 75 percent slopes; on a mountainside at an elevation of 1,850 feet (564 meters), on the north side of Castro Peak; 700 feet west and 2,700 feet north of the southeast corner of sec. 9, T. 1 S., R. 18 W.; latitude 34 degrees, 6 minutes, 56 seconds north and longitude 118 degrees, 45 minutes, 51 seconds west; NAD 27; Point Dume Quadrangle; soil was dry throughout when described (colors for dry soil unless otherwise indicated).

Typical Pedon Description

Oe—0 to 2 inches (0 to 5 centimeters); moderately decomposed plant material.

A1—2 to 10 inches (5 to 25 centimeters); brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; slightly hard, very friable, slightly sticky and nonplastic; few fine and medium roots and many very fine roots; few very fine tubular pores; 20 percent nonflat subangular very strongly cemented sandstone fragments 2 to 20 millimeters in diameter; neutral (pH 7.0); clear smooth boundary.

A2—10 to 27 inches (25 to 68 centimeters); brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; slightly hard, very friable, slightly sticky and nonplastic; few very fine, fine, and medium roots; few very fine tubular pores; 5 percent nonflat subangular very strongly cemented

sandstone fragments 2 to 20 millimeters in diameter; neutral (pH 6.9); clear smooth boundary.

Bt—27 to 37 inches (68 to 93 centimeters); light yellowish brown (10YR 6/4) clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine, fine, and medium roots; few very fine tubular pores; 1 percent faint clay films in pores and 1 percent faint clay films on faces of peds; 5 percent nonflat subangular very strongly cemented sandstone fragments 2 to 20 millimeters in diameter; slightly acid (pH 6.6); clear smooth boundary.

BC—37 to 54 inches (93 to 138 centimeters); 15 percent light yellowish brown (10YR 6/4) and 85 percent pale brown (10YR 6/3) gravelly loam, 15 percent dark yellowish brown (10YR 4/4) and 85 percent dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine, fine, and medium roots; few very fine tubular pores; 5 percent nonflat subangular very strongly cemented sandstone fragments 2 to 20 millimeters in diameter and 10 percent nonflat subangular weakly cemented sandstone fragments 2 to 20 millimeters in diameter; slightly acid (pH 6.6); clear wavy boundary.

Cr—54 to 59 inches (138 to 150 centimeters); extremely weakly cemented, very soft, highly weathered, white sandstone that can easily be dug and bored with an auger.

Range in Characteristics

Mean annual soil temperature: 59 to 63 degrees F (15 to 17 degrees C)
Soil moisture content: Moist in mid-November to late in November through June
Depth to soft rock: 40 to 60 inches (101 to 152 centimeters)

A horizon:
Color—10YR 5/2 or 5/3 dry; 10YR 3/2 or 3/3 moist
Texture—loam, sandy loam, gravelly sandy loam, or gravelly loam
Clay content—12 to 27 percent
Coarse fragment content—5 to 30 percent, dominantly gravel

Bt horizon:
Color—10YR 5/2, 5/3, 5/4, 6/3, or 6/4 dry; 10YR 3/2, 3/3, 4/2, 4/3, or 4/4 moist
Texture—loam, gravelly loam, clay loam, or gravelly clay loam
Clay content—18 to 35 percent
Coarse fragment content—5 to 30 percent, dominantly gravel

BC horizon:
Color—10YR 5/2, 5/3, 5/4, 6/3, or 6/4 dry; 10YR 3/2, 3/3, 4/2, 4/3, or 4/4 moist
Texture—loam, gravelly loam, clay loam, or gravelly clay loam
Clay content—10 to 35 percent
Coarse fragment content—5 to 30 percent, dominantly gravel

Kayiwish Series

The Kayiwish series consists of soils that are moderately deep to soft bedrock and are moderately well drained. These soils formed in residuum and colluvium derived from metavolcanic rock. They are on hills. Slopes are 0 to 30 percent. The mean annual precipitation is 18 to 24 inches (457 to 610 millimeters), the mean annual air temperature is 60 to 64 degrees F (15.5 to 17.5 degrees C), and the frost-free season is 290 to 350 days. Elevation is 380 to 2,100 feet (116 to 640 meters).

Taxonomic classification: Fine, mixed, superactive, thermic Leptic Haploxererts

Typical pedon location: Kayiwish association, 0 to 9 percent slopes; on the toeslope of a hill at an elevation of 790 feet (241 meters), in Serrano Valley; 460 feet west and 2,200 feet south of the northeast corner of sec. 9, T. 1 S., R. 20 W.; latitude 34 degrees, 6 minutes, 43 seconds north and longitude 119 degrees, 4 minutes, 16 seconds west; NAD 27; Point Mugu Quadrangle; soil was dry throughout when described (colors for dry soil unless otherwise indicated).

Typical Pedon Description

A—0 to 4 inches (0 to 10 centimeters); very dark grayish brown (10YR 3/2) clay, very dark brown (10YR 2/2) moist; moderate medium angular blocky structure; hard, friable, very sticky and very plastic; common very fine roots between peds; common very fine tubular pores; neutral (pH 6.8 by pH meter, saturated paste); abrupt smooth boundary.

Bss—4 to 21 inches (10 to 53 centimeters); very dark grayish brown (10YR 3/2) clay, very dark brown (10YR 2/2) moist; moderate medium angular blocky structure; hard, friable, very sticky and very plastic; 75 percent slickensides (pedogenic); neutral (pH 6.9 by pH meter, saturated paste); abrupt smooth boundary.

B/C—21 to 24 inches (53 to 60 centimeters); 30 percent brown (10YR 4/3) and 70 percent very dark grayish brown (10YR 3/2) clay, 30 percent dark brown (10YR 3/3) and 70 percent very dark brown (10YR 2/2) moist; moderate medium angular blocky structure; hard, friable, very sticky and very plastic; neutral (pH 6.9 by pH meter, saturated paste); abrupt smooth boundary.

Cr—24 to 27 inches (60 to 68 centimeters); extremely weakly cemented, soft metavolcanic rock that can easily be dug.

Range in Characteristics

Mean annual soil temperature: 62 to 66 degrees F (16.7 to 18.9 degrees C)

Soil moisture content: Moist in mid-November to late in November through August; upper 10 to 20 inches dries out in June or July in most years

Soil cracks: 1/2 to 2 inches wide to a depth of 10 to 20 inches; open in most years from June or July through mid-November to late in November

Depth to paralithic contact: 20 to 40 inches (51 to 102 centimeters)

A and Bss horizons:

Color—10YR 5/2, 5/3, 4/2, 4/3, 3/2, or 3/3 dry; 10YR 3/2, 3/3, or 2/2 moist

Clay content—40 to 55 percent

Coarse fragment content—0 to 10 percent

The B/C horizon is absent in some pedons.

The Kayiwish soils in La Jolla Valley are underlain by thinly bedded shale and sandstone, but the soil descriptions are identical and the plant communities are similar to those of the Kayiwish soils in other areas.

Linne Series

The Linne series consists of soils that are moderately deep to bedrock and are well drained. These soils formed in residuum derived from shale. They are on hills. Slopes are 9 to 75 percent. The mean annual precipitation is 14 to 24 inches (360 to 610 millimeters), the mean annual air temperature is 60 to 62 degrees F (15.5 to 16.5 degrees C), and the frost-free season is 290 to 330 days. Elevation is 700 to 2,000 feet (213 to 610 meters).

Taxonomic classification: Fine-loamy, mixed, superactive, thermic Calcic Pachic Haploxerolls

Typical pedon location: Linne silty clay loam in an area of Linne-Los Osos-Haploxerepts association, 30 to 75 percent slopes, on a hillside at an elevation of 1,250 feet (381 meters); about 4,400 feet northeast of the confluence of Palo Comado and Cheeseboro Creeks and 1,000 feet west of the junction of two dirt roads in Cheeseboro Canyon; about 200 feet north and 5,000 feet west of the southeast corner of sec. 13, T. 1 N., R. 18 W.; latitude 34 degrees, 9 minutes, 45 seconds north and longitude 118 degrees, 43 minutes, 33 seconds west; NAD 27; Calabasas Quadrangle; soil was dry throughout when described (colors for dry soil unless otherwise indicated).

Typical Pedon Description

A1—0 to 6 inches (0 to 15 centimeters); grayish brown (10YR 5/2) silty clay loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure and moderate medium subangular blocky; hard, friable, moderately sticky and moderately plastic; common very fine roots; common very fine irregular pores; 10 percent nonflat angular very strongly cemented gravel 2 to 5 millimeters in diameter; violently effervescent (by HC1, 1 normal); moderately alkaline (pH 8.0); clear wavy boundary.

A2—6 to 16 inches (15 to 41 centimeters); grayish brown (10YR 5/2) silty clay loam, very dark grayish brown (10YR 3/2) moist; moderate coarse angular blocky structure and moderate medium angular blocky; hard, friable, moderately sticky and moderately plastic; common very fine roots; common very fine tubular pores and few very fine irregular pores; 5 percent nonflat angular very strongly cemented gravel 20 to 75 millimeters in diameter and 5 percent nonflat angular very strongly cemented gravel 2 to 5 millimeters in diameter; violently effervescent (by HC1, 1 normal); moderately alkaline (pH 8.0); clear wavy boundary.

A3—16 to 25 inches (41 to 63 centimeters); grayish brown (10YR 5/2) silty clay loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure and weak fine subangular blocky; soft, very friable, moderately sticky and moderately plastic; common very fine roots; many very fine tubular pores and few very fine irregular pores; 5 percent nonflat angular very strongly cemented gravel 2 to 5 millimeters in diameter and 5 percent nonflat angular very strongly cemented gravel 20 to 75 millimeters in diameter; violently effervescent (by HC1, 1 normal); moderately alkaline (pH 8.0); clear wavy boundary.

Bk—25 to 30 inches (63 to 76 centimeters); light brownish gray (10YR 6/2) silty clay loam, dark grayish brown (10YR 4/2) moist; moderate coarse angular blocky structure; hard, friable, moderately sticky and moderately plastic; common very fine roots; few very fine interstitial pores and few very fine tubular pores; 25 percent fine threadlike carbonate masses on faces of peds; 5 percent nonflat angular very strongly cemented shale fragments 20 to 75 millimeters in diameter and 5 percent nonflat angular very strongly cemented shale fragments 2 to 5 millimeters in diameter; violently effervescent (by HC1, 1 normal); moderately alkaline (pH 8.0); clear irregular boundary.

Cr—30 to 36 inches (76 to 91 centimeters); moderately cemented, calcareous shale channery fragments 2 to 3 inches across in the upper part and massive below a depth of 34 inches; can be dug with a spade with difficulty; violently effervescent (by HCl, 1 normal).

Range in Characteristics

Mean annual soil temperature: 62 to 66 degrees F (16.7 to 18.9 degrees C)
Soil moisture content: Moist late in November through early in June
Depth to bedrock: 20 to 40 inches (51 to 102 centimeters)

A horizon:
Color—2.5Y 5/2 or 5/3 dry; 2.5Y 3/2 or 3/3 moist
Texture—silty clay loam or channery clay loam

Bk horizon:
Color—2.5Y 6/2 or 7/4 dry; 2.5Y 4/2 or 6/4 moist

Lockwood Series

The Lockwood series consists of very deep, well drained soils that formed in alluvium derived from shale. These soils are on fans and terraces. Slopes are 2 to 15 percent. The mean annual precipitation is 14 to 18 inches (360 to 457 millimeters), the mean annual air temperature is 60 to 64 degrees F (15.5 to 17.5 degrees C), and the frost-free season is 320 to 350 days. Elevation is 50 to 1,700 feet (15 to 518 meters).

Taxonomic classification: Fine-loamy, mixed, superactive, thermic Pachic Argixerolls

Typical pedon location: Lockwood gravelly loam in an area of Lockwood-Urban land complex, 0 to 15 percent slopes, on a terrace at an elevation of 125 feet (38 meters); about 1,500 feet east on State Highway 1 from the junction with Broad Beach Road and 50 feet north of Highway 1; in an unsectionalized area about 2,900 feet south and 4,100 feet west of the projected northeast corner of sec. 34, T. 1 S., R. 19 W.; latitude 34 degrees, 2 minutes, 16 seconds north and longitude 118 degrees, 51 minutes, 46 seconds west; NAD 27; Point Dume Quadrangle; soil was dry throughout when described (colors for dry soil unless otherwise indicated).

Typical Pedon Description

A—0 to 4 inches (0 to 10 centimeters); dark grayish brown (10YR 4/2) gravelly loam, very dark brown (10YR 2/2) moist; moderate medium subangular blocky structure and moderate fine subangular blocky; hard, firm, slightly sticky and slightly plastic; many very fine roots; common very fine irregular pores; 10 percent angular strongly cemented gravel 20 to 75 millimeters in diameter and 10 percent angular strongly cemented gravel 2 to 5 millimeters in diameter; slightly alkaline (pH 7.5 by pH meter, saturated paste); clear wavy boundary.

Bt1—4 to 13 inches (10 to 32 centimeters); very dark grayish brown (10YR 3/2) gravelly clay loam, very dark brown (10YR 2/2) moist; moderate coarse subangular blocky structure and moderate medium subangular blocky; slightly hard, friable, moderately sticky and moderately plastic; common very fine roots; many very fine tubular pores; 60 percent faint clay films in pores and 60 percent faint clay films on faces of peds; 10 percent subrounded strongly cemented gravel 20 to 75 millimeters in diameter and 20 percent subrounded strongly cemented gravel 2 to 5 millimeters in diameter; moderately alkaline (pH 8.0 by pH meter, saturated paste); clear wavy boundary.

Bt2—13 to 26 inches (32 to 66 centimeters); dark grayish brown (10YR 4/2) gravelly sandy clay loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure and moderate medium subangular blocky; slightly hard, very friable, moderately sticky and moderately plastic; common very fine roots; many very fine tubular pores; 60 percent distinct clay films on faces of peds and 60 percent distinct clay films in pores; 10 percent gravel 2 to 5 millimeters in diameter, 10 percent gravel 75 to 250 millimeters in diameter, and 10 percent gravel 20 to 75 millimeters in diameter; moderately alkaline (pH 8.0 by pH meter, saturated paste); clear wavy boundary.

Bt3—26 to 45 inches (66 to 114 centimeters); dark grayish brown (10YR 4/2) gravelly sandy clay loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure and moderate fine subangular blocky; slightly hard, very friable, moderately sticky and moderately plastic; few very fine roots; many very fine tubular pores; 60 percent distinct clay films in pores and 60 percent distinct clay films on faces of peds; 10 percent gravel 20 to 75 millimeters in diameter and 20 percent gravel 2 to 5 millimeters in diameter; moderately alkaline (pH 8.0 by pH meter, saturated paste); gradual wavy boundary.

Btk1—45 to 58 inches (114 to 147 centimeters); brown (10YR 4/3) gravelly sandy clay loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure and weak coarse subangular blocky; slightly hard, very friable, moderately sticky and moderately plastic; 5 percent fine threadlike carbonate masses; slightly effervescent (by HC1, 1 normal); moderately alkaline (pH 8.0 by pH meter, saturated paste); gradual wavy boundary.

Btk2—58 to 83 inches (147 to 208 centimeters); brown (10YR 4/3) gravelly sandy clay loam, dark brown (10YR 3/3) moist; massive; slightly hard, very friable, moderately sticky and moderately plastic; 5 percent threadlike carbonate masses; moderately alkaline (pH 8.0 by pH meter, saturated paste).

Range in Characteristics

Mean annual soil temperature: 62 to 66 degrees F (16.7 to 18.9 degrees C)
Soil moisture content: Moist late in November through early in June

A horizon:
Color—10YR 3/2, 4/1, or 4/2 dry; 10YR 2/1 or 2/2 moist
Reaction—slightly acid to slightly alkaline

Bt horizon:
Color—10YR 4/2 or 5/3 dry; 10YR 3/2 or 3/3 moist
Reaction—neutral to moderately alkaline

The Lockwood soils in this survey area have segregated carbonates in the lower part of the Bt horizon below a depth of 40 inches and do not have a lithologic discontinuity, which is outside the range for the Lockwood series. These differences do not affect use and management, and there are not enough acres mapped in this survey area to justify a new soil series. If agriculture was a significant use, the presence of segregated carbonates could affect management of these soils.

Los Osos Series

The Los Osos series consists of soils that are moderately deep to bedrock and are well drained. These soils formed in shale and sandstone. They are on hills. Slopes are 30 to 75 percent. The mean annual precipitation is 14 to 24 inches (360 to 610 millimeters), the mean annual air temperature is 60 to 64 degrees F (15.5 to 17.5 degrees C), and the frost-free season is 270 to 350 days. Elevation is 100 to 2,000 feet (31 to 610 meters).

Taxonomic classification: Fine, smectitic, thermic Typic Argixerolls

Typical pedon location: Los Osos clay loam, 30 to 50 percent slopes, on a hillside at an elevation of 853 feet (260 meters); about 600 feet west and 2,200 feet north of the southeast corner of sec. 21, T. 2 N., R. 18 W.; latitude 34 degrees, 24 minutes, 36 seconds north and longitude 118 degrees, 57 minutes, 5 seconds west; NAD 27; in the Ventura Area soil survey area; soil was dry throughout when described (colors for dry soil unless otherwise indicated).

Typical Pedon Description

A1—0 to 2 inches (0 to 5 centimeters); brown (10YR 4/3) clay loam, dark brown (10YR 3/3) moist; moderate fine granular structure; hard, firm, moderately sticky and moderately plastic; many fine and very fine roots; many very fine irregular pores; slightly acid (pH 6.2 by pH meter, saturated paste); abrupt smooth boundary.

A2—2 to 9 inches (5 to 23 centimeters); brown (10YR 4/3) clay loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few fine and medium and common very fine roots; common fine and very fine tubular pores and common very fine irregular pores; slightly acid (pH 6.5 by pH meter, saturated paste); gradual wavy boundary.

Bt1—9 to 15 inches (23 to 38 centimeters); brown (10YR 4/3) clay, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; very hard, very firm, very sticky and very plastic; few fine and medium and common very fine roots; common very fine tubular pores; 40 percent faint clay films on faces of peds and 100 percent continuous faint clay films in pores; slightly acid (pH 6.5 by pH meter, saturated paste); gradual wavy boundary.

Bt2—15 to 29 inches (38 to 74 centimeters); dark brown (10YR 3/3) clay, very dark brown (10YR 2/2) moist; strong medium subangular blocky structure; extremely hard, very firm, very sticky and very plastic; few fine and very fine roots; common fine and very fine tubular pores; 100 percent continuous prominent clay films in pores and 100 percent continuous distinct clay films on faces of peds; neutral (pH 7.0 by pH meter, saturated paste); gradual wavy boundary.

Bt3—29 to 36 inches (74 to 91 centimeters); brown (10YR 4/3) clay loam, dark brown (10YR 3/3) moist; massive; very hard, very firm, moderately sticky and moderately plastic; few fine and very fine roots; common fine and very fine tubular pores; 100 percent continuous distinct clay films in pores; neutral (pH 7.0 by pH meter, saturated paste); diffuse irregular boundary.

Cr—36 to 37 inches (91 to 94 centimeters); gray (10YR 6/1) and yellowish brown weathered, weakly cemented shale.

Range in Characteristics

Mean annual soil temperature: 62 to 66 degrees F (16.7 to 18.9 degrees C)
Soil moisture content: Moist late in November through early in June

A horizon:
Color—10YR 5/2, 5/3, 4/2, 4/3, or 3/3
Reaction—slightly acid or medium acid

B horizon:
Color—10YR 5/3, 5/4, 4/3, 4/2, or 3/3
Texture—clay or clay loam

Malibu Series

The Malibu series consists of soils that are moderately deep to soft bedrock and are moderately well drained. These soils formed in residuum and colluvium derived from interbedded shale and sandstone. They are on hills and mountains. Slopes are 5 to 75 percent. The mean annual precipitation is 14 to 18 inches (360 to 457 millimeters), the mean annual air temperature is 60 to 64 degrees F (15.5 to 17.5 degrees C), and the frost-free season is 290 to 350 days. Elevation is 10 to 1,545 feet (3 to 471 meters).

Taxonomic classification: Fine, vermiculitic, thermic Typic Palexerolls

Typical pedon location: Malibu loam in an area of Chumash-Boades-Malibu association, 30 to 75 percent slopes; on a mountainside at an elevation of 680 feet (207 meters), about 1/2 mile northwest of Laguna Peak in an unsectionalized area; latitude 34 degrees, 6 minutes, 43 seconds north and longitude 119 degrees, 4 minutes, 16 seconds west; NAD 27; Point Mugu Quadrangle; soil was dry throughout when described (colors for dry soil unless otherwise indicated).

Typical Pedon Description

A—0 to 19 inches (0 to 48 centimeters); brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine to medium roots; common very fine to medium tubular pores; 10 percent nonflat subangular very strongly cemented gravel 2 to 20 millimeters in diameter; slightly acid (pH 6.4 by pH meter, saturated paste); abrupt smooth boundary.

2Bt—19 to 27 inches (48 to 69 centimeters); reddish brown (5YR 4/4) clay, dark reddish brown (5YR 3/4) moist; strong very coarse angular blocky structure; extremely hard, extremely firm, very sticky and very plastic; common very fine to medium roots; common very fine to medium tubular pores; 5 percent nonflat subangular very strongly cemented gravel 2 to 20 millimeters in diameter; slightly acid (pH 6.4 by pH meter, saturated paste); abrupt smooth boundary.

2Cr—27 to 60 inches (68 to 150 centimeters); highly fractured, bedded, weathered shale and sandstone; about 10 to 15 percent soil and common very fine roots in fractures.

Range in Characteristics

Mean annual soil temperature: 62 to 66 degrees F (16.7 to 18.9 degrees C)
Soil moisture content: Moist in mid-November to late in November through July
Depth to soft rock: 20 to 40 inches (51 to 102 centimeters)
Reaction: Neutral or slightly acid

A horizon:
Color—10YR 5/3 or 5/2 dry; 10YR 3/3 or 3/2 moist
Clay content—18 to 27 percent
Coarse fragment content—10 to 15 percent

Bt horizon:
Color—5YR 4/4 or 4/6 or 7.5YR 4/4 or 5/4 dry; 5YR 3/4, 4/4, or 4/6 or 7.5YR 4/4 moist
Clay content—40 to 55 percent
Coarse fragment content—0 to 10 percent

Mipolomol Series

The Mipolomol series consists of soils that are shallow to fractured bedrock and are well drained. These soils formed in residuum and colluvium derived from bedded slate, shale, and sandstone. They are on hills and mountains. Slopes are 30 to 75 percent. The mean annual precipitation is 18 to 24 inches (457 to 610 millimeters), the mean annual air temperature is 60 to 64 degrees F (15.5 to 17.5 degrees C), and the frost-free season is 290 to 350 days. Elevation is 400 to 2,510 feet (122 to 765 meters).

Taxonomic classification: Loamy, mixed, superactive, thermic, shallow Entic Haploxerolls

Typical pedon location: Mipolomol gravelly loam in an area of Mipolomol-Topanga association, 30 to 75 percent slopes; on a hillside at an elevation of 1,210 feet

(369 meters), about 1 mile north of the junction of State Highways 1 and 23; 750 feet south of the northwest corner of sec. 29, T. 1 S., R. 21 W.; latitude 34 degrees, 3 minutes, 26 seconds north and longitude 118 degrees, 53 minutes, 37 seconds west; NAD 27; Triunfo Pass Quadrangle; soil was dry throughout when described (colors for dry soil unless otherwise indicated).

Typical Pedon Description

A—0 to 12 inches (0 to 30 centimeters); brown (10YR 5/3) channery loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common fine and very fine roots between peds; common fine interstitial pores; 30 percent flat angular very strongly cemented channers 2 to 150 millimeters in diameter; slightly acid (pH 6.6 by pH meter, saturated paste); abrupt wavy boundary.

Cr—12 to 20 inches (0 to 50 centimeters); weakly cemented, highly fractured, bedded shale; fractures 1 to 3 inches apart; about 5 to 10 percent soil and few very fine roots in fractures.

Range in Characteristics

Mean annual soil temperature: 62 to 66 degrees F (16.7 to 18.9 degrees C)
Soil moisture content: Moist in mid-November to late in November through late in May
Depth to paralithic contact: 4 to 14 inches (10 to 36 centimeters)

A horizon:
Color—10YR 5/2, 5/3, 4/2, or 4/3 dry; 10YR 3/2 or 3/3 moist
Clay content—18 to 27 percent
Coarse fragment content—15 to 35 percent

Mollic Haploxeralfs

Mollic Haploxeralfs consists of soils that are moderately deep to bedrock and are well drained. These soils formed in residuum and colluvium weathered from sandstone. They are on hills. Slopes are 30 to 75 percent. The mean annual precipitation is 18 to 22 inches (457 to 559 millimeters), the mean annual air temperature is 60 to 64 degrees F (15.5 to 17.5 degrees C), and the frost-free season is 290 to 350 days. Elevation is 600 to 2,200 feet (183 to 671 meters).

Taxonomic classification: Fine-loamy, mixed, superactive, thermic Mollic Haploxeralfs

Example pedon location: Mollic Haploxeralfs loam in an area of Calcic Haploxerepts-Mollic Haploxeralfs association, 30 to 75 percent slopes, on a hillside at an elevation of 800 feet (244 meters); about 1,320 feet east and 1,880 feet south of the northwest corner of sec. 2, T. 1 N., R. 18 W.; latitude 34 degrees, 6 minutes, 59 seconds north and longitude 118 degrees, 43 minutes, 54 seconds west; NAD 27; Malibu Beach Quadrangle; soil was dry throughout when described (colors for dry soil unless otherwise indicated).

Example Pedon Description

A—0 to 5 inches (0 to 13 centimeters); grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine and very fine roots between peds; many fine and very fine tubular pores; 10 percent nonflat subangular very strongly cemented gravel 2 to 75 millimeters in diameter; neutral (pH 7.0 by pH meter, saturated paste); clear smooth boundary.

Bt1—5 to 24 inches (13 to 60 centimeters); pale brown (10YR 6/3) clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard,

very friable, slightly sticky and slightly plastic; many fine and very fine roots between peds; many fine and very fine tubular pores; 10 percent clay films on faces of peds and 10 percent clay films in pores; 10 percent nonflat subangular very strongly cemented gravel 2 to 75 millimeters in diameter; slightly acid (pH 6.5 by pH meter, saturated paste); clear smooth boundary.

Bt2—24 to 35 inches (60 to 90 centimeters); light yellowish brown (10YR 6/4) clay loam, dark yellowish brown (10YR 4/4) moist; moderate coarse subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine and very fine roots between peds; many fine and very fine tubular pores; 10 percent clay films in pores and 10 percent clay films on faces of peds; 10 percent nonflat subangular very strongly cemented gravel 2 to 75 millimeters in diameter; slightly acid (pH 6.5 by pH meter, saturated paste); clear smooth boundary.

Cr—35 to 38 inches (90 to 97 centimeters); weakly cemented, soft, massive sandstone.

Range in Characteristics

Mean annual soil temperature: 62 to 66 degrees F (16.7 to 18.9 degrees C)
Soil moisture content: Moist in mid-November to late in November through late in May
Depth to bedrock: 20 to 40 inches (51 to 102 centimeters)

Profile:
Texture—loam or clay loam throughout
Coarse fragment content—0 to 15 percent
Reaction—neutral or slightly acid

A horizon:
Color—10YR 5/2 or 5/3; 10YR 3/3 or 3/2 moist

Bt horizon:
Color—10YR 6/3 or 6/4; 10YR 4/3 or 4/4 moist

Pacheco Series

The Pacheco series consists of very deep, poorly drained soils that formed in stratified alluvium derived dominantly from sedimentary rock. These soils are on flood plains and alluvial plains. Slopes are 0 to 2 percent. The mean annual precipitation is 14 to 18 inches (360 to 457 millimeters), the mean annual air temperature is 60 to 64 degrees F (15.5 to 17.5 degrees C), and the frost-free season is 320 to 350 days. Elevation is 25 to 100 feet (8 to 31 meters).

Taxonomic classification: Fine-loamy, mixed, superactive, thermic Fluvaquentic Haploxerolls

Typical pedon location: Pacheco silty clay loam, 0 to 2 percent slopes, at an elevation of about 100 feet (30.5 meters), about 250 feet south and 100 feet west of the intersection of Pleasant Valley Road and Wood Road (2 miles west of the town of Camarillo), in the Ventura Area soil survey area; in an unsectionalized area about 250 feet south and 100 feet east of the northwest corner of sec. 6, T. 1 N., R. 21 W.; latitude 34 degrees, 20 minutes, 2 seconds north and longitude 119 degrees, 11 minutes, 59 seconds west; NAD 27; Camarillo Quadrangle; the soil was dry throughout when described (colors for dry soil unless otherwise noted).

Typical Pedon Description

Ap1—0 to 3 inches (0 to 8 centimeters); dark gray (10YR 4/1) silty clay loam, very

dark gray (10YR 3/1) moist; moderate medium granular structure and weak fine subangular blocky; hard, firm, moderately sticky and slightly plastic; common very fine and fine and few medium and coarse roots; few very fine, fine, and medium tubular pores; slightly alkaline (pH 7.8; abrupt smooth boundary.

Ap2—3 to 11 inches (8 to 28 centimeters); dark gray (10YR 4/1) silty clay loam, very dark gray (10YR 3/1) moist; weak coarse prismatic structure and strong medium subangular blocky; extremely hard, extremely firm, moderately sticky and moderately plastic; common very fine and fine and few coarse roots; common very fine and fine and few medium tubular pores; moderately alkaline (pH 8.0); gradual smooth boundary.

A—11 to 17 inches (28 to 43 centimeters); dark gray (10YR 4/1) silty clay loam, very dark gray (10YR 3/1) moist; weak coarse prismatic structure; extremely hard, extremely firm, moderately sticky and moderately plastic; few very fine, fine, and coarse roots; few very fine and fine tubular pores; 22 percent irregular white (2.5Y 8/1) gypsum crystals; slightly effervescent; strongly alkaline (pH 8.5); gradual irregular boundary.

Bky1—17 to 22 inches (43 to 56 centimeters); light brownish gray (2.5Y 6/2) silty clay loam, dark grayish brown (2.5Y 4/2) moist; weak coarse prismatic structure; very hard, very firm, moderately sticky and moderately plastic; few very fine, fine, and coarse roots; common fine and many very fine tubular pores; 22 percent irregular gypsum crystals; strongly effervescent; strongly alkaline (pH 8.5); gradual smooth boundary.

Bky2—22 to 46 inches (56 to 117 centimeters); light brownish gray (2.5Y 6/2) silty clay loam, grayish brown (2.5Y 5/2) moist; weak coarse prismatic structure; extremely hard, extremely firm, moderately sticky and moderately plastic; few very fine, fine, and coarse roots; common fine and many very fine tubular pores; 1 percent irregular gypsum crystals; strongly effervescent; strongly alkaline (pH 8.5); gradual wavy boundary.

2C—46 to 67 inches (117 to 170 centimeters); pale yellow (2.5Y 7/4) stratified silty clay loam to sand, light olive (2.5Y 5/4) moist; strong thin platy structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine irregular pores; violently effervescent; strongly alkaline (pH 8.5).

Range in Characteristics

Mean annual soil temperature: 62 to 66 degrees F (16.7 to 18.9 degrees C)
Soil moisture content: Moist late in November through early in June

A horizon:
Color—10YR 4/1 or 4/2 dry; 10YR 3/1 or 3/2 moist
Reaction—slightly alkaline to strongly alkaline

Bky horizon:
Color—2.5Y 6/2 or 5/2 dry; 2.5Y 4/2 or 3/2 moist
Texture—silty clay loam or clay loam
Clay content—18 to 35 percent
Reaction—moderately alkaline or strongly alkaline
Gypsum content—absent in some pedons

2C horizon:
Color—2.5Y 7/4, 6/4, 7/2, or 6/2 dry; 2.5Y 5/4, 4/4, 5/2, or 4/2 moist
Texture—stratified silty clay loam to sand

Pachic Argixerolls

Pachic Argixerolls consists of moderately deep, well drained soils that formed in residuum and colluvium derived from sandstone and shale. These soils are on hills.

Slopes are 50 to 75 percent. The mean annual precipitation is 14 to 18 inches (360 to 530 millimeters), the mean annual air temperature is 60 to 64 degrees F (15.5 to 17.5 degrees C), and the frost-free season is 290 to 350 days. Elevation is 50 to 1,500 feet (15 to 457 meters).

Taxonomic classification: Fine-loamy, mixed, superactive, thermic Pachic Argixerolls

Example pedon location: Pachic Argixerolls, coastal, 30 to 75 percent slopes, on a hillside at an elevation of 50 feet (15 meters); about 650 feet southwest of the junction of State Highway 1 and Encinal Canyon Road, on the trail to La Piedra State Beach; in an unsectionalized area about 7,600 feet south and 400 feet west of the northeast corner of sec. 29, T. 1 S., R. 21 W.; latitude 34 degrees, 2 minutes, 24 seconds north and longitude 118 degrees, 53 minutes, 8 seconds west; NAD 27; Triunfo Pass Quadrangle; soil was dry throughout when described (colors for dry soil unless otherwise indicated).

Example Pedon Description

A—0 to 9 inches (0 to 23 centimeters); dark grayish brown (10YR 4/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure and moderate medium subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; few medium and coarse and many very fine roots; common very fine interstitial pores and many very fine tubular pores; 20 percent nonflat subangular indurated gravel 2 to 75 millimeters in diameter; neutral (pH 7.0); clear wavy boundary.

Bt—9 to 24 inches (23 to 60 centimeters); brown (10YR 5/3) gravelly clay loam, dark brown (10YR 3/3) moist; strong medium angular blocky structure and strong coarse angular blocky; hard, friable, moderately sticky and moderately plastic; few very fine, medium, and coarse roots; many very fine tubular pores; 10 percent patchy clay films on faces of peds and 10 percent patchy clay films in pores; 20 percent nonflat subangular indurated gravel 2 to 75 millimeters in diameter; neutral (pH 7.0); clear wavy boundary.

Crt—24 to 38 inches (60 to 97 centimeters); moderately cemented, fractured, hard shale; fractures 0.5 to 2.0 inches wide; common thin clay films on rock fragments; clear wavy boundary.

Cr—38 to 39 inches (97 to 100 centimeters); moderately cemented, fractured, hard shale; fractures 0.5 to 2.0 inches wide.

Range in Characteristics

Mean annual soil temperature: 62 to 66 degrees F (16.7 to 18.9 degrees C)
Soil moisture content: Moist late in November through early in June
Depth to bedrock: 20 to 40 inches (51 to 102 centimeters)

Profile:
Color—10YR 4/2 or 5/3 dry; 10YR 3/2 or 3/3 moist
Texture—gravelly loam and gravelly clay loam

Sapwi Series

The Sapwi series consists of soils that are moderately deep to weathered bedrock and are well drained. These soils formed in residuum and colluvium derived from sandstone. They are on hills and mountains. Slopes are 15 to 75 percent. The mean annual precipitation is 18 to 24 inches (457 to 610 millimeters), the mean annual air temperature is 60 to 64 degrees F (15.5 to 17.5 degrees C), and the frost-free season is 290 to 350 days. Elevation is 400 to 3,000 feet (122 to 915 meters).

Taxonomic classification: Fine-loamy, mixed, superactive, thermic Pachic Argixerolls

Typical pedon location: Sapwi loam, 30 to 75 percent slopes, on a mountainside at an elevation of 780 feet (238 meters), about 2.5 miles northeast of Leo Carrillo State Beach and State Highway 1; about 2,250 feet south and 2,100 feet east of the northwest corner of sec. 18, T. 1 S., R. 19 W.; latitude 34 degrees, 4 minutes, 58 seconds north and longitude 118 degrees, 54 minutes, 48 seconds west; NAD 27; Triunfo Pass Quadrangle; soil was dry throughout when described (colors for dry soil unless otherwise indicated).

Typical Pedon Description

Oe—0 to 1 inch (0 to 3 centimeters); slightly decomposed plant material.

A—1 to 4 inches (3 to 10 centimeters); grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; weak very fine subangular blocky structure; slightly hard, very friable, slightly sticky and nonplastic; common very fine roots; few very fine interstitial pores; 5 percent subangular very weakly cemented sandstone fragments 2 to 5 millimeters in diameter; slightly acid (pH 6.6); clear smooth boundary.

Bt1—4 to 11 inches (10 to 28 centimeters); dark brown (10YR 3/3) stony clay loam, brown (10YR 5/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, moderately sticky and slightly plastic; common very fine to very coarse roots; common very fine to coarse tubular pores; 15 percent faint clay films in pores and 15 percent faint clay films on faces of peds; 5 percent subangular very strongly cemented sandstone fragments 2 to 75 millimeters in diameter, 5 percent subangular very strongly cemented sandstone fragments 75 to 250 millimeters in diameter, and 5 percent subangular very strongly cemented sandstone fragments 250 to 600 millimeters in diameter; neutral (pH 6.7); clear wavy boundary.

Bt2—11 to 24 inches (28 to 60 centimeters); dark brown (10YR 3/3) stony clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, friable, moderately sticky and slightly plastic; common very fine to very coarse roots; common very fine to coarse tubular pores; 15 percent faint clay films in pores and 15 percent faint clay films on faces of peds; 5 percent subangular very strongly cemented sandstone fragments 2 to 5 millimeters in diameter, 5 percent subangular very strongly cemented sandstone fragments 75 to 250 millimeters in diameter, and 5 percent subangular very strongly cemented sandstone fragments 250 to 600 millimeters in diameter; neutral (pH 6.7); clear wavy boundary.

Bt3—24 to 37 inches (60 to 96 centimeters); 15 percent grayish brown (10YR 5/2) and 85 percent light yellowish brown (10YR 6/4) very stony clay loam, 15 percent very dark grayish brown (10YR 3/2) and 85 percent dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; common very fine to coarse roots; common very fine to coarse tubular pores; 15 percent faint clay films in pores and 15 percent faint clay films on faces of peds; 20 percent subangular very strongly cemented sandstone fragments 250 to 600 millimeters in diameter, 20 percent subangular very strongly cemented sandstone fragments 2 to 75 millimeters in diameter, and 20 percent subangular very strongly cemented sandstone fragments 75 to 250 millimeters in diameter; slightly acid (pH 6.6); abrupt wavy boundary.

R—37 to 39 inches (96 to 98 centimeters); indurated, very slightly fractured sandstone.

Range in Characteristics

Mean annual soil temperature: 62 to 66 degrees F (16.7 to 18.9 degrees C)

Soil moisture content: Moist in mid-November to late in November through late in June to early in July
Depth to bedrock: 20 to 40 inches (51 to 102 centimeters)

A horizon:
Color—10YR 5/3, 5/2, 4/3, or 4/2 dry; 10YR 3/3, 3/2, or 2/2 moist
Clay content—12 to 27 percent
Coarse fragment content—dominantly 0 to 15 percent, but 15 to 30 percent in the lower part in some pedons

Bt horizon:
Color—10YR 6/4, 5/3, 5/2, 4/3, or 4/2 dry; 10YR 4/4, 3/3, 3/2, or 2/2 moist
Texture—clay loam, loam, gravelly loam, cobbly loam, stony loam, gravelly clay loam, cobbly clay loam, or stony clay loam in the upper part and very gravelly clay loam, very cobbly clay loam, or very stony clay loam in the lower part
Clay content—18 to 35 percent
Coarse fragment content—5 to 35 percent in the upper part and 35 to 70 percent in the lower part

Sulfic Fluvaquents

Sulfic Fluvaquents consists of very deep, very poorly drained soils that formed in alluvium derived from mixed rock sources. These soils are on tidal flats. Slopes are 0 to 1 percent. The mean annual precipitation is 14 to 24 inches (360 to 610 millimeters), the mean annual air temperature is 60 to 64 degrees F (15.5 to 17.5 degrees C), and the frost-free season is 290 to 350 days. Elevation is 4 feet below sea level to 8 feet above sea level (-1.2 to 2.4 meters).

Taxonomic classification: Fine, mixed, active, acid, thermic Sulfic Fluvaquents

Example pedon location: Sulfic Fluvaquents, frequently flooded, 0 to 1 percent slopes, in an unsectionalized area at an elevation of 4 feet (1.2 meters); along State Highway 1 near the Naval rifle/pistol range; latitude 34 degrees, 6 minutes, 5 seconds north and longitude 118 degrees, 48 minutes, 32 seconds west; NAD 27; Point Mugu Quadrangle; soil was wet throughout when described (colors for dry soil unless otherwise noted).

Example Pedon Description

Ag—0 to 42 inches (0 to 107 centimeters); brown (10YR 5/3) silty clay, dark brown (10YR 3/3) moist; massive; hard, friable, very sticky and very plastic; many fine and very fine roots between peds; many fine and very fine tubular pores; 2 percent very fine and fine prominent irregular yellow (2.5Y 7/6) iron-manganese masses, light olive brown (2.5Y 5/6) moist, and 20 percent coarse prominent irregular reduced matrix that is gray (N 5/0) moist, dark greenish gray (5GY 4/1) moist; extremely acid (pH 4.0 by pH meter, saturated paste); clear smooth boundary.
Cg—42 to 60 inches (107 to 152 centimeters); gray (5Y 6/1) silty clay, dark gray (5Y 4/1) moist; massive; hard, friable, very sticky and moderately plastic; many fine and very fine roots between peds; many fine and very fine tubular pores; 2 percent very fine and fine prominent irregular iron-manganese masses that are light olive brown (2.5Y 5/6) moist, yellow (2.5Y 7/6) dry, and 20 percent coarse prominent irregular reduced matrix that is dark greenish gray (5GY 4/1) moist, and gray (N 5/0) moist; extremely acid (pH 4.2 by pH meter, saturated paste).

Range in Characteristics

Mean annual soil temperature: 62 to 66 degrees F (16.7 to 18.9 degrees C)

Soil moisture content: Moist daily during high tide
Clay content: 40 to 55 percent

Sumiwawa Series

The Sumiwawa series consists of soils that are shallow to soft sandstone and are somewhat excessively drained. These soils formed in residuum and colluvium derived from sandstone. They are on hills and mountains. Slopes are 15 to 75 percent. The mean annual precipitation is 18 to 24 inches (457 to 610 millimeters), the mean annual air temperature is 60 to 64 degrees F (15.5 to 17.5 degrees C), and the frost-free season is 290 to 350 days. Elevation is 1,400 to 2,500 feet (427 to 762 meters).

Taxonomic classification: Mixed, thermic, shallow Typic Xeropsamments

Typical pedon location: Sumiwawa gravelly loamy sand in an area of Rock outcrop-Sumiwawa-Hipuk complex, 30 to 75 percent slopes; on a mountainside at an elevation of 1,460 feet, about 1/2 mile south of Calabasas Peak; 2,850 feet west and 800 feet north of the southeast corner of sec. 3, T. 1 S., R. 17 W.; latitude 34 degrees, 6 minutes, 24 seconds north and longitude 118 degrees, 39 minutes, 0 seconds west; NAD 27; Malibu Beach Quadrangle; soil was dry throughout when described (colors for dry soil unless otherwise indicated).

Typical Pedon Description

The soil surface has 1 percent stones, 4 percent cobbles, and 25 percent gravel.

A1—0 to 0.5 inch (0 to 1.25 centimeters); brown (10YR 5/3) gravelly loamy sand, pale brown (10YR 6/3) dry; weak thin platy structure; soft, very friable, nonsticky and nonplastic; common very fine roots; many very fine interstitial pores; 3 percent nonflat subangular indurated cobbles 75 to 250 millimeters in diameter and 25 percent nonflat subangular indurated gravel 2 to 75 millimeters in diameter; slightly acid (pH 6.5 by Hellige-Truog); abrupt wavy boundary.

A2—0.5 to 9 inches (1.25 to 24 centimeters); brown (10YR 4/3) gravelly loamy sand, pale brown (10YR 6/3) dry; weak coarse subangular blocky structure and weak medium subangular blocky; soft, very friable, nonsticky and nonplastic; common very fine roots; many very fine interstitial pores; 30 percent nonflat subangular indurated gravel 2 to 75 millimeters in diameter; slightly acid (pH 6.3 by Hellige-Truog); abrupt wavy boundary.

C—9 to 13 inches (24 to 33 centimeters); brown (10YR 4/3) loamy sand, pale brown (10YR 6/3) dry; weak medium subangular blocky structure and weak coarse subangular blocky; soft, very friable, nonsticky and nonplastic; common fine and very fine roots; common very fine interstitial pores; 1 percent faint clay films on faces of peds and 1 percent faint clay films in pores; 12 percent nonflat subangular indurated gravel 2 to 75 millimeters in diameter; slightly acid (pH 6.2 by Hellige-Truog); clear wavy boundary.

Cr—13 to 22 inches (33 to 55 centimeters); weakly cemented, soft sandstone that can be dug easily; few fine roots in cracks; abrupt smooth boundary.

R—22 to 24 inches (55 to 60 centimeters); indurated sandstone; no apparent fractures.

Range in Characteristics

Mean annual soil temperature: 62 to 66 degrees F (16.7 to 18.9 degrees C)
Soil moisture content: Moist in mid-November to late in November through late in May

Depth to paralithic contact: 10 to 20 inches (25 to 51 centimeters)
Depth to lithic contact: 20 to 40 inches (51 to 102 centimeters)

A horizon:
Color—10YR 6/3 or 5/3 dry; 10YR 5/3 or 4/3 moist
Clay content—2 to 8 percent
Coarse fragment content—15 to 35 percent

C horizon:
Color—10YR 6/3 or 5/3 dry; 10YR 5/3 or 4/3 moist
Clay content—2 to 8 percent
Coarse fragment content—5 to 30 percent

Talepop Series

The Talepop series consists of soils that are shallow to fractured bedrock and are well drained. These soils formed in residuum and colluvium derived from metavolcanic rock. They are on hills and mountains. Slopes are 15 to 75 percent. The mean annual precipitation is 18 to 24 inches (457 to 610 millimeters), the mean annual air temperature is 60 to 64 degrees F (15.5 to 17.5 degrees C), and the frost-free season is 290 to 350 days. Elevation is 390 to 2,835 feet (120 to 864 meters).

Taxonomic classification: Loamy, mixed, superactive, thermic, shallow Typic Argixerolls

Typical pedon location: Talepop gravelly loam in an area of Cotharin-Talepop association, 15 to 50 percent slopes; on a hillside at an elevation of 1,175 feet (358 meters), about 2.5 miles north of the junction of State Highways 1 and 23 and 0.25 mile south of the AT&T Earth Station; 850 feet north and 850 feet east of the southwest corner of sec. 17, T. 1 S., R. 21 W.; latitude 34 degrees, 4 minutes, 42 seconds north and longitude 118 degrees, 53 minutes, 46 seconds west; NAD 27; Triunfo Pass Quadrangle; soil was dry throughout when described (colors for dry soil unless otherwise indicated).

Typical Pedon Description

A—0 to 1 inch (0 to 3 centimeters); dark grayish brown (10YR 4/2) gravelly loam, very dark brown (10YR 2/2) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine to coarse roots between peds; many fine and very fine tubular pores; 10 percent nonflat subangular weakly cemented pararock fragments 2 to 20 millimeters in diameter and 15 percent nonflat subangular very strongly cemented gravel 2 to 20 millimeters in diameter; neutral (pH 7.2 by pH meter, saturated paste); abrupt smooth boundary.

Bt—1 to 5 inches (3 to 13 centimeters); brown (7.5YR 5/2) gravelly loam, dark brown (7.5YR 3/2) moist; moderate fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine to coarse roots in cracks; many fine and very fine tubular pores; 2 percent clay films in pores; 10 percent nonflat subangular weakly cemented pararock fragments 2 to 20 millimeters in diameter and 20 percent nonflat subangular very strongly cemented gravel 2 to 20 millimeters in diameter; neutral (pH 7.0 by pH meter, saturated paste); clear wavy boundary.

Cr—5 to 20 inches (13 to 50 centimeters); moderately cemented, highly fractured metavolcanic rock; fractures 1 to 3 inches apart; about 10 to 15 percent soil material and common very fine to coarse roots in fractures.

Range in Characteristics

Mean annual soil temperature: 62 to 66 degrees F (16.7 to 18.9 degrees C)
Soil moisture content: Moist late in November through May
Depth to paralithic contact: 4 to 14 inches (10 to 36 centimeters)
Reaction: Neutral or slightly acid

A horizon:
Color—10YR 5/2, 5/3, 4/2, or 4/3 or 7.5YR 4/4 dry; 10YR 2/2, 3/2, or 3/3 or 7.5YR 3/2 moist
Clay content—12 to 27 percent
Coarse fragment content—15 to 30 percent

Bt horizon:
Color—10YR 5/2, 5/3, 5/4, 4/2, or 4/3 or 7.5YR 4/4, 5/2, or 5/4 dry; 10YR 2/2, 3/2, 3/3, or 4/4 or 7.5YR 3/2, 3/3, 3/4, or 4/4 moist
Texture—loam, clay loam, or gravelly loam
Clay content—18 to 35 percent
Coarse fragment content—5 to 30 percent

Tongva Series

The Tongva series consists of soils that are moderately deep to weathered bedrock and are well drained. These soils formed in residuum and colluvium derived from andesite and basalt. They are on hills and mountains. Slopes are 5 to 75 percent. The mean annual precipitation is 18 to 24 inches (457 to 610 millimeters), the mean annual air temperature is 60 to 64 degrees F (15.5 to 17.5 degrees C), and the frost-free season is 290 to 350 days. Elevation is 500 to 3,100 feet (152 to 945 meters).

Taxonomic classification: Fine-loamy, mixed, superactive, thermic Pachic Argixerolls

Typical pedon location: Tongva loam in an area of Cotharin-Rock outcrop-Tongva complex, 30 to 75 percent slopes; on a hillside at an elevation of 700 feet (213 meters), about 1 mile south of the junction of Mulholland Highway and Las Virgenes Road; 600 feet north and 900 feet west of the southeast corner of sec. 12, T. 1 S., R. 18 W.; latitude 34 degrees, 5 minutes, 30 seconds north and longitude 118 degrees, 44 minutes, 43 seconds west; NAD 27; Malibu Beach Quadrangle; soil was dry throughout when described (colors for dry soil unless otherwise indicated).

Typical Pedon Description

Oe—0 to 2 inches (0 to 5 centimeters); moderately decomposed plant material.
A—2 to 4 inches (5 to 10 centimeters); very dark gray (10YR 3/1) loam, black (10YR 2/1) moist; weak very fine subangular blocky structure; soft, very friable, slightly sticky and nonplastic; few very fine roots; few interstitial pores; 5 percent nonflat subangular very strongly cemented gravel 2 to 75 millimeters in diameter; slightly acid (pH 6.6 by pH meter, saturated paste); clear wavy boundary.
Bt1—4 to 14 inches (10 to 36 centimeters); dark grayish brown (10YR 4/2) loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine to very coarse roots; common very fine to medium tubular pores; 15 percent faint clay films on faces of peds and 15 percent faint clay films in pores; 5 percent nonflat subangular very strongly cemented gravel 2 to 75 millimeters in diameter; neutral (pH 6.7 by pH meter, saturated paste); abrupt smooth boundary.
Bt2—14 to 30 inches (36 to 75 centimeters); brown (10YR 4/3) loam, dark brown

(10YR 3/3) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine to very coarse roots; common very fine to medium tubular pores; 15 percent faint clay films on faces of peds and 15 percent faint clay films in pores; 5 percent nonflat subangular very strongly cemented gravel 2 to 75 millimeters in diameter; neutral (pH 6.8 by pH meter, saturated paste); abrupt smooth boundary.

Cr—30 to 51 inches (75 to 130 centimeters); weakly cemented, highly fractured, weathered andesite that can easily be dug with a spade and bored with an auger; breaks to very fine very weak angular blocky pieces; few very coarse roots in cracks; 50 percent faint clay films on rock fragments.

Range in Characteristics

Mean annual soil temperature: 62 to 66 degrees F (16.7 to 18.9 degrees C)

Soil moisture content: Moist in mid-November to late in November through late in June to early in July

Depth to paralithic bedrock: 20 to 40 inches (51 to 102 centimeters)

A horizon:

Color—10YR 5/2, 5/3, 4/2, 4/3, 3/2, or 3/1 or 7.5YR 4/4 dry; 10YR 3/3, 3/2, 2/2, or 2/1 or 7.5YR 3/2 moist

Clay content—12 to 27 percent

Coarse fragment content—dominantly 5 to 15 percent, but 15 to 30 percent in the lower part in some pedons

Bt horizon:

Color—10YR 5/2, 5/3, 4/2, or 4/3 or 7.5YR 5/2 dry; 10YR 3/3, 3/2, or 2/2 or 7.5YR 3/2 or 3/3 moist

Texture—clay loam, loam, gravelly loam, or gravelly clay loam

Clay content—18 to 35 percent

Coarse fragment content—5 to 30 percent, dominantly gravel

Topanga Series

The Topanga series consists of soils that are shallow to fractured bedrock and are well drained. These soils formed in residuum and colluvium derived from bedded slate, shale, and sandstone. They are on hills and mountains. Slopes are 30 to 75 percent. The mean annual precipitation is 18 to 24 inches (457 to 610 millimeters), the mean annual air temperature is 60 to 64 degrees F (15.5 to 17.5 degrees C), and the frost-free season is 290 to 350 days. Elevation is 400 to 2,510 feet (122 to 765 meters).

Taxonomic classification: Loamy, mixed, superactive, thermic, shallow Typic Argixerolls

Typical pedon location: Topanga gravelly loam in an area of Mipolomol-Topanga association, 30 to 75 percent slopes; on a hillside at an elevation of 1,210 feet (367 meters), about 1 mile north of the junction of State Highways 1 and 23; 750 feet south and 10 feet west of the northwest corner of sec. 29, T. 1 S., R. 21 W.; latitude 34 degrees, 3 minutes, 26 seconds north and longitude 118 degrees, 53 minutes, 38 seconds west; NAD 27; Triunfo Pass Quadrangle; soil was dry throughout when described (colors for dry soil unless otherwise indicated).

Typical Pedon Description

A1—0 to 2 inches (0 to 5 centimeters); grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky

structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine and very fine roots between peds; many fine and very fine tubular pores; 25 percent nonflat subangular very strongly cemented gravel 2 to 20 millimeters in diameter; slightly acid (pH 6.5 by pH meter, saturated paste); clear wavy boundary.

A2—2 to 15 inches (5 to 38 centimeters); grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine and very fine roots between peds; many fine and very fine tubular pores; 20 percent nonflat subangular very strongly cemented gravel 2 to 20 millimeters in diameter; slightly acid (pH 6.5 by pH meter, saturated paste); clear wavy boundary.

Bt—15 to 18 inches (38 to 45 centimeters); yellowish brown (10YR 5/4) gravelly clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and moderately plastic; many fine and very fine roots between peds; many fine and very fine tubular pores; 3 percent clay films on faces of peds; 20 percent nonflat subangular very strongly cemented gravel 2 to 20 millimeters in diameter; slightly acid (pH 6.5 by pH meter, saturated paste); abrupt wavy boundary.

Cr—18 to 30 inches (45 to 75 centimeters); weakly cemented, highly fractured, bedded shale; fractures 1 to 3 inches apart; about 10 to 15 percent soil material and few very fine roots in fractures.

Range in Characteristics

Mean annual soil temperature: 62 to 66 degrees F (16.7 to 18.9 degrees C)
Soil moisture content: Moist in mid-November to late in November through late in May
Depth to paralithic contact: 10 to 20 inches (25 to 50 centimeters)
Reaction: Neutral or slightly acid

A horizon:
Color—10YR 5/2, 5/3, 4/2, or 4/3 dry; 10YR 3/2 or 3/3 moist
Clay content—12 to 27 percent
Coarse fragment content—15 to 30 percent

Bt horizon:
Color—10YR 5/2, 5/3, or 5/4 dry; 10YR 3/2, 3/3, 3/4, 4/3, or 4/4 moist
Texture—loam, gravelly loam, gravelly clay loam, or clay loam
Clay content—18 to 35 percent
Coarse fragment content—10 to 30 percent

Typic Haploxerepts

Typic Haploxerepts consists of soils that are moderately deep to bedrock and are well drained. These soils formed in residuum and colluvium weathered from shale. They are on hills and mountains. Slopes are 15 to 50 percent. The mean annual precipitation is 18 to 24 inches (457 to 610 millimeters), the mean annual air temperature is 60 to 64 degrees F (15.5 to 17.5 degrees C), and the frost-free season is 290 to 350 days. Elevation is 600 to 1,200 feet (183 to 366 meters).

Taxonomic classification: Fine-silty, mixed, superactive, thermic Typic Haploxerepts

Example pedon location: Typic Haploxerepts silty clay loam, 30 to 50 percent slopes; about 2,500 feet northwest of the intersection of Las Virgenes Road and Mulholland Highway and 100 feet northeast of Mulholland Highway, at an elevation of 850 feet (259 meters); about 2,300 feet west and 1,300 feet north of the southeast corner of sec. 1, T. 1 S., R. 18 W.; latitude 34 degrees, 7 minutes,

25 seconds north and longitude 118 degrees, 43 minutes, 54 seconds west; NAD 27; Malibu Beach Quadrangle; soil was dry throughout when described (colors for dry soil unless otherwise indicated).

Example Pedon Description

A—0 to 10 inches (0 to 25 centimeters); pale brown (10YR 6/3) silty clay loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few fine and very fine roots; common very fine tubular pores; 10 percent flat angular strongly cemented shale fragments 2 to 75 millimeters in diameter; slightly acid (pH 6.5 by pH meter, saturated paste); clear smooth boundary.

Bw1—10 to 22 inches (25 to 56 centimeters); yellowish brown (10YR 5/4) silty clay loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few fine and very fine roots; common very fine tubular pores; 10 percent flat angular strongly cemented shale fragments 2 to 75 millimeters in diameter; slightly acid (pH 6.5 by pH meter, saturated paste); clear smooth boundary.

Bw2—22 to 38 inches (56 to 97 centimeters); light yellowish brown (10YR 6/4) channery silty clay loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few fine and very fine roots; common very fine tubular pores; 25 percent flat angular strongly cemented shale fragments 2 to 150 millimeters in diameter; slightly acid (pH 6.5 by pH meter, saturated paste); clear smooth boundary.

Cr—38 to 44 inches (97 to 112 centimeters); weakly cemented, highly fractured, thinly bedded shale that can be dug with a shovel; common very fine roots in cracks.

Range in Characteristics

Mean annual soil temperature: 62 to 66 degrees F (16.7 to 18.9 degrees C)
Soil moisture content: Moist in mid-November to late in November through late in May
Depth to bedrock: 20 to 40 inches
Texture: Silt loam or silty clay loam throughout
Coarse fragment content: 10 to 35 percent shale channers

A horizon:
Color—10YR 5/2, 5/3, 6/3, or 6/4 dry; 10YR 4/2, 4/3, or 3/3 moist
Reaction—slightly acid or neutral

Bw horizon:
Color—10YR 5/3, 5/4, 6/3, 6/4, 6/6, or 7/4 dry; 10YR 4/3, 4/4, 5/4, or 5/6 moist
Reaction—slightly acid or neutral

Xerorthents

Xerorthents consists of soils that are shallow to very deep to bedrock and are well drained. These soils formed in residuum and colluvium weathered from sedimentary rock. They are on hills and mountains, in areas of mechanically disturbed remnants of local soils and crushed rock material. Slopes are 0 to 30 percent. The mean annual precipitation is 18 to 24 inches (360 to 610 millimeters), the mean annual air temperature is 60 to 64 degrees F (15.5 to 17.5 degrees C), and the frost-free season is 290 to 350 days. Elevation is 30 to 2,400 feet (10 to 732 meters).

Taxonomic classification: Fine-loamy, mixed, superactive, thermic Typic Xerorthents

Example pedon location: Xerorthents loam in an area of Xerorthents-Urban land-Balcom complex, 0 to 30 percent slopes, on a hillside at an elevation of 850 feet

(259 meters); about 2,500 feet northwest of the intersection of Las Virgenes Road and Mulholland Highway and 100 feet northeast of Mulholland Highway; about 2,300 feet west and 1,300 feet north of the southeast corner of sec. 1, T. 1 S., R. 18 W.; latitude 34 degrees, 7 minutes, 25 seconds north and longitude 118 degrees, 43 minutes, 54 seconds west; NAD 27; Calabasas Quadrangle; soil was dry throughout when described (colors for dry soil unless otherwise indicated).

Example Pedon Description

A—0 to 4 inches (0 to 10 centimeters); grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; few very fine interstitial pores; 10 percent nonflat subangular very strongly cemented gravel 2 to 75 millimeters in diameter; moderately alkaline (pH 8.2); clear smooth boundary.

C—4 to 52 inches (10 to 132 centimeters); yellowish brown (10YR 5/4) loam, dark grayish brown (10YR 4/2) moist; weak medium and coarse subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; many very fine interstitial pores; 10 percent nonflat subangular very strongly cemented gravel 2 to 75 millimeters in diameter; moderately alkaline (pH 8.2); clear smooth boundary.

Cr—52 to 56 inches (132 to 157 centimeters); soft, highly weathered, marine shale; moderately effervescent.

Range in Characteristics

Mean annual soil temperature: 62 to 66 degrees F (16.7 to 18.9 degrees C)
Soil moisture content: Moist in mid-November to late in November through late in May
Depth to bedrock: 10 to 60 inches or more
Texture: Loam, gravelly loam, clay loam, gravelly clay loam, silt loam, gravelly silt loam, silty clay loam, or gravelly silty clay clam
Coarse fragment content: 5 to 35 percent, dominantly gravel

A horizon:
Color—10YR 5/2, 5/3, 5/4, 6/4, 6/3, or 6/2 or 2.5Y 6/2 or 6/4 dry; 10YR 4/2, 4/3, 4/4, 3/2, or 3/3 or 2.5Y 4/2 or 4/4 moist

C horizon:
Color—10YR 5/2, 5/3, 5/4, 6/4, 6/3, or 6/2 or 2.5Y 5/4, 6/4, 7/2, or 7/4 dry; 10YR 4/2, 4/3, 4/4, 3/2, or 3/3 or 2.5Y 4/2, 4/4, 5/2, or 5/4 moist

Remarks

These soils were created by human modification in areas adjacent to homes, businesses, parks, and golf courses. Typically, cut and fill operations occurred in these areas. Most areas were leveled for building sites. Some level areas of the original soils were covered with material to facilitate compaction for foundations or to facilitate landscaping.

Zumaridge Series

The Zumaridge series consists of soils that are shallow to bedrock and are well drained. These soils formed in residuum and colluvium derived from sandstone. They are on hills and mountains. Slopes are 15 to 75 percent. The mean annual precipitation is 18 to 24 inches (457 to 610 millimeters), the mean annual air temperature is 60 to 64 degrees F (15.5 to 17.5 degrees C), and the frost-free season is 290 to 320 days. Elevation is 600 to 3,100 feet (183 to 945 meters).

Taxonomic classification: Loamy, mixed, superactive, thermic Lithic Haploxerolls

Typical pedon location: Zumaridge loam in an area of Zumaridge-Kawenga association, 30 to 75 percent slopes; on the north side of Castro Peak, at an elevation of 1,810 feet (552 meters); 2,800 feet north and 750 feet west of the southeast corner of sec. 9, T. 1 S., R. 18 W.; latitude 34 degrees, 6 minutes, 54 seconds north and longitude 118 degrees, 45 minutes, 54 seconds west; NAD 27; Point Dume Quadrangle; soil was dry throughout when described (colors for dry soil unless otherwise indicated).

Typical pedon Description

The soil surface has 20 percent gravel, 15 percent cobbles, and 15 percent stones.

Oe—0 to 2 inches (0 to 5 centimeters); slightly decomposed plant material.

A—2 to 10 inches (5 to 25 centimeters); very dark grayish brown (10YR 3/2) loam, very dark brown (10YR 2/2) moist; weak fine subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common fine, medium, and coarse and many very fine roots; common very fine tubular pores; 5 percent nonflat subangular indurated sandstone fragments 2 to 5 millimeters in diameter, 5 percent nonflat subangular indurated sandstone fragments 5 to 75 millimeters in diameter, and 5 percent nonflat subangular extremely weakly cemented sandstone fragments 2 to 75 millimeters in diameter; slightly acid (pH 6.6 by pH meter, saturated paste); abrupt wavy boundary.

Cr—10 to 13 inches (25 to 33 centimeters); weakly cemented, soft, weathered sandstone; 85 percent light yellowish brown (10YR 6/4) pararock fragments, dark yellowish brown (10YR 4/4 moist); 10 percent light yellowish brown (10YR 6/4) loam soil material, dark yellowish brown (10YR 4/4) moist, in fractures; common fine roots in cracks; abrupt wavy boundary.

R—13 to 14 inches (33 to 35 centimeters); indurated yellow sandstone that is uplifted parallel to soil surface; fractures 4 to 8 inches apart and 1/8 to 1/4 inch wide; soil material from above horizon and common fine roots in cracks.

Range in Characteristics

Mean annual soil temperature: 62 to 66 degrees F (16.7 to 18.9 degrees C)

Soil moisture content: Moist in mid-November to late in November through late in June to early in July

Depth to hard bedrock: 10 to 20 inches (25 to 51 centimeters)

A horizon:

Color—10YR 3/2, 3/3, 4/2, 4/3, 5/2, or 5/3 dry; 10YR 2/2, 3/2, 3/3, 4/2, or 4/3 moist

Clay content—8 to 18 percent

Coarse fragment content—0 to 15 percent, dominantly gravel

Formation of the Soils

Soil is generally defined as a natural medium for growing plants. It is a three-dimensional body that covers the surface of the earth and is made up of organic and mineral material. Physical and chemical processes that result from the interaction of five soil-forming factors determine the characteristics and properties of soil. These factors are climate, living organisms, time, topography, and parent material. Climate refers to temperature and the kind and amount of precipitation since the accumulation or exposure of the parent material. Living organisms include the plant cover and other organisms living in and on the soil. In farmed areas, the cultivation methods used and the crops grown also are included. The age of the soil is determined by the length of time that the soil-forming factors have been active. Topography, or the slope percent and aspect, affects internal and external soil properties, such as drainage, aeration, susceptibility to erosion, and exposure to the sun and wind. Finally, parent material influences the texture and structure of the soil as well as its mineralogical and chemical composition. The influence of any one of these factors varies from place to place; hence, soils may differ within short distances. The interaction of all the factors determines the kind of soil that forms. The soil-forming factors interrelate to create soil properties that define the soil horizons.

The important diagnostic horizons in the soils in the survey area are mollic epipedons; calcic, cambic, and argillic subsurface horizons; and paralithic bedrock material. See the “Glossary” for definitions of these diagnostic horizons.

Climate

The survey area has a Mediterranean climate that is characterized by warm, dry summers and cool, moist winters. Most of the rainfall occurs in November through April. The soil temperature regime is thermic, and the soil moisture regime is xeric or aquic. The warm temperatures and moist soil conditions in spring allow for rapid chemical reactions. During periods of rainfall, water carrying dissolved or suspended material moves through the soil. Weathering is limited in the cool winter months, but the leaching processes become active with the onset of the seasonal rainfall. Weathering is most active in spring and late in fall. In soils that have a high water table throughout most of the year, however, weathering can also occur in summer and fall. Soils kept moist by irrigation may also have a higher rate of weathering.

The rainfall increases from an average of 14 to 18 inches at the lower elevations of the survey area to an average of 18 to 24 inches at the higher elevations. The air temperature ranges from an average of 60 to 64 degrees F along the coast (the average in January is 54 to 58 degrees, and the average in July is 65 to 69 degrees) to 74 to 78 degrees inland. The growing season is nearly year round, with a frost-free season of 290 to 350 days.

Native plant growth is rapid early in spring, but it ceases in June or July because of a lack of moisture and increased air temperature. The winters do not get cold enough to prevent grasses from growing, and a large amount of growth by late in spring is common. Because of the mild climate and long growing season, the surface layer of the soils commonly is dark colored as a result of the accumulation of organic matter. These soils are classified as Mollisols.

Living Organisms

The activity of living organisms, including flora, fauna, plants, and humans, all influence the formation and morphology of soils. Flora, such as bacteria and fungi, help to decompose organic matter. Some bacteria add atmospheric nitrogen to the soil. Fauna, such as earthworms, small insects, and rodents, mix soil material by burrowing and tunneling in the soil. Abandoned tunnels commonly are filled with loose material from the overlying horizons, and they transmit water more readily than the surrounding undisturbed soil material.

The dominant natural plant community in the area is chaparral. The dominantly steep and very steep side slopes of hills and mountains at the upper elevations (generally above 1,500 feet) support this community. The dominant plant is bigpod ceonothus. Accumulations of organic matter in the soils in these areas impart a dark color near the surface. Many of these soils have a mollic epipedon as a result of the high content of organic matter and are classified as Mollisols. Soils of the Cotharin and Talepop series are typical of those that have a mollic epipedon and are in areas that support a chaparral plant community. The soils that support chaparral also have paralithic bedrock material. The bedrock is either highly weathered and soft or is highly fractured.

Adjacent to the soils that support chaparral, in concave positions on the lower north-facing side slopes of hills and mountains, are soils that support coast live oak woodland. In addition to a large amount of organic matter, these soils have thicker horizons than the adjacent soils and are moderately deep to bedrock. Soils of the Sapwi and Tongva series are typical. These soils have a mollic epipedon, are moderately deep, and are in areas of oak woodland.

Other natural vegetation zones in the survey area are the coastal sagebrush communities. These areas occur on the dominantly steep and very steep side slopes of hills and mountains at the lower elevations (generally below 1,500 feet). The dominant plant is coastal sagebrush. Accumulations of organic matter from the sagebrush impart a dark color near the surface of the soils on the dominantly northerly aspects. Many of these soils have a mollic epipedon as a result of the high content of organic matter, and they are classified as Mollisols. Soils of the Boades and Malibu series are typical of those that have a mollic epipedon and support coastal sagebrush. On the southerly aspects, the soils do not have enough organic matter accumulation to be classified as Mollisols. These soils are classified as Entisols. Soils of the Chumash series are typical.

Drainageways generally support riparian plant communities, and the dominant plant is either western sycamore or arroyo willow. In the riparian areas that have a high content of organic matter, the soils are classified as Mollisols. Soils of the Elder series and Cumulic Haploxerolls are typical. In areas where there is more active movement of the soil material and thus less organic matter accumulation, the soils are classified as Entisols. These soils have a high water table and an aquic moisture regime. Fluvaquents are typical.

Adjacent to the broader drainageways are alluvial fans that dominantly support annual grasses. These areas have accumulations of organic matter that impart a dark color throughout the soils. The soils have a thick mollic epipedon as a result of the high content of organic matter, and they are classified as Mollisols. Soils of the Botella series are typical.

Gently sloping to moderately sloping areas of hills between mountain ranges dominantly support annual grasses and forbs. In addition to an accumulation of organic matter, the soils have a high content of highly expansive clay. These soils have cracks that open at the surface as the soils dry out early in summer. They are classified as Vertisols. Soils of the Cropley series are typical.

Human activities have influenced the formation of many soils in the survey area.

The activities that have resulted in permanent modification of the soils are described in the section “Altered Soils.”

Geomorphic Surfaces

The landscape in the area is the result of erosional and constructional processes. These processes occurred in response to changes in climate, fluctuating sea levels, and tectonic activities. Cyclic periods of stability and instability of the landscape also occurred. Development of the current landscape in the area took place during the Pleistocene and Holocene. The more highly developed soils are on the more stable landscapes. The soils in the survey area dominantly are characterized by a lack of coarse fragments, and there are no skeletal soils in the area.

Determining the exact age of most of the soils in the area is difficult. The age of a soil can be inferred to a degree from the age of the geomorphic surface.

The youngest geomorphic surfaces in the area are the late Pleistocene alluvial fans and Holocene flood plains associated with the streams. Under natural conditions, these were active surfaces that commonly were flooded. Because of the upstream diversion of water and the dams, some of these surfaces presently are generally much more stable. In the past, these landscapes commonly changed as alluvial deposits moved downstream.

Typically, the changing of the landscapes and movement of alluvium resulted in stratified soils, such as Fluvaquents, Cumulic Haploxerolls, and Elder series. Fluvaquents receive more moisture from a higher water table and produce more abundant vegetation, but they are subject to frequent periods of flooding, resulting in stratification and a buried surface layer. Cumulic Haploxerolls are also frequently flooded, but they occur in more stable areas. Soils of the Elder series are in areas of more accumulation of sand and are commonly protected from frequent flooding by upstream diversions of water and by dams. Soils of the Botella series are on the alluvial fans adjacent to the drainageways and are not flooded. The parent material of these mineral soils consists of alluvium derived mainly from mixed rock sources, primarily mixed sedimentary and igneous volcanic rock. The dominantly fine-loamy texture of these soils is inherited from the parent material.

The mountains and hills, which are dominant in the survey area, are typically steep and very steep and are geologically active, uplifting at a fast rate. Unless the soils are in a protected area, they have not had time to develop thick layers because they are subject to a high rate of natural erosion by water and to downward movement of soil and rock material by mass movement, such as debris flows and landslides. The soils are typically shallow or very shallow to soft, weathered paralithic material derived from igneous volcanic or sedimentary rock. The age of these soils is very difficult to estimate because they are constantly in motion, sliding downslope when dry and washing downslope when wet. An estimate, however, is late Pleistocene. These landscapes tend to change at the same rate over large areas, creating such representative soils as those of the Chumash, Boades, Cotharin, and Talepop series. The Chumash soils are steep or very steep over highly fractured, thinly bedded sandstone and shale. They are dominantly on southerly aspects below an elevation of 1,500 feet. They are subject to debris flows and have not accumulated enough soil material and organic matter to be classified as Mollisols. They are classified as Entisols. The northerly aspects tend to be cooler and more moisture and support more plant production; thus, the soils on these aspects have accumulated more plant material and organic matter and are slightly thicker. These soils are classified as Mollisols. They include soils such as those of the Boades, Cotharin, and Talepop series. They are also subject to debris flows and landslides.

At elevations above 1,500 feet, the southerly aspects receive sufficient moisture for increased plant production. The soils have a thicker, darker colored surface layer;

they are classified as Mollisols. Soils of the Cotharin and Talepop series are typical. The Cotharin soils are in areas that are slightly more geologically active than the Talepop soils, which have a thin layer of clay accumulation, or an argillic horizon, directly over the paralithic material. Adjacent to these soils are small areas of soils in concave positions on northerly aspects that are moderately deep and have a high content of organic matter. These soils are classified as Mollisols. Soils of the Tongva and Sapwi series are typical. All of these soils formed in residuum and colluvium derived from sedimentary or igneous volcanic rock. The dominantly fine-loamy texture of the soils is inherited from the parent material.

Sedimentary rock of marine origin occurs as steep and very steep hills in the Cheeseboro Canyon area and in Malibu. The soils in these areas are characterized by a high content of organic matter, a higher content of silt-sized soil particles, and carbonates underlain by very soft sedimentary rock. It is difficult to estimate the age of these soils because they are geologically active and constantly in motion, sliding downslope when dry and washing downslope when wet. An estimate of their age, however, is late Pleistocene. These landscapes tend to change at the same rate over large areas, creating such representative soils as those of the Linne series. Because of the accumulation of organic matter and carbonates in these soils, they are classified as Mollisols. Los Osos soils are in concave, north-facing areas adjacent to Linne soils. Los Osos soils have a layer of clay accumulation, or an argillic horizon, and are deeper to bedrock. These soils formed in residuum and colluvium derived from very soft marine sedimentary rock. The dominantly fine-loamy or fine texture of the soils is inherited from the parent material.

Marine terraces occur along the coast in the Malibu area. They are comprised of stable, dissected fans underlain by sedimentary rock. The fans formed in the middle to late Pleistocene in alluvium derived from mixed rock sources that are nonmarine. These soils have a high accumulation of clay. Soils of the Cropley series are typical. The soils on the side slopes are moderately deep to nonmarine sandstone and shale and have accumulations of organic matter. Pachic Argixerolls are typical.

The oldest geomorphic surfaces in the area are stable, gently sloping to moderately sloping hills between the higher mountain ranges. These surfaces formed in the early to middle Pleistocene. They consist of accumulations of heavy clay over very soft bedrock. Soils of the Kayiwish series are typical. These soils formed in colluvium and residuum derived from mixed rock sources, primarily igneous volcanic rock (Hill, 1984; Peterson, 1981).

References

American Association of State Highway and Transportation Officials (AASHTO). 2000. Standard specifications for transportation materials and methods of sampling and testing. Twentieth edition, 2 volumes.

American Society for Testing and Materials (ASTM). 2001. Standard classification of soils for engineering purposes. ASTM Standard D 2487-00.

Hill, M. 1984. California landscape, origin and evolution. University of California Press, Berkeley, California.

Mayer, Kenneth E., and William F. Laudenslayer, Jr., editors. 1988. A guide to wildlife habitats in California. California Department of Forestry and Fire Protection, Sacramento, California.

Peterson, F.F. 1981. Landforms of the Basin and Range province defined for soil survey. Nevada Agricultural Experiment Station Technical Bulletin 28.

Society for Range Management. 1974. A glossary of terms used in range management. Second edition.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. United States Department of Agriculture Handbook 18.

Soil Survey Staff. 1998. Keys to soil taxonomy. Eighth edition. United States Department of Agriculture, Natural Resources Conservation Service.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. Second edition. Natural Resources Conservation Service. United States Department of Agriculture Handbook 436.

United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS). National engineering handbook. (Available in the State office of the Natural Resources Conservation Service at Davis, California, or online at http://public.nrcs.usda.gov/scripts/lpsiis.dll/H/H.htm)

United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS). National soil survey handbook, title 430-VI. (Available in the State office of the Natural Resources Conservation Service at Davis, California, or online at http://soils.usda.gov/technical/handbook/)

United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS). 1996. Soil survey laboratory methods manual. Soil Survey Investigations Report 42.

United States Department of Agriculture (USDA), Soil Conservation Service (SCS). 1961. Land capability classification. United States Department of Agriculture Handbook 210.

United States Department of Agriculture (USDA), Soil Conservation Service (SCS). 1981. Land resource regions and major land resource areas of the United States. United States Department of Agriculture Handbook 296.

Glossary

AASHTO classification. A system for classifying soils specifically for geotechnical engineering purposes that is related to highway and airfield construction. It is based on particle-size distribution and Atterberg limits.

AASHTO group index number (AASHTO GI). An empirical index number used to evaluate clayey and silty clay material.

ABC soil. A soil having an A, a B, and a C horizon.

AC soil. A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alkali (sodic) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Alluvial fan. A low, outspread mass of loose material and/or rock material washed down the sides of mountains and hills. It commonly has gentle slopes and is shaped like an open fan or a segment of a cone. It is deposited by a stream at the place where the stream issues from a narrow mountain valley or where a tributary stream is near or at its junction with the main stream. An alluvial fan is steepest near its apex that points upstream, and it slopes gently and convexly outward with a gradual decrease in gradient.

Alluvial flat. A nearly level, graded alluvial surface between the piedmont slope and playa of a bolson or the axial stream flood plain of a semibolson. This major landform may include both recent and relict components.

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.

Aridic moisture regime. Soils that have an aridic moisture regime are dry for at least one-half of the year. They commonly occur in areas that have an aridic climate. A few are in areas that have a semiarid climate, but they either have physical properties that keep them dry, such as a crusty surface that virtually precludes the infiltration of water, or have steep slopes with a high rate of runoff. Little, if any, leaching occurs in the soils in this moisture regime, and soluble salts accumulate in the soils if there is a source of salts.

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 (AWC) (available moisture capacity). The volume of water that should be available to plants if the soil, inclusive of fragments, were at field capacity. It is commonly estimated as the difference between the amount of water at field capacity and the amount at wilting point, with adjustments for salinity, fragments, and rooting depth. 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 2.5
Low	2.5 to 5.0
Moderate	5.0 to 7.5
High	7.5 to 10.0
Very high	more than 10.0

AWC. See Available water capacity.

Backslope. The hillslope profile position that forms the steepest and generally linear, middle portion of the slope. In profile, backslopes commonly are bounded by a convex shoulder above and a concave footslope below. They may or may not include cliff segments, or free faces. Backslopes are commonly erosional forms produced by mass movement, colluvial action, and running water.

Badland. A landscape that is intricately dissected and is characterized by a very fine drainage network with high drainage density and short, steep slopes with narrow interfluves. Badland develops on surfaces that have little, if any, vegetative cover, are underlain by unconsolidated or poorly cemented material (clay, silt, or sand), and in some areas have soluble minerals such as gypsum and halite.

Bar (streams). A general term for a ridgelike accumulation of sand, gravel, or other alluvial material in the channel, along the banks, or at the mouth of a stream where a decrease in velocity induces deposition. Examples are channel bars and meander bars.

Bar (coast). A generic term for any of the various elongated offshore ridges, banks, or mounds of sand, gravel, or other unconsolidated material submerged at least at high tide and built up by the action of waves or currents, especially at the mouth of a river or estuary or offshore a short distance from the beach.

Bar (microfeature). A small, sinuous or arcuate, ridgelike lineation separated from others similar to it by small channels. It is caused by fluvial processes and is common on flood plains and young alluvial terraces. It is a constituent of bar and channel topography.

Bar and channel topography. A local topography of recurring, small, sinuous or arcuate ridges separated by shallow troughs irregularly spaced across low-relief flood plains (slopes generally are 2 to 6 percent). The effect is a subdued, sinuously undulating surface that is common on active flood plains. Micro-elevational differences generally range from less than 1 meter to less than 2 meters. The elevational differences between the bars and channels are largely controlled by the competency of the stream. The ridgelike bars commonly consist of sediment that is coarser than the finer textured sediment of the low-lying areas.

Basalt. A dark-colored to medium-colored, commonly extrusive (locally intrusive, as dikes), mafic igneous rock composed mainly of calcic plagioclase (commonly labrodorite) and clinopyroxene in a glassy or fine grained ground mass; the extrusive equivalent of gabbro.

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.

Basin. Nearly level to gently sloping bottom surface of a wide structural depression between mountain ranges.

Basin floor. A general term for the nearly level, lowermost part of intermontane basins, or bolsons and semibolsons. The floor includes all of the alluvial, eolian, and erosional landforms below the piedmont slope.

Bedrock. A general term for 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.

Blowout. A shallow depression from which all or most of the soil material has been removed by the wind. A blowout has a flat or irregular floor formed by a resistant layer or by an accumulation of pebbles or cobbles. In some blowouts the water table is exposed.

Bolson. An internally drained (closed) intermontane basin into which drainageways from surrounding mountains converge inward toward a central depression.

Bottom land. The normal flood plain of a stream, subject to flooding.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Brush management. Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Bulk density. A measurement of the oven-dry weight of the soil material that is less than 2 millimeters in diameter per unit volume. Common measurements are taken at $^1/_3$-, $^1/_{10}$-, or 15-bar moisture tension. Bulk density influences plant growth and engineering applications. It is used to convert measurements from a weight basis to a volume basis. Within a family particle-size class, bulk density is an indicator of how well plant roots are able to extend into the soil. Bulk density is used to calculate porosity.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Calcic horizon. A mineral soil horizon of secondary carbonate enrichment.

Calcium carbonate equivalent. The amount of calcium carbonate in a soil measured by treating the soil sample with hydrochloric acid (HCL). The evolved carbon dioxide (CO2) is measured, and the amount of carbonate is then calculated as calcium carbonate (CaCO3).

Caliche. A general term for a prominent zone of secondary carbonate accumulation in surficial material of warm, subhumid to arid areas. Caliche is formed by both geologic and pedologic processes. Fine crystalline calcium carbonate forms a nearly continuous surface-coating and void-filling medium in geologic (parent) material. Cementation ranges from weak in nonindurated forms to very strong in indurated forms. Other cementing minerals (carbonates, silicate, and sulfate) may be present. Most petrocalcic horizons and some calcic horizons are caliche.

California bearing ratio (CBR). The load-supporting capacity of a soil as compared to that of standard crushed limestone, expressed as a ratio. First standardized in California. A soil having a CBR of 16 supports 16 percent of the load that would be supported by standard crushed limestone, per unit area, with the same degree of distortion.

Cambic horizon. A mineral soil horizon that has the texture of loamy very fine sand or finer, has soil structure rather than rock structure, and contains some weatherable minerals. It is characterized by the alteration or removal of mineral material as indicated by mottling or gray color, stronger chroma or redder hue

than the underlying horizons, or the removal of carbonates. The cambic horizon lacks cementation or induration and has too few evidences of illuviation to meet the requirements for an argillic horizon.

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.

Cathodic protection. Control of the electrolytic corrosion of an underground or underwater metallic structure, such as a pipeline, by the application of an electrical current in such a way that the structure acts as the cathode rather than the anode of an electrolytic cell. (See Coatings for pipelines.)

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity (CEC). 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.

Catsteps. Very small, irregular terraces on steep hillsides, especially in pasture, formed by the trampling of cattle or the slippage of saturated soil. (See Terracettes.)

CEC. See Cation-exchange capacity.

Channery soil material. Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Clayey. Sandy clay, silty clay, and clay soil textures.

Claypan. A dense, compact, slowly permeable layer in the subsoil that has a much higher content of clay than the overlying material. A claypan commonly is hard when dry and plastic or sticky when wet.

Climax plant community. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Closed depression. A low area that is completely surrounded by higher ground and does not have a natural outlet.

Coarse fragments. See Rock fragments.

Coarse textured soil. Sand or loamy sand.

Coatings for pipelines. Coatings used as a barrier to the flow of electricity and moisture, thereby preventing the formation of corrosion cells.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material. Material that has 15 to 35 percent, by volume, rounded or

partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

COLE (coefficient of linear extensibility). See Linear extensibility percent.

Colluvium. Unconsolidated, unsorted earth material transported or deposited on side slopes and/or at the base of slopes by mass movement, or direct gravitational action, and by local unconcentrated runoff.

Compaction. The process by which the soil grains are rearranged to decrease void space and bring them into closer contact with one another, thereby increasing bulk density.

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.

Conductivity of saturation extract. See Electrical conductivity.

Conglomerate. A coarse grained, clastic sedimentary rock composed of rounded or subangular rock fragments more than 2 millimeters in diameter, commonly with a matrix of sand and finer textured material. Cementing agents include silica, calcium carbonate, and iron oxide. Conglomerate is the consolidated equivalent of gravel.

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.”

Consociation, soil. A map unit comprised of delineations, each of which show the size, shape, and location of a landscape unit, made up of one kind of soil or miscellaneous area and inclusions.

Consolidated sandstone. Sandstone that disperses within a few hours when fragments are placed in water. The fragments are extremely hard or very hard when dry and are not easily crushed. The texture cannot be determined by the usual field method.

Consolidated shale. Shale that disperses within a few hours when fragments are placed in water. The fragments are extremely hard or very hard when dry and are not easily crushed.

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosion. Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cross-slope farming. Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

Debris flow (mass movement). The process, associated sediment (debris flow deposit), or resultant landform characterized by a very rapid type of flow dominated by sudden downslope movement of a mass of rock, soil, and mud (more than 50 percent particles that are more than 2 millimeters in size) that behaves much like viscous fluid whether it is saturated or relatively dry.

Decreasers. The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deep soil. See Depth, soil.

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.

Depth to bedrock (in tables). Bedrock is too near the surface for the specified use.

Diatomaceous earth. White, yellow, or light gray siliceous earth composed dominantly of opaline frustules of diatoms, commonly accumulated in lakes or swamps, with impurities that vary in amount and nature, including sponge spicules, radiolarian remains, clay minerals, silica sand, and alkaline earth; the unconsolidated equivalent of diatomite.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained*. These classes are defined in the "Soil Survey Manual."

Drainage, surface. Runoff, or surface flow of water, from an area.

Drainageway. A general term for a course or channel along which water moves in draining an area.

Draw. A small stream channel that generally is more open and has a broader floor than a ravine or gulch.

Dryland farming. The practice of producing crops without irrigation. Synonym: Dryfarming.

Dune. A low mound, ridge, bank, or hill of loose, windblown, granular material (generally sand), either barren or covered with vegetation, that is capable of movement from place to place but always retains its characteristic shape.

Duripan. A subsurface soil horizon that is cemented with illuvial silica, commonly opal or microcrystalline forms, to the degree that less than 50 percent of the volume of air-dry fragments will slake in water or hydrochloric acid.

EC. See Electrical conductivity.

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.

Electrical conductivity (EC). The electrolytic conductivity of an extract from saturated soil paste.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Eolian material. Material transported and deposited by wind, including earth material such as dune sand, sand sheets, loess, and clay.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Erosion pavement. A concentration of gravel or coarser fragments that remains on the soil surface after finer particles have been removed by running water or wind.

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. The term is most commonly applied to cliffs produced by differential erosion. Synonym: scarp.

Extrusive. Pertaining to igneous rock and sediment derived from deep-seated molten matter (magma) deposited and cooled on the earth's surface, including lava flows and tephra deposits.

Fallow. Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal

grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Family, soil. The most specific hierarchical category in soil taxonomy.

Fan piedmont. The most extensive landform on piedmont slopes that is formed either by the lateral downslope coalescence of mountain-front alluvial fans into one generally smooth slope with or without the transverse undulations of the semiconical alluvial fans or by the accretion of fan aprons.

Fan remnant. A general term for landforms that are the remaining parts of older fan landforms, such as alluvial fans, fan aprons, inset fans, and fan skirts, that either have been dissected (erosional fan remnants) or partially buried (nonburied fan remnants). An erosional fan remnant has a relatively flat summit that is a relict fan surface. A nonburied fan remnant is a relict surface in its entirety.

Fan terrace. See Fan remnant.

Fault. A fracture or fracture zone of the earth with displacement on one side in respect to the other.

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*.

Fill slope. A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.

Fine textured soil. Sandy clay, silty clay, or clay.

Firebreak. Area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flood plain. The nearly level plain that borders a stream and is subject to inundation under floodstage conditions unless protected artificially. It is commonly a constructional landform consisting of sediment deposited during overflow and lateral migration of a stream.

Fluvial. Of or pertaining to rivers; produced by river action.

Foothill. A steeply sloping upland that has relief of as much as 1,000 feet (300 meters) and fringes a mountain range or high-plateau escarpment.

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.

Fragments. Unattached cemented pieces of bedrock, bedrocklike material, durinodes, concretions, and nodules 2 millimeters in diameter or larger in mineral soils; woody material 20 millimeters in diameter or larger in organic soils.

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. The microrelief of soils produced by expansion and contraction with changes in moisture content. It is characteristic of soils that contain large amounts of smectitic clay and that swell and shrink considerably with wetting and drying.

Commonly, a succession of microbasins and microknolls in nearly level areas or of microvalleys and microridges parallel to the slope. Also referred to, in part or in total, as crabhole, Bay of Biscay, or hushabye in older literature.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Granitic. A textural term commonly pertaining to an igneous intrusive rock of felsic to intermediate composition. Referring to granitelike rock, but not necessarily true granite. Commonly applied to granite, quartz monzonite, granodiorite, and diorite.

Granite. A felsic igneous intrusive rock containing quartz and orthoclase with smaller amounts of sodic plagioclase and commonly muscovite.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water. Water filling all the unblocked pores of the material below the water table.

Gully. A small channel with steep sides cut by the concentrated, but intermittent, flow of water commonly during and immediately following heavy rainfall or following icemelt or snowmelt. A gully generally is an obstacle to wheeled vehicles and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Gypsum content. The percent, by weight, of hydrated calcium sulfates in the fraction of the soil less than 20 millimeters in size.

Halophytic. Pertaining to vegetation that is adapted to salty soils.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Head out. To form a flower head.

High-residue crops. Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill. A generic term for an area of the land surface that rises as much as 1,000 feet (300 meters) above surrounding lowlands, commonly has restricted summit area relative to surrounding surfaces, and has a well-defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and commonly is dependent on local usage.

Holocene. The epoch of the Quaternary period of geologic time that extends from the end of the Pleistocene (about 10 to 12 thousand years ago) to the present.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An

explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

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.

Increasers. Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to livestock.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Inset fan. Specific name for the flood plain of an ephemeral stream that is confined between fan remnants, ballenas, basin floor remnants, or closely opposed fan toeslopes of a basin.

Intake rate. The average rate of water entering the soil under irrigation. Most soils

have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Intermittent stream. A stream, or reach of a stream, that does not flow year-round (commonly is dry for 3 months or more annually), and its channel generally is below the local water table. It flows only when it receives baseflow during wet periods or when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Intrusive. Pertaining to igneous rock derived from molten matter (magma) that invaded pre-existing rock and cooled below the surface of the earth.

Invaders. On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Level basin (or paddy).—Water is applied to a level plain surrounded by levees or dikes.

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 factor. A measurement of potential soil erodibility caused by detachment of soil particles by water.

Lacustrine deposit. Clastic sediment and chemical precipitates deposited in lakes.

Lake plain. A surface that marks the floor of an extinct lake that is filled with well sorted, stratified sediment.

Landslide. The rapid downhill movement of a mass of soil and loose rock, generally

when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Leaching. The removal of soluble material from soil or other material by percolating water.

LEP. See Linear extensibility percent.

Linear extensibility percent (LEP). The linear expression of the volume difference between the water content of the natural soil fabric at $^1/_3$-bar or $^1/_{10}$-bar and oven dryness. The volume change is reported as a percent for the whole soil.

Liquid limit (LL). The moisture content at which the soil passes from a plastic to a liquid state.

Lithic contact. A boundary between soil and continuous, coherent underlying material. The underlying material must be sufficiently coherent to make digging with a spade impractical. If the underlying material is mineral material, it must have a hardness of 3 or more (Mohs scale) and the gravel-sized fragments do not disperse under 15 hours of shaking in water or a sodium hexametaphosphate solution.

LL. See Liquid limit.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loamy. Coarse sandy loam, sandy loam, fine sandy loam, very fine sandy loam, loam, silt loam, silt, clay loam, sandy clay loam, and silty clay loam soil textures.

Low-residue crops. Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Low strength. The soil is not strong enough to support loads.

Magma. Molten rock material that originates deep in the earth and solidifies to form igneous rock.

Map unit. A conceptual group of one to many delineations that represent areas of similar landscape comprised of (1) the same kind of soil plus inclusions, (2) two or more kinds of soil plus inclusions, (3) soils and miscellaneous areas plus inclusions, (4) two or more kinds of soil that may or may not occur together in various delineations but have similar special uses and management requirements plus inclusions; or (5) miscellaneous areas plus inclusions.

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.

Mesic temperature regime. See Temperature regime, soil.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement in the earth's crust. Nearly all such rocks are crystalline. Examples are schist, gneiss, quartzite, slate, and marble.

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 deep soil. See Depth, soil.

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 that rises more than 1,000 feet (300 meters) above surrounding lowlands, commonly has limited summit area relative to surrounding surfaces, and generally has steep sides (slopes of more than 25 percent) with or without considerable bare-rock surface. A mountain can occur as a single, isolated mass or in a group forming a chain or range. Mountains are formed primarily by tectonic and/or volcanic activity and by differential erosion.

Mudstone. A blocky or massive, fine-grained sedimentary rock indurated by clay and silt in approximately equal amounts. Also, a general term for clay, silt, claystone, siltstone, shale, and argillite that is used only when the amounts of clay and silt are not known or cannot be precisely determined.

Mulch. A natural or artificial layer of plant residue or other material, such as sand or paper, on the soil surface.

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Natric horizon. A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

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.

Ochric epipedon. A surface horizon of mineral soil that is too light in color, too high in chroma, too low in organic carbon, or too thin to be a plaggen, mollic, umbric, anthropic, or histic epipedon, or that is hard and massive when dry.

OM. See Organic matter.

Organic matter (OM). 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

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan*.

Paralithic contact. A boundary between soil and continuous, coherent underlying material. The underlying material can be dug with difficulty with a spade. If the underlying material is mineral material, it must have a hardness of 3 or more (Mohs scale) and the gravel-sized fragments partially disperse under 15 hours of shaking in water or a sodium hexametaphosphate solution.

Parent material. The unconsolidated and chemically weathered mineral and organic material in which the solum of a soil is formed as a result of pedogenic processes.

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.

Perched water table. The upper surface of unconfined ground water separated from an underlying main body of ground water by an unsaturated zone.

Percolation. The downward movement of water through the soil.

Pergelic temperature regime. See Temperature regime, 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

Petrocalcic horizon. A continuous, indurated calcic horizon that is cemented by calcium carbonate and by magnesium in some places. It cannot be penetrated with a spade or auger when dry and cannot be penetrated by roots. Dry fragments do not slake in water.

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.)

PI. See Plasticity index.

Plasticity index (PI). The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Playa. The generally dry and nearly level lake plain that occupies the lowest parts of closed depressions, such as those on intermontane basin floors. Temporary flooding occurs primarily in response to precipitation and runoff. Playas consist of fine grained deposits and may or may not have a high water table and may or may not be saline.

Pleistocene. The epoch of the Quaternary period of geologic time following the Pliocene and preceding the Holocene (approximately 2 million to 10 thousand years ago). Also refers to the corresponding (time-stratigraphic) "series" of earth material.

Pliocene. The last epoch of the Tertiary period of geologic time, following the Miocene and preceding the Pleistocene (approximately 5 million to 2 million years ago). Also refers to the corresponding (time-stratigraphic) "series" of earth material.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Polygonal cracks. The network of curvilinear voids on the surface of a soil. These cracks occur when a clayey soil dries and shrinks.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Potential native plant community. See Climax plant community.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

PRISM. Climate model developed by Dr. Christopher Daly of Oregon State University. Acronym for Parameter-elevation Regressions on Independent Slopes Model.

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.

Quaternary. The period of the Cenozoic era of geologic time, extending from the end of the Tertiary (about 2 million years ago) to the present and comprising the Pleistocene (Ice Age) and Holocene (Recent) epochs. Also refers to the corresponding (time-stratigraphic) "series" of earth material.

Range condition. The present composition of the plant community on a range site in relation to the potential natural plant community for that site. Range condition is expressed as excellent, good, fair, or poor on the basis of how much the present plant community differs from the potential.

Rangeland. Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs. It includes natural grasslands, savannas, many

wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

Range site. An area of rangeland where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. A range 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 range sites in kind, proportion, and total production.

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.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

Regeneration. The new growth of a natural plant community that is developing from seed.

Regolith. All unconsolidated earth material above the solid bedrock. It includes material weathered in place from all kinds of bedrock and alluvial, glacial, eolian, lacustrine, and pyroclastic deposits. Soil scientists regard as soil only that part of the regolith that has been modified by organisms and soil-forming processes. Most engineers describe the entire regolith, even to a great depth, as “soil.”

Relief. The elevations or inequalities of a land surface, considered collectively.

Remnant. The remaining part of a larger landform or land surface that has been dissected or partially buried.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A small steep-sided channel resulting from erosion. It is cut by a concentrated,

but intermittent, flow of water, usually during and immediately following moderate rains or following icemelt or snowmelt. Generally, a rill is not an obstacle to wheeled vehicles and is shallow enough to be obliterated by ordinary tillage.

Riverwash. Barren alluvial areas of unstabilized sand, silt, clay, or gravel reworked frequently by stream activity.

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.

Rock outcrop. Exposures of bedrock, excluding lava and rock-lined pits.

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.

SAR. See Sodium adsorption ratio.

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 is expressed as the electrical conductivity of a saturation extract at 25 degrees C. Salinity classes, expressed in millimhos per centimeter, are as follows:

Nonsaline	0 to 2
Very slightly saline	2 to 4
Slightly saline	4 to 8
Moderately saline	8 to 16
Strongly saline	more than 16

Saline-sodic soil. A soil that contains sufficient exchangeable sodium to interfere with the growth of most crops and appreciable quantities of soluble salts. The exchangeable sodium ratio is greater than 0.15; the conductivity of the soil solution, when saturated, is greater than 4 decisiemens per meter (at 25 degrees C); and the pH is commonly 8.5 or less when the soil is saturated.

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.

Sandy. Sand and loamy sand soil textures.

Saprolite. Soft, friable, isovolumetrically weathered bedrock that retains the fabric and structure of the parent rock and exhibits extensive intercrystal and intracrystal weathering. In pedology, saprolite has been used to refer to any unconsolidated residual material that underlies the soil and grades to hard bedrock below.

SAR. See Sodium adsorption ratio.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Scarification. The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

Scour. The powerful and concentrated clearing and digging action of flowing air, water, or ice; especially the downward erosion of mud and silt on the outside curve of a bend by stream water or flood water.

Second bottom. The first terrace above the normal flood plain (or first bottom) of a river.

Sedimentary rock. A consolidated deposit of clastic particles, chemical precipitates, or organic matter accumulated at or near the surface of the earth under "normal" low temperature and pressure conditions. Sedimentary rock includes the consolidated equivalents of alluvial, colluvial, drift, eolian, lacustrine, and marine deposits. Examples are sandstone, siltstone, mudstone, claystone, shale, conglomerate, limestone, dolomite, and coal.

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 that formed as a result of the induration of a clay, silty clay, or silty clay loam deposit and has the tendency to split into thin layers (fissility).

Shallow soil. See Depth, soil.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Shoulder. The position that forms the uppermost inclined surface near the top of a hillslope. It is a transition from backslope to summit. The surface is dominantly convex in profile and erosional in origin.

Side slope. A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

Slick spot. A small area of soil having a puddled, crusted, or smooth surface and an excess of exchangeable sodium. The soil generally is silty or clayey, is slippery when wet, and is low in productivity.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Level	0 to 2 percent
Gently sloping	2 to 5 percent
Moderately sloping	5 to 9 percent
Strongly sloping	9 to 15 percent
Moderately steep	15 to 30 percent
Steep	30 to 50 percent
Very steep	50 percent and higher

Classes for complex slopes are as follows:

Nearly level	0 to 2 percent
Undulating	2 to 5 percent
Gently rolling	5 to 9 percent
Rolling	9 to 15 percent
Hilly	15 to 30 percent
Steep	30 to 50 percent
Very steep	50 percent and higher

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

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

Sodium adsorption ratio (SAR). A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil erodibility factors. The Kw and Kf factors quantify the susceptibility of soil to detachment by water. These erodibility factors predict the long-term average soil loss that results from sheet and rill erosion when various cropping systems and conservation techniques are used. The whole soil is considered in the Kw factor, but only the fine-earth fraction, which is the material less than 2 millimeters in diameter, is considered in the Kf factor.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Soil slippage potential. The possibility that a mass of soil will slip when vegetation is removed, the soil is saturated or nearly saturated, and normal practices are applied.

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 sheetlike lag concentration of coarse fragments in surficial sediment. In cross section, the line may be marked only by scattered fragments or it may be a discrete layer of fragments. The fragments are more commonly pebbles or cobbles than stones. A stone line generally overlies material that was subject to weathering, soil formation, and erosion before deposition of the overlying material. Many stone lines appear to be buried erosion pavement originally formed by running water on the land surface and concurrently covered by surficial sediment.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stratified. Referring to geologic deposits that were formed, arranged, or laid down in layers. Layers in soils that are a result of the processes of soil formation are called horizons; those inherited from the parent material are called strata.

Stream channel. The hollow bed where a natural stream of surface water flows or may flow; the deepest or central part of the bed, formed by the main current and covered more or less continuously by water.

Stream terrace. One of a series of platforms in a stream valley that flanks and is more or less parallel to the stream channel, originally formed near the level of the stream, and represents the dissected remnants of an abandoned flood plain, streambed, or valley floor produced during an earlier period of erosion or deposition.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsidence. The decrease in surface elevation as a result of the drainage of wet soils that have organic layers or semifluid mineral layers.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. Technically, the E horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.

Summer fallow. The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

Summit. The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

T factor. The soil loss tolerance, which is defined as the maximum amount of erosion at which the quality of a soil as a medium for plant growth can be maintained. Maintaining the quality of the soil includes maintaining the surface soil as a seedbed for plants, maintaining the atmosphere-soil interface to allow the entry of air and water into the soil and still protect the underlying soil from wind and water erosion, and maintaining the total soil volume as a reservoir for water and plant nutrients, which is preserved by minimizing soil loss.

Tailwater. The water directly downstream of a structure.

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.

Temperature regime, soil. A system that categorizes for taxonomic purposes general, long-term soil temperature conditions at the standard depth of 20 inches or at the surface of the bedrock, whichever is at a shallower depth. The various regimes are defined according to the freezing point of water or to the high and low extremes for significant biological activity. The regimes, which are defined in "Keys to Soil Taxonomy," are as follows:

Pergellic.—Soils that have a mean annual temperature of less than 32 degrees F and have permafrost.

Cryic.—Soils that have a mean annual temperature of 32 to 47 degrees and remain cold in summer.

Frigid.—Soils that have a mean annual temperature similar to that of the cryic regime but have a mean summer temperature at least 9 degrees warmer.

Mesic.—Soils that have a mean annual temperature of 47 to 59 degrees, and the difference between the mean summer and mean winter temperature is more than 9 degrees.

Thermic.—Soils that have a mean annual temperature of 59 to 72 degrees, and the difference between the mean summer and mean winter temperature is more than 9 degrees.

Hyperthermic.—Soils that have a mean annual temperature of more than 72 degrees, and the difference between the mean summer and mean winter temperature is more than 9 degrees.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geomorphologic). A steplike surface bordering a valley floor or shoreline that represents the former position of a flood plain, lake, or seashore. The term is commonly applied to both the relatively flat summit surface (tread) that has been cut or builtup by stream or wave action and the steeper descending slope (scarp or riser) that grades to a lower base level of erosion. Practically, terraces are considered to be generally flat alluvial areas above the 100-year flood stage.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Terracette. A small, irregular steplike area on steep hillslopes, especially in pasture, that formed as a result of creep or erosion of surficial material that may or may not have been induced by trampling of livestock such as sheep or cattle.

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." The abbreviations are *C—clay, CL—clay loam, COS—coarse sand, COSL—coarse sandy loam, FS—fine sand, FSL—fine sandy loam, L—loam, LCOS—loamy coarse sand, LFS—loamy fine sand, LS—loamy sand, LVFS—loamy very fine sand, S—sand, SC—sandy clay, SCL—sandy clay loam, SI—silt, SIC—silty clay, SICL—silty clay loam, SIL—silt loam, SL—sandy loam, VFS—very fine sand,* and *VFSL—very fine sandy loam.*

Terms used in lieu of texture descriptions are *BR—bedrock, BY—boulders, CB—cobbles, CN—channers, FL—flagstones, G—gravel, HPM—highly decomposed plant material, MAT—material, MPM—moderately decomposed plant material, MPT—mucky peat, MUCK—muck, PBY—paraboulders, PCB—paracobbles, PCN—parachanners, PEAT—peat, PFL—paraflagstones, PG—paragravel, PST—parastones, SPM—slightly decomposed plant material, ST—stones, VAR—variable,* and *W—water*.

The texture modifiers that may apply to textural classes are *ASHY—ashy, BY—bouldery, BYV—very bouldery, BYX—extremely bouldery, CB—cobbly, CBV—very cobbly, CBX—extremely cobbly, CEM—cemented, CN—channery, CNV—very channery, CNX—extremely channery, COP—coprogenous, DIA—diatomaceous, FL—flaggy, FLV—very flaggy, FLX—extremely flaggy, GR—gravelly, GRC—coarse gravelly, GRF—fine gravelly, GRM—medium gravelly, GRV—very gravelly, GRX—extremely gravelly, GS—grassy, GYP—gypsiferous, HB—herbaceous, HYDR—hydrous, MEDL—medial, MK—mucky, MR—marly, MS—mossy, PBY—parabouldery, PBYV—very parabouldery, PBYX—extremely parabouldery, PCB—paracobbly, PCBV—very paracobbly, PCBX—extremely paracobbly, PCN—parachannery, PCNV—very parachannery, PCNX—extremely parachannery, PF—permanently frozen, PFL—paraflaggy, PFLV—very paraflaggy, PFLX—extremely paraflaggy, PGR—paragravelly, PGRV—very paragravelly, PGRX—extremely paragravelly, PST—parastony, PSTV—very parastony, PSTX—extremely parastony, PT—peaty, SR—stratified, ST—stony, STV—very stony, STX—extremely stony,* and *WD—woody*.

Thermic temperature regime. See Temperature regime, soil.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The outermost inclined surface at the base of a hill; part of a footslope.

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.

Torric moisture regime. See Aridic moisture regime.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Unified soil classification. A system for classifying mineral and organic soils for engineering purposes based on particle-size characteristics, liquid limit, and plasticity index.

Upland (geomorphologic). A general term for the higher land of a region in contrast to the low-lying, adjacent land, such as a valley or plain; land at a higher elevation

than the flood plain or low stream terrace; or land above the footslope zone of the hillslope continuum.

Uplift (tectonic)**.** A structurally high area in the earth's crust resulting from positive movement that raises or upthrusts the rock, as a dome or arch.

Vadose. The unsaturated zone in the soil between the surface of the ground water and the capillary fringe.

Valley. An elongated depressional area primarily developed by stream action.

Valley fill. The unconsolidated sediment deposited by any agent (water, wind, ice, or mass wasting) that fills or partly fills a valley.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Vegetative cover. The crown cover of all live plants in relation to the ground surface.

Vernal pool. A shallow surficial depression that is temporarily filled with water during periods of rain in winter and spring and is desiccated during the dry summer months. It occurs as a small poorly drained depression perched above an impermeable or very slowly permeable soil horizon or bedrock.

Very deep soil. See Depth, soil.

Very shallow soil. See Depth, soil.

Water bars. Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Water gap. An opening or fenced area that provides access to a developed or natural water supply, permitting one watering facility to serve two or more pastures.

Water table. The upper surface of ground water or the level below which the soil is saturated by water. Also, the top of an aquifer.

Waterspreading. Diverting runoff from natural channels with a system of dams, dikes, or ditches and spreading it over relatively flat surfaces.

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.

WEG. See Wind erodibility group.

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.

Wind erodibility group (WEG). A grouping of soils that have similar properties affecting their resistance to wind erosion in cultivated areas.

Windbreak. A living barrier of trees or a combination of trees and shrubs adjacent to a farm or ranch that is designed to protect the area from cold or hot winds and drifting snow.

Windthrow. The uprooting and tipping over of trees by the wind.

Xeric moisture regime. The typical moisture regime in areas of Mediterranean climates, where it is moist and cool in winter and warm and dry in summer. When potential evapotranspiration is at a minimum, the moisture, which falls in winter, is particularly effective in leaching. The mean annual soil temperature is less than 22 degrees C, and the difference between the mean summer and mean winter soil temperature is 6 degrees.

Tables

Table 1.--Temperature and Precipitation

(Recorded in the period 1961-90 at Canoga Park, Pierce College, California [1484])

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-----	68.6	39.6	54.1	87	25	154	3.31	0.68	5.76	3	0.0
February----	71.1	40.9	56.0	90	27	182	3.30	0.45	5.81	3	0.0
March-------	72.3	42.0	57.1	93	30	229	2.88	0.64	4.80	4	0.0
April-------	77.1	44.4	60.8	98	33	326	1.02	0.19	2.28	2	0.0
May---------	81.1	49.3	65.2	103	38	469	0.18	0.02	0.48	0	0.0
June--------	87.7	53.5	70.6	108	42	617	0.02	0.02	0.14	0	0.0
July--------	95.4	57.3	76.4	109	49	817	0.00	0.00	0.00	0	0.0
August------	95.4	58.2	76.8	110	49	831	0.18	0.03	0.70	0	0.0
September---	91.0	55.4	73.2	111	44	697	0.26	0.06	0.72	0	0.0
October-----	84.3	49.9	67.1	104	37	530	0.55	0.13	1.27	1	0.0
November----	74.5	43.2	58.8	95	30	269	2.48	0.47	4.49	2	0.0
December----	68.7	38.8	53.7	87	25	147	2.14	0.29	3.65	2	0.0
Yearly:											
Average---	80.6	47.7	64.2	---	---	---	---	---	---	---	---
Extreme---	116	18	---	113	22	---	---	---	---	---	---
Total-----	---	---	---	---	---	5,269	16.33	9.21	22.64	17	0.0

Table 1.--Temperature and Precipitation--Continued

(Recorded in the period 1961-90 at Santa Monica Pier, California [7953])

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-----	65.0	49.6	57.3	82	39	225	2.46	0.60	4.42	3	0.0
February----	64.1	50.4	57.2	81	41	205	2.47	0.31	4.40	3	0.0
March-------	62.7	50.9	56.8	80	42	211	1.87	0.41	3.13	2	0.0
April-------	63.6	52.9	58.2	83	44	243	0.71	0.21	1.73	1	0.0
May---------	63.9	55.5	59.7	76	47	301	0.15	0.02	0.76	0	0.0
June--------	66.1	58.5	62.3	79	51	367	0.01	0.02	0.10	0	0.0
July--------	69.2	61.5	65.4	79	55	476	0.02	0.05	0.23	0	0.0
August------	71.0	63.0	67.0	81	56	525	0.18	0.06	0.93	0	0.0
September---	71.6	62.3	66.9	88	53	507	0.25	0.05	0.67	0	0.0
October-----	70.7	59.1	64.9	91	50	462	0.26	0.07	0.62	0	0.0
November----	68.4	54.3	61.3	87	44	337	1.89	0.44	3.77	2	0.0
December----	65.2	50.0	57.6	82	33	236	1.88	0.27	3.49	2	0.0
Yearly:											
Average---	66.8	55.6	61.2	---	---	---	---	---	---	---	---
Extreme---	104	36	---	95	37	---	---	---	---	---	---
Total-----	---	---	---	---	---	4,096	12.16	6.29	15.40	13	0.0

Table 1.--Temperature and Precipitation--Continued

(Recorded in the period 1961-90 at the University of California, Los Angeles, California [9152])

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-----	66.3	50.4	58.3	85	38	263	3.03	0.57	5.32	3	0.0
February----	66.9	50.8	58.9	85	40	253	3.72	0.62	6.78	3	0.0
March-------	66.3	50.5	58.4	84	41	260	2.61	0.86	4.21	4	0.0
April-------	68.5	52.5	60.5	90	43	315	0.97	0.23	2.18	2	0.0
May---------	69.1	55.0	62.1	89	47	372	0.23	0.01	0.56	0	0.0
June--------	72.3	58.0	65.1	93	51	454	0.04	0.02	0.17	0	0.0
July--------	76.8	61.1	68.9	92	55	587	0.02	0.02	0.11	0	0.0
August------	77.7	62.4	70.1	93	47	618	0.19	0.04	0.75	0	0.0
September---	77.4	61.8	69.6	99	53	589	0.37	0.04	0.88	0	0.0
October-----	75.2	59.1	67.2	96	50	532	0.44	0.09	0.95	0	0.0
November----	70.3	54.5	62.4	89	44	371	2.37	0.52	4.26	2	0.0
December----	66.2	50.7	58.5	84	38	269	2.27	0.42	3.98	2	0.0
Yearly:											
Average---	71.1	55.6	63.3	---	---	---	---	---	---	---	---
Extreme---	108	33	---	103	37	---	---	---	---	---	---
Total-----	---	---	---	---	---	4,883	16.25	9.59	21.46	16	0.0

*A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50 degrees F)

Table 2.--Freeze Dates in Spring and Fall

(Recorded in the period 1961-90 at Canoga Park, Pierce College, California [1484]. Absence of an entry indicates that the temperature does not occur at the indicated frequency)

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--	January 17	February 23	April 5
2 years in 10 later than--	January 1	February 13	March 25
5 years in 10 later than--	---	January 20	March 4
First freezing temperature in fall:			
1 year in 10 earlier than--	December 20	November 26	November 9
2 years in 10 earlier than--	January 3	December 6	November 17
5 years in 10 earlier than--	---	December 27	December 2

Table 3.--Growing Season

(Recorded in the period 1961-90 at Canoga Park, Pierce College, California [1484])

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	>365	290	232
8 years in 10	>365	309	246
5 years in 10	>365	351	272
2 years in 10	>365	>365	299
1 year in 10	>365	>365	312

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
100	Chumash-Boades-Malibu association, 30 to 75 percent slopes	22,700	12.4
101	Chumash-Boades-Malibu association, 5 to 15 percent slopes	40	*
110	Malibu-Chumash-Boades association, 15 to 50 percent slopes	1,760	1.0
120	Mipolomol-Topanga association, 30 to 75 percent slopes	30,930	17.0
121	Mipolomol-Topanga-Rock outcrop complex, 30 to 75 percent slopes	230	0.1
122	Calcic Haploxerepts-Mollic Haploxeralfs association, 30 to 75 percent slopes	1,635	0.9
130	Camarillo loam, coastal, 0 to 2 percent slopes	180	*
140	Sulfic Fluvaquents, frequently flooded, 0 to 1 percent slopes	200	0.1
150	Abaft-Beaches association, 0 to 5 percent slopes	855	0.5
151	Abaft-Beaches-Urban land complex, 0 to 5 percent slopes	240	0.1
160	Xerorthents, landscaped, 0 to 9 percent slopes	965	0.5
170	Cotharin clay loam, 30 to 75 percent slopes	12,315	6.8
171	Cotharin loam-Rock outcrop complex, very bouldery, 30 to 75 percent slopes	4,390	2.4
175	Cotharin-Talepop association, 30 to 75 percent slopes	6,980	3.8
176	Cotharin-Talepop association, 15 to 50 percent slopes	10,265	5.6
178	Cotharin-Talepop-Urban land complex, 0 to 50 percent slopes	680	0.4
179	Cotharin loam, 30 to 75 percent slopes, dry	1,450	0.8
180	Pits and Dumps	450	0.2
190	Kayiwish association, 0 to 9 percent slopes	570	0.3
191	Kayiwish association, 9 to 30 percent slopes	110	*
200	Cumulic Haploxerolls, 0 to 9 percent slopes	1,215	0.7
202	Fluvaquents-Riverwash complex, 0 to 5 percent slopes	220	0.1
220	Elder fine sandy loam, coastal, 0 to 2 percent slopes	365	0.2
230	Cotharin-Talepop association, 15 to 50 percent slopes	210	0.1
231	Talepop-Rock outcrop complex, 30 to 75 percent slopes	160	*
240	Tongva-Cotharin-Rock outcrop complex, 30 to 75 percent slopes	2,160	1.2
241	Cotharin-Rock outcrop-Tongva complex, 30 to 75 percent slopes	670	0.4
250	Urban land-Xerorthents, landscaped, complex, 0 to 5 percent slopes	12,485	6.8
251	Urban land-Tongva complex, 0 to 15 percent slopes	340	0.2
252	Urban land-Xerorthents, landscaped, complex, rarely flooded, 0 to 5 percent slopes	970	0.5
270	Pacheco silty clay loam, 0 to 2 percent slopes	90	*
290	Topanga-Mipolomol-Sapwi association, 30 to 75 percent slopes	19,270	10.6
300	Zumaridge-Kawenga association, 30 to 75 percent slopes	4,740	2.6
301	Zumaridge-Kawenga association, 15 to 50 percent slopes	840	0.5
302	Zumaridge-Rock outcrop-Sumiwawa complex, very stony, 15 to 50 percent slopes	280	0.2
303	Zumaridge-Rock outcrop-Sumiwawa complex, very stony, 30 to 75 percent slopes	710	0.4
304	Zumaridge-Sapwi-Kawenga association, bouldery, 30 to 75 percent slopes	1,560	0.9
305	Zumaridge-Rock outcrop complex, bouldery, 30 to 75 percent slopes	1,350	0.7
310	Gaviota stony sandy loam, 30 to 50 percent slopes	420	0.2
311	Gaviota-Rock outcrop association, 50 to 100 percent slopes	4,090	2.2
320	Botella loam, 2 to 9 percent slopes	1,435	0.8
330	Linne-Los Osos-Haploxerepts association, 30 to 75 percent slopes	7,380	4.0
331	Linne silty clay loam, 15 to 50 percent slopes	1,345	0.7
332	Linne silty clay loam, 9 to 15 percent slopes	500	0.3
350	Los Osos clay loam, 30 to 50 percent slopes	275	0.2
390	Danville-Urban land complex, 0 to 9 percent slopes	780	0.4
391	Danville-Urban land complex, 9 to 15 percent slopes	245	0.1
400	Pachic Argixerolls, coastal, 30 to 75 percent slopes	135	*
410	Lockwood-Urban land complex, 0 to 15 percent slopes	120	*
411	Lockwood-Urban land complex, 0 to 9 percent slopes	190	0.1
430	Cropley clay, 2 to 9 percent slopes	100	*
431	Cropley association, 2 to 15 percent slopes	290	0.2
432	Cropley clay, 0 to 2 percent slopes	165	*
433	Cropley, coastal-Urban land-Haploxererts complex, 0 to 30 percent slopes	855	0.5
434	Cropley, coastal-Xerorthents, landscaped-Urban land complex, 0 to 9 percent slopes	870	0.5

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
450	Sapwi loam, 30 to 75 percent slopes	1,420	0.8
451	Urban land-Sapwi complex, 0 to 50 percent slopes	1,150	0.6
460	Typic Haploxerepts, 30 to 50 percent slopes	55	*
461	Typic Haploxerepts, 15 to 30 percent slopes	45	*
470	Sumiwawa-Hipuk-Rock outcrop complex, 30 to 75 percent slopes	1,880	1.0
472	Rock outcrop-Sumiwawa-Hipuk complex, 30 to 75 percent slopes	6,620	3.6
500	Balcom silty clay loam, 30 to 50 percent slopes	1,760	1.0
503	Balcom-Balcom, dark surface association, 30 to 75 percent slopes	960	0.5
530	Xerorthents-Urban land-Balcom complex, 0 to 30 percent slopes	140	*
531	Xerorthents-Urban land-Balcom complex, 0 to 15 percent slopes	2,520	1.4
532	Xerorthents-Urban land-Pachic Argixerolls, gullied complex, 0 to 30 percent slopes	140	*
540	Calcic Argixerolls, 30 to 75 percent slopes	1,210	0.7
550	Dam	10	*
W	Water	755	0.4
	Total	182,440	100.0

* Less than 0.1 percent.

Table 5.--Land Capability Classification

(Land capability is a system of grouping soils primarily on the basis of their capability to produce common cultivated crops and pasture plants without deterioration of the soil over a long period of time)

Map symbol and soil name	Land capability	
	N	I
100:		
Chumash	7e	---
Boades	7e	---
Malibu	7e	---
101:		
Chumash	7e	---
Boades	7e	---
Malibu	7e	---
110:		
Malibu	7e	---
Chumash	7e	---
Boades	7e	---
120:		
Mipolomol	7e	---
Topanga	7e	---
121:		
Mipolomol	7e	---
Topanga	7e	---
Rock outcrop	8	---
122:		
Calcic Haploxerepts	7e	---
Mollic Haploxeralfs	7e	---
130:		
Camarillo, coastal	3w-2	2w-2
140:		
Sulfic Fluvaquents	7w	---
150:		
Abaft	4e-2	3s-2
Beaches	8w	---
151:		
Abaft	4e	3s
Beaches	8w	---
Urban land	8	---

Table 5.--Land Capability Classification--Continued

Map symbol and soil name	Land capability	
	N	I
160:		
Xerorthents, landscaped	2e-1	2e-1
170:		
Cotharin	7e	---
171:		
Cotharin	7e	---
Rock outcrop	8	---
175:		
Cotharin	7e	---
Talepop	7e	---
176:		
Cotharin	7e	---
Talepop	7e	---
178:		
Cotharin	7e	---
Talepop	7e	---
Urban land	8	---
179:		
Cotharin, dry	7e	---
180:		
Pits and Dumps	8	---
190:		
Kayiwish, gently sloping	6e	---
Kayiwish, nearly level	6e	---
191:		
Kayiwish, gently sloping	6e	---
Kayiwish, steeply sloping	6e	---
200:		
Cumulic Haploxerolls	7w	---
202:		
Fluvaquents	4w-2	---
Riverwash	8w	---
220:		
Elder, coastal	3e-2	2e-2
230:		
Cotharin	7e-1	---
Talepop	7e	---

Table 5.--Land Capability Classification--Continued

Map symbol and soil name	Land capability	
	N	I
231:		
Talepop	7e	---
Rock outcrop	8	---
240:		
Tongva	7e	---
Cotharin	7e	---
Rock outcrop	8	---
241:		
Cotharin	7e	---
Rock outcrop	8	---
Tongva	7e	---
250:		
Urban land	8	---
Xerorthents, landscaped	2e-1	2e-1
251:		
Urban land	8	---
Tongva	7e	---
252:		
Urban land	8	---
Xerorthents, landscaped	2e-1	2e-1
270:		
Pacheco, coastal	3w-2	3w-2
290:		
Topanga	8e	---
Mipolomol	7e	---
Sapwi	7s	---
300:		
Zumaridge	7e	---
Kawenga	7e	---
301:		
Zumaridge	7e	---
Kawenga	7e	---
302:		
Zumaridge	7e	---
Rock outcrop	8	---
Sumiwawa	7e	---

Table 5.--Land Capability Classification--Continued

Map symbol and soil name	Land capability	
	N	I
303:		
Zumaridge	7e	---
Rock outcrop	8	---
Sumiwawa	7e	---
304:		
Zumaridge	7e	---
Sapwi	7s	---
Kawenga	7e	---
305:		
Zumaridge	7e	---
Rock outcrop	8	---
310:		
Gaviota	7e	---
311:		
Gaviota, northerly aspect	7e	---
Rock outcrop	8	---
320:		
Botella	3e-1	2e-1
330:		
Linne	7e	---
Los Osos	7e	---
Haploxerepts	7e	---
331:		
Linne	6e	---
332:		
Linne	3e-1	3e-1
350:		
Los Osos	6e	---
390:		
Danville, coastal	3e-1	3e-1
Urban land	8	---
391:		
Danville, coastal	3e-1	2e-1
400:		
Pachic Argixerolls, coastal	7e	---
410:		
Lockwood, coastal	3e-1	3e-1
Urban land	8	---

Table 5.--Land Capability Classification--Continued

Map symbol and soil name	Land capability	
	N	I
411:		
Lockwood, coastal	3e-1	2e-1
Urban land	8	---
430:		
Cropley, coastal	3e-5	2e-5
431:		
Cropley, coastal	3e-5	2e-5
Cropley	4e-5	4e-5
432:		
Cropley, coastal	2e-5	2e-5
433:		
Cropley, coastal	3e-5	2e-5
Urban land	8	---
Haploxererts	7e	---
434:		
Cropley, coastal	3e-1	2e-1
Xerorthents, landscaped	2e-1	2e-1
Urban land	8	---
450:		
Sapwi	7s	---
451:		
Urban land	8	---
Sapwi	7s	---
460:		
Typic Haploxerepts	6e	---
461:		
Typic Haploxerepts	4e-1	---
470:		
Sumiwawa	7e	---
Hipuk	7e	---
Rock outcrop	8	---
472:		
Rock outcrop	8	---
Sumiwawa	7e	---
Hipuk	7e	---
500:		
Balcom	6e	---

Table 5.--Land Capability Classification--Continued

Map symbol and soil name	Land capability	
	N	I
503:		
Balcom	7e	---
Balcom, dark surface	7e-1	---
530:		
Xerorthents, landscaped	4s-1	---
Urban land	8	---
Balcom	4e	4e
531:		
Xerorthents, landscaped	2e-1	2e-1
Urban land	8	---
Balcom	3e-1	3e-1
532:		
Xerorthents, landscaped	4e-1	---
Urban land	8	---
Pachic Argixerolls, gullied	4e-1	---
540:		
Calcic Argixerolls	7s	---
550:		
Dam	8	---
W:		
Water	8	---

Table 6.--Prime Farmland

(Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland. If a soil is prime farmland only under certain conditions, the conditions are given in parentheses after the soil name)

Map symbol	Soil name
130	Camarillo loam, coastal, 0 to 2 percent slopes (if irrigated and drained)
220	Elder fine sandy loam, coastal, 0 to 2 percent slopes (if irrigated)
270	Pacheco silty clay loam, 0 to 2 percent slopes (if irrigated and drained)
320	Botella loam, 2 to 9 percent slopes (if irrigated)
390	Danville-Urban land complex, 0 to 9 percent slopes
411	Lockwood-Urban land complex, 0 to 9 percent slopes
430	Cropley clay, 2 to 9 percent slopes (if irrigated)
431	Cropley association, 2 to 15 percent slopes (if irrigated)
432	Cropley clay, 0 to 2 percent slopes (if irrigated)

Table 7.--Statewide Important Farmland

(Urban or built-up areas of the soils listed are not considered statewide important farmland)

Map symbol	Soil name
150	Abaft-Beaches association, 0 to 5 percent slopes
151	Abaft-Beaches-Urban land complex, 0 to 5 percent slopes
433	Cropley, coastal-Urban land-Haploxererts complex, 0 to 30 percent slopes

Table 8.--Ecological Sites and Characteristic Plant Communities

(Composition of forest understory sites based on percent canopy cover, and composition of range sites based on percent weight. Absence of an entry indicates that the soil or miscellaneous area does not support rangeland or forestland or that data were not available)

Map symbol and soil name	Ecological site	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
100:						
Chumash---------	Shallow Coastal Scrub 14-16" p.z. (R020XD041CA)	Favorable	1,600	Grey coast eriogonum (ERCI5)		25
		Normal	1,000	Coastal prickly pear (OPLI3)		10
		Unfavorable	500	Common deerweed (LOSC2)		10
				Other shrubs (SSSS)		10
				Purple needlegrass (NAPU4)		10
				California encelia (ENCA)		5
				California sagebrush (ARCA11)		5
				Lemonade sumac (RHIN2)		5
				Other annual grasses (AAGG)		5
Boades----------	Coastal Scrub 14-16" p.z. (R020XD039CA)	Favorable	2,300	California sagebrush (ARCA11)		16
		Normal	1,400	Purple needlegrass (NAPU4)		16
		Unfavorable	800	Other annual grasses (AAGG)		12
				Black sage (SAME3)		9
				Common deerweed (LOSC2)		9
				Other shrubs (SSSS)		8
				Purple sage (SALE3)		8
				Laurel sumac (MALA6)		6
				Other perennial forbs (PPFF)		6
				Other perennial grasses (PPGG)		6
				Grey coast eriogonum (ERCI5)		4
Malibu----------	Coastal Scrub 14-16" p.z. (R020XD039CA)	Favorable	2,300	California sagebrush (ARCA11)		16
		Normal	1,400	Purple needlegrass (NAPU4)		16
		Unfavorable	800	Other annual grasses (AAGG)		12
				Black sage (SAME3)		9
				Common deerweed (LOSC2)		9
				Other shrubs (SSSS)		8
				Purple sage (SALE3)		8
				Laurel sumac (MALA6)		6
				Other perennial forbs (PPFF)		6
				Other perennial grasses (PPGG)		6
				Grey coast eriogonum (ERCI5)		4
101:						
Chumash---------	Shallow Coastal Scrub 14-16" p.z. (R020XD041CA)	Favorable	1,600	Grey coast eriogonum (ERCI5)		25
		Normal	1,000	Coastal prickly pear (OPLI3)		10
		Unfavorable	500	Common deerweed (LOSC2)		10
				Other shrubs (SSSS)		10
				Purple needlegrass (NAPU4)		10
				California encelia (ENCA)		5
				California sagebrush (ARCA11)		5
				Lemonade sumac (RHIN2)		5
				Other annual grasses (AAGG)		5
Boades----------	Coastal Scrub 14-16" p.z. (R020XD039CA)	Favorable	2,300	California sagebrush (ARCA11)		16
		Normal	1,400	Purple needlegrass (NAPU4)		16
		Unfavorable	800	Other annual grasses (AAGG)		12
				Black sage (SAME3)		9
				Common deerweed (LOSC2)		9
				Other shrubs (SSSS)		8
				Purple sage (SALE3)		8
				Laurel sumac (MALA6)		6
				Other perennial forbs (PPFF)		6
				Other perennial grasses (PPGG)		6
				Grey coast eriogonum (ERCI5)		4

Table 8.--Ecological Sites and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
101:						
Malibu----------	Coastal Scrub 14-16" p.z. (R020XD039CA)	Favorable	2,300	California sagebrush (ARCA11)		16
		Normal	1,400	Purple needlegrass (NAPU4)		16
		Unfavorable	800	Other annual grasses (AAGG)		12
				Black sage (SAME3)		9
				Common deerweed (LOSC2)		9
				Other shrubs (SSSS)		8
				Purple sage (SALE3)		8
				Laurel sumac (MALA6)		6
				Other perennial forbs (PPFF)		6
				Other perennial grasses (PPGG)		6
				Grey coast eriogonum (ERCI5)		4
110:						
Malibu----------	Coastal Scrub 14-16" p.z. (R020XD039CA)	Favorable	2,300	California sagebrush (ARCA11)		16
		Normal	1,400	Purple needlegrass (NAPU4)		16
		Unfavorable	800	Other annual grasses (AAGG)		12
				Black sage (SAME3)		9
				Common deerweed (LOSC2)		9
				Other shrubs (SSSS)		8
				Purple sage (SALE3)		8
				Laurel sumac (MALA6)		6
				Other perennial forbs (PPFF)		6
				Other perennial grasses (PPGG)		6
				Grey coast eriogonum (ERCI5)		4
Chumash---------	Shallow Coastal Scrub 14-16" p.z. (R020XD041CA)	Favorable	1,600	Grey coast eriogonum (ERCI5)		25
		Normal	1,000	Coastal prickly pear (OPLI3)		10
		Unfavorable	500	Common deerweed (LOSC2)		10
				Other shrubs (SSSS)		10
				Purple needlegrass (NAPU4)		10
				California encelia (ENCA)		5
				California sagebrush (ARCA11)		5
				Lemonade sumac (RHIN2)		5
				Other annual grasses (AAGG)		5
Boades----------	Coastal Scrub 14-16" p.z. (R020XD039CA)	Favorable	2,300	California sagebrush (ARCA11)		16
		Normal	1,400	Purple needlegrass (NAPU4)		16
		Unfavorable	800	Other annual grasses (AAGG)		12
				Black sage (SAME3)		9
				Common deerweed (LOSC2)		9
				Other shrubs (SSSS)		8
				Purple sage (SALE3)		8
				Laurel sumac (MALA6)		6
				Other perennial forbs (PPFF)		6
				Other perennial grasses (PPGG)		6
				Grey coast eriogonum (ERCI5)		4
120:						
Mipolomol-------	Dry Chaparral 16-20" p.z. (R020XD038CA)	Favorable	2,300	Bigpod ceanothus (CEME)		44
		Normal	1,400	Red shank (ADSP)		33
		Unfavorable	800	Pitchersage (LEFR)		5
				Laurel sumac (MALA6)		4
				Other annual grasses (AAGG)		4
				Other shrubs (SSSS)		4
				Chamise (ADFA)		3
				Hollyleaf cherry (PRIL)		2
				Our Lord's candle (YUWHI)		1

Table 8.--Ecological Sites and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total production: Kind of year	Total production: Dry Weight	Characteristic vegetation	Composition: Forest	Composition: Range
			Lb/acre		*Pct*	*Pct*
120:						
Topanga---------	Dry Chaparral 16-20" p.z. (R020XD038CA)	Favorable	2,300	Bigpod ceanothus (CEME)		44
		Normal	1,400	Red shank (ADSP)		33
		Unfavorable	800	Pitchersage (LEFR)		5
				Laurel sumac (MALA6)		4
				Other annual grasses (AAGG)		4
				Other shrubs (SSSS)		4
				Chamise (ADFA)		3
				Hollyleaf cherry (PRIL)		2
				Our Lord's candle (YUWHI)		1
121:						
Mipolomol-------	Dry Chaparral 16-20" p.z. (R020XD038CA)	Favorable	2,300	Bigpod ceanothus (CEME)		44
		Normal	1,400	Red shank (ADSP)		33
		Unfavorable	800	Pitchersage (LEFR)		5
				Laurel sumac (MALA6)		4
				Other annual grasses (AAGG)		4
				Other shrubs (SSSS)		4
				Chamise (ADFA)		3
				Hollyleaf cherry (PRIL)		2
				Our Lord's candle (YUWHI)		1
Topanga---------	Dry Chaparral 16-20" p.z. (R020XD038CA)	Favorable	2,300	Bigpod ceanothus (CEME)		44
		Normal	1,400	Red shank (ADSP)		33
		Unfavorable	800	Pitchersage (LEFR)		5
				Laurel sumac (MALA6)		4
				Other annual grasses (AAGG)		4
				Other shrubs (SSSS)		4
				Chamise (ADFA)		3
				Hollyleaf cherry (PRIL)		2
				Our Lord's candle (YUWHI)		1
Rock outcrop.						
122:						
Calcic Haploxerepts---	Moist Chaparral 20-24" p.z. (R020XD051CA)	Favorable	---	Greenbark ceanothus (CESP)		35
		Normal	---	Hairy ceanothus (CEOL)		10
		Unfavorable	---	Coast live oak (QUAG)		9
				Toyon (HEAR5)		9
				California bay (UMCA)		5
				California walnut (JUCA)		5
				Other shrubs (SSSS)		5
				Laurel sumac (MALA6)		4
				Bigpod ceanothus (CEME)		3
				Bush mallow (MALAC2)		3
				Cliffaster (MASA2)		3
				Hollyleaf cherry (PRIL)		3
				Giant wildrye (LECO12)		2
				Other annual grasses (AAGG)		2
				Other perennial forbs (PPFF)		2
Mollic Haploxeralfs---	Loamy Hill 16-20" p.z. (R020XD043CA)	Favorable	---	Other annual grasses (AAGG)		40
		Normal	---	Purple sage (SALE3)		25
		Unfavorable	---	Needlegrass (STIPA)		13
				California sagebrush (ARCA11)		10
				Other annual forbs (AAFF)		10
				Sawtooth goldenbush (HASQ2)		2

Table 8.--Ecological Sites and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total production: Kind of year	Total production: Dry Weight	Characteristic vegetation	Composition: Forest	Composition: Range
			Lb/acre		*Pct*	*Pct*
130:						
Camarillo, coastal--------	Salt Marsh 14-16" P.Z. (R019XD074CA)	Favorable	1,000	Pickleweed (SALIC)		33
		Normal	800	Saltgrass (DISTI)		33
		Unfavorable	500	Quailbush (ATLEB)		15
				Yellow sweetclover (MEOF)		15
				Oxalis (OXALI)		2
				Prickly sowthistle (SOAS)		2
140:						
Sulfic Fluvaquents----	---	Favorable	1,000	Pickleweed (SALIC)		33
		Normal	800	Saltgrass (DISTI)		33
		Unfavorable	500	Quailbush (ATLEB)		15
				Yellow sweetclover (MEOF)		15
				Oxalis (OXALI)		2
				Prickly sowthistle (SOAS)		2
150:						
Abaft----------	Coastal Strand 14-16" P.Z. (R019XD075CA)	Favorable	1,200	Beach suncup (CACHS)		30
		Normal	700	Beach-bur (AMCH4)		25
		Unfavorable	400	Coast buckwheat (ERPA8)		10
				European searocket (CAMA)		5
				Fountaingrass (PESE3)		5
				Giant coreopsis (COGI)		5
				Pink sand verbena (ABUM)		5
				Coastal lotus (LOSA)		3
				Deervetch (LOTUS)		3
				Lettuce (LACTU)		3
				Other annual grasses (AAGG)		3
				Rattlesnake weed (CHAL11)		3
Beaches.						
151:						
Abaft----------	Coastal Strand 14-16" P.Z. (R019XD075CA)	Favorable	1,200	Beach suncup (CACHS)		30
		Normal	700	Beach-bur (AMCH4)		25
		Unfavorable	400	Coast buckwheat (ERPA8)		10
				European searocket (CAMA)		5
				Fountaingrass (PESE3)		5
				Giant coreopsis (COGI)		5
				Pink sand verbena (ABUM)		5
				Coastal lotus (LOSA)		3
				Deervetch (LOTUS)		3
				Lettuce (LACTU)		3
				Other annual grasses (AAGG)		3
				Rattlesnake weed (CHAL11)		3
Beaches.						
Urban land.						
160:						
Xerorthents, landscaped.						

Table 8.--Ecological Sites and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total production: Kind of year	Total production: Dry Weight	Characteristic vegetation	Composition: Forest	Composition: Range
			Lb/acre		*Pct*	*Pct*
170:						
Cotharin--------	Dry Chaparral 16-20" p.z. (R020XD038CA)	Favorable	2,300	Bigpod ceanothus (CEME)		44
		Normal	1,400	Red shank (ADSP)		33
		Unfavorable	800	Pitchersage (LEFR)		5
				Laurel sumac (MALA6)		4
				Other annual grasses (AAGG)		4
				Other shrubs (SSSS)		4
				Chamise (ADFA)		3
				Hollyleaf cherry (PRIL)		2
				Our Lord's candle (YUWHI)		1
171:						
Cotharin--------	Dry Chaparral 16-20" p.z. (R020XD038CA)	Favorable	2,300	Bigpod ceanothus (CEME)		44
		Normal	1,400	Red shank (ADSP)		33
		Unfavorable	800	Pitchersage (LEFR)		5
				Laurel sumac (MALA6)		4
				Other annual grasses (AAGG)		4
				Other shrubs (SSSS)		4
				Chamise (ADFA)		3
				Hollyleaf cherry (PRIL)		2
				Our Lord's candle (YUWHI)		1
Rock outcrop.						
175:						
Cotharin--------	Dry Chaparral 16-20" p.z. (R020XD038CA)	Favorable	2,300	Bigpod ceanothus (CEME)		44
		Normal	1,400	Red shank (ADSP)		33
		Unfavorable	800	Pitchersage (LEFR)		5
				Laurel sumac (MALA6)		4
				Other annual grasses (AAGG)		4
				Other shrubs (SSSS)		4
				Chamise (ADFA)		3
				Hollyleaf cherry (PRIL)		2
				Our Lord's candle (YUWHI)		1
Talepop---------	Shallow Chaparral 16-20" p.z. (R020XD042CA)	Favorable	2,300	Chamise (ADFA)		41
		Normal	1,500	Bigpod ceanothus (CEME)		11
		Unfavorable	900	Black sage (SAME3)		11
				California buckwheat (ERFA2)		9
				Sugar sumac (RHOV)		6
				Yucca (YUCCA)		6
				Other shrubs (SSSS)		5
				Purple sage (SALE3)		5
				California encelia (ENCA)		3
				Needlegrass (STIPA)		3
176:						
Cotharin--------	Dry Chaparral 16-20" p.z. (R020XD038CA)	Favorable	2,300	Bigpod ceanothus (CEME)		44
		Normal	1,400	Red shank (ADSP)		33
		Unfavorable	800	Pitchersage (LEFR)		5
				Laurel sumac (MALA6)		4
				Other annual grasses (AAGG)		4
				Other shrubs (SSSS)		4
				Chamise (ADFA)		3
				Hollyleaf cherry (PRIL)		2
				Our Lord's candle (YUWHI)		1

Table 8.--Ecological Sites and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
176:						
Talepop---------	Shallow Chaparral 16-20" p.z. (R020XD042CA)	Favorable	2,300	Chamise (ADFA)		41
		Normal	1,500	Bigpod ceanothus (CEME)		11
		Unfavorable	900	Black sage (SAME3)		11
				California buckwheat (ERFA2)		9
				Sugar sumac (RHOV)		6
				Yucca (YUCCA)		6
				Other shrubs (SSSS)		5
				Purple sage (SALE3)		5
				California encelia (ENCA)		3
				Needlegrass (STIPA)		3
178:						
Cotharin--------	Dry Chaparral 16-20" p.z. (R020XD038CA)	Favorable	2,300	Bigpod ceanothus (CEME)		44
		Normal	1,400	Red shank (ADSP)		33
		Unfavorable	800	Pitchersage (LEFR)		5
				Laurel sumac (MALA6)		4
				Other annual grasses (AAGG)		4
				Other shrubs (SSSS)		4
				Chamise (ADFA)		3
				Hollyleaf cherry (PRIL)		2
				Our Lord's candle (YUWHI)		1
Talepop---------	Shallow Chaparral 16-20" p.z. (R020XD042CA)	Favorable	2,300	Chamise (ADFA)		41
		Normal	1,500	Bigpod ceanothus (CEME)		11
		Unfavorable	900	Black sage (SAME3)		11
				California buckwheat (ERFA2)		9
				Sugar sumac (RHOV)		6
				Yucca (YUCCA)		6
				Other shrubs (SSSS)		5
				Purple sage (SALE3)		5
				California encelia (ENCA)		3
				Needlegrass (STIPA)		3
Urban land.						
179:						
Cotharin, dry---	Coastal Scrub 14-16" p.z. (R020XD039CA)	Favorable	2,300	California sagebrush (ARCA11)		16
		Normal	1,400	Purple needlegrass (NAPU4)		16
		Unfavorable	800	Other annual grasses (AAGG)		12
				Black sage (SAME3)		9
				Lotus (LOWR2)		9
				Other shrubs (SSSS)		8
				Purple sage (SALE3)		8
				Laurel sumac (MALA6)		6
				Other perennial forbs (PPFF)		6
				Other perennial grasses (PPGG)		6
				Grey coast eriogonum (ERCI5)		4
180:						
Pits and Dumps.						
190:						
Kayiwish, gently sloping--------	Clay Pediment 16-20" p.z. (R020XD048CA)	Favorable	2,500	Wild oat (AVFA)		40
		Normal	1,500	Ripgut brome (BRRI8)		20
		Unfavorable	800	False brome (BRACH3)		15
				Sweetclover (MELIL)		15
				American deervetch (VIAM)		5
				Annual timothy (PHLEU)		5

Table 8.--Ecological Sites and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total production: Kind of year	Total production: Dry Weight	Characteristic vegetation	Composition: Forest	Composition: Range
			Lb/acre		*Pct*	*Pct*
190:						
Kayiwish, nearly level----------	Clay Pediment 16-20" p.z. (R020XD048CA)	Favorable	2,500	Wild oat (AVFA)		40
		Normal	1,500	Ripgut brome (BRRI8)		20
		Unfavorable	800	False brome (BRACH3)		15
				Sweetclover (MELIL)		15
				American deervetch (VIAM)		5
				Annual timothy (PHLEU)		5
191:						
Kayiwish, gently sloping--------	Clay Pediment 16-20" p.z. (R020XD048CA)	Favorable	2,500	Wild oat (AVFA)		40
		Normal	1,500	Ripgut brome (BRRI8)		20
		Unfavorable	800	False brome (BRACH3)		15
				Sweetclover (MELIL)		15
				American deervetch (VIAM)		5
				Annual timothy (PHLEU)		5
Kayiwish, steeply sloping	Clay Pediment 16-20" p.z. (R020XD048CA)	Favorable	2,500	Wild oat (AVFA)		40
		Normal	1,500	Ripgut brome (BRRI8)		20
		Unfavorable	800	False brome (BRACH3)		15
				Sweetclover (MELIL)		15
				American deervetch (VIAM)		5
				Annual timothy (PHLEU)		5
200:						
Cumulic Haploxerolls---	Riparian Terrace 16-20" p.z. (R020XD049CA)	Favorable	6,700	Arroyo willow (SALA6)		20
		Normal	4,000	Other annual forbs (AAFF)		10
		Unfavorable	2,200	Other annual grasses (AAGG)		10
				Other shrubs (SSSS)		10
				Other perennial forbs (PPFF)		8
				Other perennial grasses (PPGG)		6
				California sagebrush (ARCA11)		5
				California sycamore (PLRA)		5
				California walnut (JUCA)		5
				Giant wildrye (LECO12)		5
				Laurel sumac (MALA6)		5
				Seepwillow baccharis (BAGL2)		5
				California wildrose (ROCA2)		2
				Coast live oak (QUAG)		2
				Other perennial grasslikes (PPGL)		2
202:						
Fluvaquents-----	Riparian Terrace 16-20" p.z. (R020XD049CA)	Favorable	6,700	Arroyo willow (SALA6)		20
		Normal	4,000	Other annual forbs (AAFF)		10
		Unfavorable	2,200	Other annual grasses (AAGG)		10
				Other shrubs (SSSS)		10
				Other perennial forbs (PPFF)		8
				Other perennial grasses (PPGG)		6
				California sagebrush (ARCA11)		5
				California sycamore (PLRA)		5
				California walnut (JUCA)		5
				Giant wildrye (LECO12)		5
				Laurel sumac (MALA6)		5
				Seepwillow baccharis (BAGL2)		5
				California wildrose (ROCA2)		2
				Coast live oak (QUAG)		2
				Other perennial grasslikes (PPGL)		2

Table 8.--Ecological Sites and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
202:						
Riverwash.						
220:						
Elder, coastal--	Riparian Terrace 16-20" p.z. (R020XD049CA)	Favorable	6,700	Arroyo willow (SALA6)		20
		Normal	4,000	Other annual forbs (AAFF)		10
		Unfavorable	2,200	Other annual grasses (AAGG)		10
				Other shrubs (SSSS)		10
				Other perennial forbs (PPFF)		8
				Other perennial grasses (PPGG)		6
				California sagebrush (ARCA11)		5
				California sycamore (PLRA)		5
				California walnut (JUCA)		5
				Giant wildrye (LECO12)		5
				Laurel sumac (MALA6)		5
				Seepwillow baccharis (BAGL2)		5
				California wildrose (ROCA2)		2
				Coast live oak (QUAG)		2
				Other perennial grasslikes (PPGL)		2
230:						
Cotharin--------	Dry Chaparral 16-20" p.z. (R020XD038CA)	Favorable	2,300	Bigpod ceanothus (CEME)		44
		Normal	1,400	Red shank (ADSP)		33
		Unfavorable	800	Pitchersage (LEFR)		5
				Laurel sumac (MALA6)		4
				Other annual grasses (AAGG)		4
				Other shrubs (SSSS)		4
				Chamise (ADFA)		3
				Hollyleaf cherry (PRIL)		2
				Our Lord's candle (YUWHI)		1
Talepop---------	Shallow Chaparral 16-20" p.z. (R020XD042CA)	Favorable	2,300	Chamise (ADFA)		41
		Normal	1,500	Bigpod ceanothus (CEME)		11
		Unfavorable	900	Black sage (SAME3)		11
				California buckwheat (ERFA2)		9
				Sugar sumac (RHOV)		6
				Yucca (YUCCA)		6
				Other shrubs (SSSS)		5
				Purple sage (SALE3)		5
				California encelia (ENCA)		3
				Needlegrass (STIPA)		3
231:						
Talepop---------	Shallow Chaparral 16-20" p.z. (R020XD042CA)	Favorable	2,300	Chamise (ADFA)		41
		Normal	1,500	Bigpod ceanothus (CEME)		11
		Unfavorable	900	Black sage (SAME3)		11
				California buckwheat (ERFA2)		9
				Sugar sumac (RHOV)		6
				Yucca (YUCCA)		6
				Other shrubs (SSSS)		5
				Purple sage (SALE3)		5
				California encelia (ENCA)		3
				Needlegrass (STIPA)		3
Rock outcrop.						

Table 8.--Ecological Sites and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total production: Kind of year	Total production: Dry Weight	Characteristic vegetation	Composition: Forest	Composition: Range
			Lb/acre		*Pct*	*Pct*
240:						
Tongva----------	Quercus agrifolia-Juglans	---	---	Coast live oak (ARCA11)	35	
	californica/Artemisia			California walnut (JUCA)	20	
	californica-Ceanothus			Greenbark ceanothus (CEME)	8	
	spinosus/Leymus condensatus			California sagebrush (QUAG)	7	
	(F020XD044CA)			Other perennial grasses (SAMBU)	5	
				Other shrubs (LECO12)	5	
				Purple sage (CESP)	4	
				Sugar sumac (PPGG)	3	
				White sage (SSSS)	3	
				Bigpod ceanothus (TODI)	2	
				Elderberry (SALE3)	2	
				Giant wildrye (RHOV)	2	
				Poison oak (HEAR5)	2	
				Toyon (QULO)	2	
				Valley oak (SAAP2)	2	
Cotharin--------	Dry Chaparral 16-20" p.z.	Favorable	2,300	Bigpod ceanothus (CEME)		44
	(R020XD038CA)	Normal	1,400	Red shank (ADSP)		33
		Unfavorable	800	Pitchersage (LEFR)		5
				Laurel sumac (MALA6)		4
				Other annual grasses (AAGG)		4
				Other shrubs (SSSS)		4
				Chamise (ADFA)		3
				Hollyleaf cherry (PRIL)		2
				Our Lord's candle (YUWHI)		1
Rock outcrop.						
241:						
Cotharin--------	Dry Chaparral 16-20" p.z.	Favorable	2,300	Bigpod ceanothus (CEME)		44
	(R020XD038CA)	Normal	1,400	Red shank (ADSP)		33
		Unfavorable	800	Pitchersage (LEFR)		5
				Laurel sumac (MALA6)		4
				Other annual grasses (AAGG)		4
				Other shrubs (SSSS)		4
				Chamise (ADFA)		3
				Hollyleaf cherry (PRIL)		2
				Our Lord's candle (YUWHI)		1
Rock outcrop.						
Tongva----------	Quercus agrifolia-Juglans	---	---	Coast live oak (ARCA11)	35	
	californica/Artemisia			California walnut (JUCA)	20	
	californica-Ceanothus			Greenbark ceanothus (CEME)	8	
	spinosus/Leymus condensatus			California sagebrush (QUAG)	7	
	(F020XD044CA)			Other perennial grasses (SAMBU)	5	
				Other shrubs (LECO12)	5	
				Purple sage (CESP)	4	
				Sugar sumac (PPGG)	3	
				White sage (SSSS)	3	
				Bigpod ceanothus (TODI)	2	
				Elderberry (SALE3)	2	
				Giant wildrye (RHOV)	2	
				Poison oak (HEAR5)	2	
				Toyon (QULO)	2	
				Valley oak (SAAP2)	2	
250:						
Urban land.						
Xerorthents, landscaped.						

Table 8.--Ecological Sites and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
251:						
Urban land.						
Tongva----------	Quercus agrifolia-Juglans	---	---	Coast live oak (ARCA11)	35	
	californica/Artemisia			California walnut (JUCA)	20	
	californica-Ceanothus			Greenbark ceanothus (CEME)	8	
	spinosus/Leymus condensatus			California sagebrush (QUAG)	7	
	(F020XD044CA)			Other perennial grasses (SAMBU)	5	
				Other shrubs (LECO12)	5	
				Purple sage (CESP)	4	
				Sugar sumac (PPGG)	3	
				White sage (SSSS)	3	
				Bigpod ceanothus (TODI)	2	
				Elderberry (SALE3)	2	
				Giant wildrye (RHOV)	2	
				Poison oak (HEAR5)	2	
				Toyon (QULO)	2	
				Valley oak (SAAP2)	2	
252:						
Urban land.						
Xerorthents, landscaped.						
270:						
Pacheco, coastal	Salt Marsh 14-16" P.Z.	Favorable	1,000	Pickleweed (SALIC)		33
	(R019XD074CA)	Normal	800	Saltgrass (DISTI)		33
		Unfavorable	500	Quailbush (ATLEB)		15
				Yellow sweetclover (MEOF)		15
				Oxalis (OXALI)		2
				Prickly sowthistle (SOAS)		2
290:						
Topanga---------	Dry Chaparral 16-20" p.z.	Favorable	2,300	Bigpod ceanothus (CEME)		44
	(R020XD038CA)	Normal	1,400	Red shank (ADSP)		33
		Unfavorable	800	Pitchersage (LEFR)		5
				Laurel sumac (MALA6)		4
				Other annual grasses (AAGG)		4
				Other shrubs (SSSS)		4
				Chamise (ADFA)		3
				Hollyleaf cherry (PRIL)		2
				Our Lord's candle (YUWHI)		1
Mipolomol-------	Dry Chaparral 16-20" p.z.	Favorable	2,300	Bigpod ceanothus (CEME)		44
	(R020XD038CA)	Normal	1,400	Red shank (ADSP)		33
		Unfavorable	800	Pitchersage (LEFR)		5
				Laurel sumac (MALA6)		4
				Other annual grasses (AAGG)		4
				Other shrubs (SSSS)		4
				Chamise (ADFA)		3
				Hollyleaf cherry (PRIL)		2
				Our Lord's candle (YUWHI)		1

Table 8.--Ecological Sites and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total production: Kind of year	Total production: Dry Weight	Characteristic vegetation	Composition: Forest	Composition: Range
			Lb/acre		*Pct*	*Pct*
290:						
Sapwi----------	Quercus agrifolia-Juglans	---	---	Coast live oak (ARCA11)	35	
	californica/Artemisia			California walnut (JUCA)	20	
	californica-Ceanothus			Greenbark ceanothus (CEME)	8	
	spinosus/Leymus condensatus			California sagebrush (QUAG)	7	
	(F020XD044CA)			Other perennial grasses (SAMBU)	5	
				Other shrubs (LECO12)	5	
				Purple sage (CESP)	4	
				Sugar sumac (PPGG)	3	
				White sage (SSSS)	3	
				Bigpod ceanothus (TODI)	2	
				Elderberry (SALE3)	2	
				Giant wildrye (RHOV)	2	
				Poison oak (HEAR5)	2	
				Toyon (QULO)	2	
				Valley oak (SAAP2)	2	
300:						
Zumaridge-------	Moist Chaparral 20-24" p.z.	Favorable	---	Greenbark ceanothus (CESP)		35
	(R020XD051CA)	Normal	---	Hairy ceanothus (CEOL)		10
		Unfavorable	---	Coast live oak (QUAG)		9
				Toyon (HEAR5)		9
				California bay (UMCA)		5
				California walnut (JUCA)		5
				Other shrubs (SSSS)		5
				Laurel sumac (MALA6)		4
				Bigpod ceanothus (CEME)		3
				Bush mallow (MALAC2)		3
				Cliffaster (MASA2)		3
				Hollyleaf cherry (PRIL)		3
				Giant wildrye (LECO12)		2
				Other annual grasses (AAGG)		2
				Other perennial forbs (PPFF)		2
Kawenga---------	Moist Chaparral 20-24" p.z.	Favorable	---	Greenbark ceanothus (CESP)		35
	(R020XD051CA)	Normal	---	Hairy ceanothus (CEOL)		10
		Unfavorable	---	Coast live oak (QUAG)		9
				Toyon (HEAR5)		9
				California bay (UMCA)		5
				California walnut (JUCA)		5
				Other shrubs (SSSS)		5
				Laurel sumac (MALA6)		4
				Bigpod ceanothus (CEME)		3
				Bush mallow (MALAC2)		3
				Cliffaster (MASA2)		3
				Hollyleaf cherry (PRIL)		3
				Giant wildrye (LECO12)		2
				Other annual grasses (AAGG)		2
				Other perennial forbs (PPFF)		2

Table 8.--Ecological Sites and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
301:						
Zumaridge-------	Moist Chaparral 20-24" p.z. (R020XD051CA)	Favorable	---	Greenbark ceanothus (CESP)		35
		Normal	---	Hairy ceanothus (CEOL)		10
		Unfavorable	---	Coast live oak (QUAG)		9
				Toyon (HEAR5)		9
				California bay (UMCA)		5
				California walnut (JUCA)		5
				Other shrubs (SSSS)		5
				Laurel sumac (MALA6)		4
				Bigpod ceanothus (CEME)		3
				Bush mallow (MALAC2)		3
				Cliffaster (MASA2)		3
				Hollyleaf cherry (PRIL)		3
				Giant wildrye (LECO12)		2
				Other annual grasses (AAGG)		2
				Other perennial forbs (PPFF)		2
Kawenga---------	Moist Chaparral 20-24" p.z. (R020XD051CA)	Favorable	---	Greenbark ceanothus (CESP)		35
		Normal	---	Hairy ceanothus (CEOL)		10
		Unfavorable	---	Coast live oak (QUAG)		9
				Toyon (HEAR5)		9
				California bay (UMCA)		5
				California walnut (JUCA)		5
				Other shrubs (SSSS)		5
				Laurel sumac (MALA6)		4
				Bigpod ceanothus (CEME)		3
				Bush mallow (MALAC2)		3
				Cliffaster (MASA2)		3
				Hollyleaf cherry (PRIL)		3
				Giant wildrye (LECO12)		2
				Other annual grasses (AAGG)		2
				Other perennial forbs (PPFF)		2
302:						
Zumaridge-------	Moist Chaparral 20-24" p.z. (R020XD051CA)	Favorable	---	Greenbark ceanothus (CESP)		35
		Normal	---	Hairy ceanothus (CEOL)		10
		Unfavorable	---	Coast live oak (QUAG)		9
				Toyon (HEAR5)		9
				California bay (UMCA)		5
				California walnut (JUCA)		5
				Other shrubs (SSSS)		5
				Laurel sumac (MALA6)		4
				Bigpod ceanothus (CEME)		3
				Bush mallow (MALAC2)		3
				Cliffaster (MASA2)		3
				Hollyleaf cherry (PRIL)		3
				Giant wildrye (LECO12)		2
				Other annual grasses (AAGG)		2
				Other perennial forbs (PPFF)		2
Rock outcrop.						
Sumiwawa--------	Shallow Chaparral 16-20" p.z. (R020XD042CA)	Favorable	2,300	Chamise (ADFA)		41
		Normal	1,500	Bigpod ceanothus (CEME)		11
		Unfavorable	900	Black sage (SAME3)		11
				California buckwheat (ERFA2)		9
				Sugar sumac (RHOV)		6
				Yucca (YUCCA)		6
				Other shrubs (SSSS)		5
				Purple sage (SALE3)		5
				California encelia (ENCA)		3
				Needlegrass (STIPA)		3

Table 8.--Ecological Sites and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total production: Kind of year	Total production: Dry Weight	Characteristic vegetation	Composition: Forest	Composition: Range
			Lb/acre		*Pct*	*Pct*
303:						
Zumaridge-------	Moist Chaparral 20-24" p.z. (R020XD051CA)	Favorable	---	Greenbark ceanothus (CESP)		35
		Normal	---	Hairy ceanothus (CEOL)		10
		Unfavorable	---	Coast live oak (QUAG)		9
				Toyon (HEAR5)		9
				California bay (UMCA)		5
				California walnut (JUCA)		5
				Other shrubs (SSSS)		5
				Laurel sumac (MALA6)		4
				Bigpod ceanothus (CEME)		3
				Bush mallow (MALAC2)		3
				Cliffaster (MASA2)		3
				Hollyleaf cherry (PRIL)		3
				Giant wildrye (LECO12)		2
				Other annual grasses (AAGG)		2
				Other perennial forbs (PPFF)		2
Rock outcrop.						
Sumiwawa--------	Shallow Chaparral 16-20" p.z. (R020XD042CA)	Favorable	2,300	Chamise (ADFA)		41
		Normal	1,500	Bigpod ceanothus (CEME)		11
		Unfavorable	900	Black sage (SAME3)		11
				California buckwheat (ERFA2)		9
				Sugar sumac (RHOV)		6
				Yucca (YUCCA)		6
				Other shrubs (SSSS)		5
				Purple sage (SALE3)		5
				California encelia (ENCA)		3
				Needlegrass (STIPA)		3
304:						
Zumaridge-------	Moist Chaparral 20-24" p.z. (R020XD051CA)	Favorable	---	Greenbark ceanothus (CESP)		35
		Normal	---	Hairy ceanothus (CEOL)		10
		Unfavorable	---	Coast live oak (QUAG)		9
				Toyon (HEAR5)		9
				California bay (UMCA)		5
				California walnut (JUCA)		5
				Other shrubs (SSSS)		5
				Laurel sumac (MALA6)		4
				Bigpod ceanothus (CEME)		3
				Bush mallow (MALAC2)		3
				Cliffaster (MASA2)		3
				Hollyleaf cherry (PRIL)		3
				Giant wildrye (LECO12)		2
				Other annual grasses (AAGG)		2
				Other perennial forbs (PPFF)		2
Sapwi----------	Quercus agrifolia-Juglans californica/Artemisia californica-Ceanothus spinosus/Leymus condensatus (F020XD044CA)	---	---	Coast live oak (ARCA11)	35	
				California walnut (JUCA)	20	
				Greenbark ceanothus (CEME)	8	
				California sagebrush (QUAG)	7	
				Other perennial grasses (SAMBU)	5	
				Other shrubs (LECO12)	5	
				Purple sage (CESP)	4	
				Sugar sumac (PPGG)	3	
				White sage (SSSS)	3	
				Bigpod ceanothus (TODI)	2	
				Elderberry (SALE3)	2	
				Giant wildrye (RHOV)	2	
				Poison oak (HEAR5)	2	
				Toyon (QULO)	2	
				Valley oak (SAAP2)	2	

Table 8.--Ecological Sites and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total production: Kind of year	Total production: Dry Weight	Characteristic vegetation	Composition: Forest	Composition: Range
			Lb/acre		*Pct*	*Pct*
304:						
Kawenga---------	Moist Chaparral 20-24" p.z. (R020XD051CA)	Favorable	---	Greenbark ceanothus (CESP)		35
		Normal	---	Hairy ceanothus (CEOL)		10
		Unfavorable	---	Coast live oak (QUAG)		9
				Toyon (HEAR5)		9
				California bay (UMCA)		5
				California walnut (JUCA)		5
				Other shrubs (SSSS)		5
				Laurel sumac (MALA6)		4
				Bigpod ceanothus (CEME)		3
				Bush mallow (MALAC2)		3
				Cliffaster (MASA2)		3
				Hollyleaf cherry (PRIL)		3
				Giant wildrye (LECO12)		2
				Other annual grasses (AAGG)		2
				Other perennial forbs (PPFF)		2
305:						
Zumaridge-------	Moist Chaparral 20-24" p.z. (R020XD051CA)	Favorable	---	Greenbark ceanothus (CESP)		35
		Normal	---	Hairy ceanothus (CEOL)		10
		Unfavorable	---	Coast live oak (QUAG)		9
				Toyon (HEAR5)		9
				California bay (UMCA)		5
				California walnut (JUCA)		5
				Other shrubs (SSSS)		5
				Laurel sumac (MALA6)		4
				Bigpod ceanothus (CEME)		3
				Bush mallow (MALAC2)		3
				Cliffaster (MASA2)		3
				Hollyleaf cherry (PRIL)		3
				Giant wildrye (LECO12)		2
				Other annual grasses (AAGG)		2
				Other perennial forbs (PPFF)		2
Rock outcrop.						
310:						
Gaviota---------	Dry Inland Chaparral 16-20" p.z. (R020XD050CA)	Favorable	---	Chamise (ADFA)		40
		Normal	---	Hoaryleaf ceanothus (CECR)		40
		Unfavorable	---	Black sage (SAME3)		10
				Grey coast eriogonum (ERCI5)		5
				Laurel sumac (MALA6)		5
311:						
Gaviota, northerly aspect---------	Moist Inland Chaparral 16-20" p.z. (R020XD052CA)	Favorable	6,000	Chamise (ADFA)		30
		Normal	3,600	Hairy ceanothus (CEOL)		25
		Unfavorable	2,000	Hoaryleaf ceanothus (CECR)		20
				Purple sage (SALE3)		10
				Grey coast eriogonum (ERCI5)		5
				Laurel sumac (MALA6)		5
				Other perennial grasses (PPGG)		5
Rock outcrop.						
320:						
Botella---------	Loamy Upland 16-20" p.z. (R020XD046CA)	Favorable	6,000	Other annual grasses (AAGG)		68
		Normal	3,600	Other annual forbs (AAFF)		16
		Unfavorable	2,000	Common deerweed (LOSC2)		13
				Giant wildrye (LECO12)		2
				Valley oak (QULO)		1

Table 8.--Ecological Sites and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total production: Kind of year	Total production: Dry Weight	Characteristic vegetation	Composition: Forest	Composition: Range
			Lb/acre		*Pct*	*Pct*
330:						
Linne----------	Loamy Hill 16-20" p.z. (R020XD043CA)	Favorable	---	Other annual grasses (AAGG)		40
		Normal	---	Purple sage (SALE3)		25
		Unfavorable	---	Needlegrass (STIPA)		13
				California sagebrush (ARCA11)		10
				Other annual forbs (AAFF)		10
				Sawtooth goldenbush (HASQ2)		2
Los Osos--------	Shaly Loam 16-20" p.z. (R020XD045CA)	Favorable	2,700	Purple sage (SALE3)		35
		Normal	1,600	California sagebrush (ARCA11)		15
		Unfavorable	900	Bushmallow (MAFA)		15
				California buckwheat (ERFA2)		10
				Other annual forbs (AAFF)		10
Haploxerepts----	Shallow Loam 16-20" p.z. (R020XD032CA)	Favorable	---	Grey coast eriogonum (ERCI5)		46
		Normal	---	Other annual forbs (AAFF)		29
		Unfavorable	---	Other annual grasses (AAGG)		15
				Cliffaster (MASA2)		9
				Purple sage (SALE3)		1
331:						
Linne----------	Loamy Hill 16-20" p.z. (R020XD043CA)	Favorable	---	Other annual grasses (AAGG)		40
		Normal	---	Purple sage (SALE3)		25
		Unfavorable	---	Needlegrass (STIPA)		13
				California sagebrush (ARCA11)		10
				Other annual forbs (AAFF)		10
				Sawtooth goldenbush (HASQ2)		2
332:						
Linne----------	Loamy Hill 16-20" p.z. (R020XD043CA)	Favorable	---	Other annual grasses (AAGG)		40
		Normal	---	Purple sage (SALE3)		25
		Unfavorable	---	Needlegrass (STIPA)		13
				California sagebrush (ARCA11)		10
				Other annual forbs (AAFF)		10
				Sawtooth goldenbush (HASQ2)		2
350:						
Los Osos--------	Shaly Loam 16-20" p.z. (R020XD045CA)	Favorable	2,700	Purple sage (SALE3)		23
		Normal	1,600	Other annual forbs (AAFF)		20
		Unfavorable	900	Other annual grasses (AAGG)		18
				California buckwheat (ERFA2)		11
				California sagebrush (ARCA11)		10
				Other shrubs (SSSS)		6
				Other perennial grasses (PPGG)		5
				Bush mallow (MALAC2)		4
				Baccharis (BACCH)		1
				Coast live oak (QUAG)		1
				Sugar sumac (RHOV)		1
390:						
Danville, coastal--------	Coastal Terrace 14-16" p.z. (R020XD047CA)	Favorable	2,500	Purple needlegrass (NAPU4)		23
		Normal	1,500	California sagebrush (ARCA11)		16
		Unfavorable	800	Deervetch (LOTUS)		15
				Red brome (BRRU2)		13
				Sawtooth goldenbush (HASQ2)		10
				Laurel sumac (MALA6)		8
				Black sage (SAME3)		5
				Other annual grasses (AAGG)		5
				Other shrubs (SSSS)		5
				Pricklypear (OPUnT)		5
Urban land.						

Table 8.--Ecological Sites and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
391:						
Danville, coastal--------	Coastal Terrace 14-16" p.z. (R020XD047CA)	Favorable	2,500	Purple needlegrass (NAPU4)		23
		Normal	1,500	California sagebrush (ARCA11)		16
		Unfavorable	800	Deervetch (LOTUS)		15
				Red brome (BRRU2)		13
				Sawtooth goldenbush (HASQ2)		10
				Laurel sumac (MALA6)		8
				Black sage (SAME3)		5
				Other annual grasses (AAGG)		5
				Other shrubs (SSSS)		5
				Pricklypear (OPUnT)		5
400:						
Pachic Argixerolls, coastal-------	Coastal Bluff 14-16" p.z. (R020XD053CA)	Favorable	2,300	California sagebrush (ARCA11)		25
		Normal	1,400	California encelia (ENCA)		20
		Unfavorable	800	Grey coast eriogonum (ERCI5)		15
				Giant coreopsis (COGI)		10
				Other shrubs (SSSS)		10
				Other annual forbs (AAFF)		8
				Lemonade sumac (RHIN2)		5
				Other perennial forbs (PPFF)		5
				Other annual grasses (AAGG)		2
410:						
Lockwood, coastal--------	Coastal Terrace 14-16" p.z. (R020XD047CA)	Favorable	2,500	Purple needlegrass (NAPU4)		23
		Normal	1,500	California sagebrush (ARCA11)		16
		Unfavorable	800	Deervetch (LOTUS)		15
				Red brome (BRRU2)		13
				Sawtooth goldenbush (HASQ2)		10
				Laurel sumac (MALA6)		8
				Black sage (SAME3)		5
				Other annual grasses (AAGG)		5
				Other shrubs (SSSS)		5
				Pricklypear (OPUnT)		5
Urban land.						
411:						
Lockwood, coastal--------	Coastal Terrace 14-16" p.z. (R020XD047CA)	Favorable	2,500	Purple needlegrass (NAPU4)		23
		Normal	1,500	California sagebrush (ARCA11)		16
		Unfavorable	800	Deervetch (LOTUS)		15
				Red brome (BRRU2)		13
				Sawtooth goldenbush (HASQ2)		10
				Laurel sumac (MALA6)		8
				Black sage (SAME3)		5
				Other annual grasses (AAGG)		5
				Other shrubs (SSSS)		5
				Pricklypear (OPUnT)		5
Urban land.						

Table 8.--Ecological Sites and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total production: Kind of year	Total production: Dry Weight	Characteristic vegetation	Composition: Forest	Composition: Range
			Lb/acre		*Pct*	*Pct*
430:						
Cropley, coastal	Coastal Terrace 14-16" p.z. (R020XD047CA)	Favorable	2,500	California sagebrush (ARCA11)		15
		Normal	1,500	Laurel sumac (MALA6)		10
		Unfavorable	800	Other annual forbs (AAFF)		10
				Other annual grasses (AAGG)		10
				Purple needlegrass (NAPU4)		10
				California encelia (ENCA)		5
				Black sage (SAME3)		5
				Common deerweed (LOSC2)		5
				Common hazardia (HASQG2)		5
				Grey coast eriogonum (ERCI5)		5
				Other shrubs (SSSS)		5
431:						
Cropley, coastal	Coastal Terrace 14-16" p.z. (R020XD047CA)	Favorable	2,500	California sagebrush (ARCA11)		15
		Normal	1,500	Laurel sumac (MALA6)		10
		Unfavorable	800	Other annual forbs (AAFF)		10
				Other annual grasses (AAGG)		10
				Purple needlegrass (NAPU4)		10
				California encelia (ENCA)		5
				Black sage (SAME3)		5
				Common deerweed (LOSC2)		5
				Common hazardia (HASQG2)		5
				Grey coast eriogonum (ERCI5)		5
				Other shrubs (SSSS)		5
Cropley---------	Clay Pediment 16-20" p.z. (R020XD048CA)	Favorable	2,500	Wild oat (AVFA)		40
		Normal	1,500	Ripgut brome (BRRI8)		20
		Unfavorable	800	False brome (BRACH3)		15
				Sweetclover (MELIL)		15
				American deervetch (VIAM)		5
				Annual timothy (PHLEU)		5
432:						
Cropley, coastal	Coastal Terrace 14-16" p.z. (R020XD047CA)	Favorable	2,500	California sagebrush (ARCA11)		15
		Normal	1,500	Laurel sumac (MALA6)		10
		Unfavorable	800	Other annual forbs (AAFF)		10
				Other annual grasses (AAGG)		10
				Purple needlegrass (NAPU4)		10
				California encelia (ENCA)		5
				Black sage (SAME3)		5
				Common deerweed (LOSC2)		5
				Common hazardia (HASQG2)		5
				Grey coast eriogonum (ERCI5)		5
				Other shrubs (SSSS)		5
433:						
Cropley, coastal	Coastal Terrace 14-16" p.z. (R020XD047CA)	Favorable	2,500	California sagebrush (ARCA11)		15
		Normal	1,500	Laurel sumac (MALA6)		10
		Unfavorable	800	Other annual forbs (AAFF)		10
				Other annual grasses (AAGG)		10
				Purple needlegrass (NAPU4)		10
				California encelia (ENCA)		5
				Black sage (SAME3)		5
				Common deerweed (LOSC2)		5
				Common hazardia (HASQG2)		5
				Grey coast eriogonum (ERCI5)		5
				Other shrubs (SSSS)		5
Urban land.						
Haploxererts.						

Table 8.--Ecological Sites and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
434:						
Cropley, coastal	Coastal Terrace 14-16" p.z. (R020XD047CA)	Favorable	2,500	California sagebrush (ARCA11)		15
		Normal	1,500	Laurel sumac (MALA6)		10
		Unfavorable	800	Other annual forbs (AAFF)		10
				Other annual grasses (AAGG)		10
				Purple needlegrass (NAPU4)		10
				California encelia (ENCA)		5
				Black sage (SAME3)		5
				Common deerweed (LOSC2)		5
				Common hazardia (HASQG2)		5
				Grey coast eriogonum (ERCI5)		5
				Other shrubs (SSSS)		5
Xerorthents, landscaped.						
Urban land.						
450:						
Sapwi----------	Quercus agrifolia-Juglans californica/Artemisia californica-Ceanothus spinosus/Leymus condensatus (F020XD044CA)	---	---	Coast live oak (ARCA11)	35	
				California walnut (JUCA)	20	
				Greenbark ceanothus (CEME)	8	
				California sagebrush (QUAG)	7	
				Other perennial grasses (SAMBU)	5	
				Other shrubs (LECO12)	5	
				Purple sage (CESP)	4	
				Sugar sumac (PPGG)	3	
				White sage (SSSS)	3	
				Bigpod ceanothus (TODI)	2	
				Elderberry (SALE3)	2	
				Giant wildrye (RHOV)	2	
				Poison oak (HEAR5)	2	
				Toyon (QULO)	2	
				Valley oak (SAAP2)	2	
451:						
Urban land.						
Sapwi----------	Quercus agrifolia-Juglans californica/Artemisia californica-Ceanothus spinosus/Leymus condensatus (F020XD044CA)	---	---	Coast live oak (ARCA11)	35	
				California walnut (JUCA)	20	
				Greenbark ceanothus (CEME)	8	
				California sagebrush (QUAG)	7	
				Other perennial grasses (SAMBU)	5	
				Other shrubs (LECO12)	5	
				Purple sage (CESP)	4	
				Sugar sumac (PPGG)	3	
				White sage (SSSS)	3	
				Bigpod ceanothus (TODI)	2	
				Elderberry (SALE3)	2	
				Giant wildrye (RHOV)	2	
				Poison oak (HEAR5)	2	
				Toyon (QULO)	2	
				Valley oak (SAAP2)	2	
460:						
Typic Haploxerepts---	Loamy Hill 16-20" p.z. (R020XD043CA)	Favorable	---	Other annual grasses (AAGG)		40
		Normal	---	Purple sage (SALE3)		25
		Unfavorable	---	Needlegrass (STIPA)		13
				California sagebrush (ARCA11)		10
				Other annual forbs (AAFF)		10
				Sawtooth goldenbush (HASQ2)		2

Table 8.--Ecological Sites and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total production: Kind of year	Total production: Dry Weight	Characteristic vegetation	Composition: Forest	Composition: Range
			Lb/acre		*Pct*	*Pct*
461:						
Typic Haploxerepts---	Loamy Hill 16-20" p.z. (R020XD043CA)	Favorable	---	Other annual grasses (AAGG)		40
		Normal	---	Purple sage (SALE3)		25
		Unfavorable	---	Needlegrass (STIPA)		13
				California sagebrush (ARCA11)		10
				Other annual forbs (AAFF)		10
				Sawtooth goldenbush (HASQ2)		2
470:						
Sumiwawa--------	Shallow Chaparral 16-20" p.z. (R020XD042CA)	Favorable	2,300	Chamise (ADFA)		41
		Normal	1,500	Bigpod ceanothus (CEME)		11
		Unfavorable	900	Black sage (SAME3)		11
				California buckwheat (ERFA2)		9
				Sugar sumac (RHOV)		6
				Yucca (YUCCA)		6
				Other shrubs (SSSS)		5
				Purple sage (SALE3)		5
				California encelia (ENCA)		3
				Needlegrass (STIPA)		3
Hipuk----------	Shallow Chaparral 16-20" p.z. (R020XD042CA)	Favorable	2,300	Chamise (ADFA)		41
		Normal	1,500	Bigpod ceanothus (CEME)		11
		Unfavorable	900	Black sage (SAME3)		11
				California buckwheat (ERFA2)		9
				Sugar sumac (RHOV)		6
				Yucca (YUCCA)		6
				Other shrubs (SSSS)		5
				Purple sage (SALE3)		5
				California encelia (ENCA)		3
				Needlegrass (STIPA)		3
Rock outcrop.						
472:						
Rock outcrop.						
Sumiwawa--------	Shallow Chaparral 16-20" p.z. (R020XD042CA)	Favorable	2,300	Chamise (ADFA)		41
		Normal	1,500	Bigpod ceanothus (CEME)		11
		Unfavorable	900	Black sage (SAME3)		11
				California buckwheat (ERFA2)		9
				Sugar sumac (RHOV)		6
				Yucca (YUCCA)		6
				Other shrubs (SSSS)		5
				Purple sage (SALE3)		5
				California encelia (ENCA)		3
				Needlegrass (STIPA)		3
Hipuk----------	Shallow Chaparral 16-20" p.z. (R020XD042CA)	Favorable	2,300	Chamise (ADFA)		41
		Normal	1,500	Bigpod ceanothus (CEME)		11
		Unfavorable	900	Black sage (SAME3)		11
				California buckwheat (ERFA2)		9
				Sugar sumac (RHOV)		6
				Yucca (YUCCA)		6
				Other shrubs (SSSS)		5
				Purple sage (SALE3)		5
				California encelia (ENCA)		3
				Needlegrass (STIPA)		3

Table 8.--Ecological Sites and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
500:						
Balcom----------	Loamy Hill 16-20" p.z. (R020XD043CA)	Favorable	---	Other annual grasses (AAGG)		40
		Normal	---	Purple sage (SALE3)		25
		Unfavorable	---	Needlegrass (STIPA)		13
				California sagebrush (ARCA11)		10
				Other annual forbs (AAFF)		10
				Sawtooth goldenbush (HASQ2)		2
503:						
Balcom----------	Loamy Hill 16-20" p.z. (R020XD043CA)	Favorable	---	Other annual grasses (AAGG)		40
		Normal	---	Purple sage (SALE3)		25
		Unfavorable	---	Needlegrass (STIPA)		13
				California sagebrush (ARCA11)		10
				Other annual forbs (AAFF)		10
				Sawtooth goldenbush (HASQ2)		2
Balcom, dark surface--------	Loamy Hill 16-20" p.z. (R020XD043CA)	Favorable	---	Other annual grasses (AAGG)		40
		Normal	---	Purple sage (SALE3)		25
		Unfavorable	---	Needlegrass (STIPA)		13
				California sagebrush (ARCA11)		10
				Other annual forbs (AAFF)		10
				Sawtooth goldenbush (HASQ2)		2
530:						
Xerorthents, landscaped.						
Urban land.						
Balcom----------	Loamy Hill 16-20" p.z. (R020XD043CA)	Favorable	---	Other annual grasses (AAGG)		40
		Normal	---	Purple sage (SALE3)		25
		Unfavorable	---	Needlegrass (STIPA)		13
				California sagebrush (ARCA11)		10
				Other annual forbs (AAFF)		10
				Sawtooth goldenbush (HASQ2)		2
531:						
Xerorthents, landscaped.						
Urban land.						
Balcom----------	Loamy Hill 16-20" p.z. (R020XD043CA)	Favorable	---	Other annual grasses (AAGG)		40
		Normal	---	Purple sage (SALE3)		25
		Unfavorable	---	Needlegrass (STIPA)		13
				California sagebrush (ARCA11)		10
				Other annual forbs (AAFF)		10
				Sawtooth goldenbush (HASQ2)		2
532:						
Xerorthents, landscaped.						
Urban land.						

Table 8.--Ecological Sites and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
532:						
Pachic Argixerolls, gullied-------	Coastal Bluff 14-16" p.z. (R020XD053CA)	Favorable	2,300	California sagebrush (ARCA11)		25
		Normal	1,400	California encelia (ENCA)		20
		Unfavorable	800	Grey coast eriogonum (ERCI5)		15
				Giant coreopsis (COGI)		10
				Other shrubs (SSSS)		10
				Other annual forbs (AAFF)		8
				Lemonade sumac (RHIN2)		5
				Other perennial forbs (PPFF)		5
				Other annual grasses (AAGG)		2
540:						
Calcic Argixerolls----	Coastal Scrub 14-16" p.z. (R020XD039CA)	Favorable	2,300	California sagebrush (ARCA11)		16
		Normal	1,400	Purple needlegrass (NAPU4)		16
		Unfavorable	800	Other annual grasses (AAGG)		12
				Black sage (SAME3)		9
				Lotus (LOWR2)		9
				Other shrubs (SSSS)		8
				Purple sage (SALE3)		8
				Laurel sumac (MALA6)		6
				Other perennial forbs (PPFF)		6
				Other perennial grasses (PPGG)		6
				Grey coast eriogonum (ERCI5)		4
550:						
Dam.						
W:						
Water.						

Table 9a.--Urban and Recreational Uses (Part 1)

(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 potential limitation. As many as three limitations are listed for each component. There may be more limitations. Fine-earth fraction and coarse fragment content are given on a weight basis. A brief summary of the rating criteria is given at the end of the table. See text for more information on the limitations)

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitations	Value	Limitations	Value	Limitations	Value
100:							
Chumash	35	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00
		Dusty	0.50	Dusty	0.50	Surface fragments (<3") >25 percent	0.99
Boades	25	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
Malibu	25	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Permeability 0.06-0.6"/hr	0.50	Permeability 0.06-0.6"/hr	0.50	Permeability 0.06-0.6"/hr	0.50
101:							
Chumash	35	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00
		Dusty	0.50	Dusty	0.50	Slopes >6 percent	1.00
		Slopes 8 to 15 percent	0.16	Slopes 8 to 15 percent	0.16	Surface fragments (<3") >25 percent	0.99
Boades	25	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00
		Dusty	0.50	Dusty	0.50	Slopes >6 percent	1.00
		Slopes 8 to 15 percent	0.16	Slopes 8 to 15 percent	0.16	Dusty	0.50
Malibu	25	Dusty	0.50	Dusty	0.50	Slopes >6 percent	1.00
		Permeability 0.06-0.6"/hr	0.50	Permeability 0.06-0.6"/hr	0.50	Dusty	0.50
		Slopes 8 to 15 percent	0.16	Slopes 8 to 15 percent	0.16	Permeability 0.06-0.6"/hr	0.50
110:							
Malibu	35	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Permeability 0.06-0.6"/hr	0.50	Permeability 0.06-0.6"/hr	0.50	Permeability 0.06-0.6"/hr	0.50
Chumash	30	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00
		Dusty	0.50	Dusty	0.50	Surface fragments (<3") >25 percent	1.00

Table 9a.--Urban and Recreational Uses (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitations	Value	Limitations	Value	Limitations	Value
110:							
Boades	25	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
120:							
Mipolomol	45	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00
		Fragments (<3") 25 to 50 percent	0.84	Fragments (<3") 25 to 50 percent	0.84	Surface fragments (<3") >25 percent	1.00
Topanga	40	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00
		Dusty	0.50	Dusty	0.50	Surface fragments (<3") >25 percent	1.00
121:							
Mipolomol	35	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00
		Fragments (<3") 25 to 50 percent	0.84	Fragments (<3") 25 to 50 percent	0.84	Surface fragments (<3") >25 percent	1.00
Topanga	35	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00
		Dusty	0.50	Dusty	0.50	Surface fragments (<3") >25 percent	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
122:							
Calcic Haploxerepts	50	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Dusty	0.50	Dusty	0.50	Surface fragments (<3") >25 percent	1.00
		Fragments (<3") 25 to 50 percent	0.12	Fragments (<3") 25 to 50 percent	0.12	Dusty	0.50
Mollic Haploxeralfs	35	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
						Surface fragments (<3") 10 to 25 percent	0.32

Table 9a.--Urban and Recreational Uses (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitations	Value	Limitations	Value	Limitations	Value
130:							
Camarillo, coastal------	85	Flooding >/=rare	1.00	Ponded (any duration)	1.00	Flooding >occasional	1.00
		Ponded (any duration)	1.00	Frequent flooding	0.50	Ponded (any duration)	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
140:							
Sulfic Fluvaquents------	100	Flooding >/=rare	1.00	Ponded (any duration)	1.00	Flooding >occasional	1.00
		Ponded (any duration)	1.00	Surface clay >/=40 percent	1.00	Ponded (any duration)	1.00
		Surface clay >/=40 percent	1.00	Permeability 0.06-0.6"/hr	0.96	Surface clay >/=40 percent	1.00
150:							
Abaft----------	60	Surface sand fraction 70 to 90 percent (by weight)	0.60	Surface sand fraction 70 to 90 percent (by weight)	0.60	Surface sand fraction 70 to 90 percent (by weight)	0.60
						Slopes 2 to 6 percent	0.02
Beaches----------	30	Not rated		Not rated		Not rated	
151:							
Abaft----------	55	Surface sand fraction 70 to 90 percent (by weight)	0.60	Surface sand fraction 70 to 90 percent (by weight)	0.60	Surface sand fraction 70 to 90 percent (by weight)	0.60
						Slopes 2 to 6 percent	0.02
Beaches----------	30	Not rated		Not rated		Not rated	
Urban land----------	15	Not rated		Not rated		Not rated	
160:							
Xerorthents, landscaped	95	Dusty	0.50	Dusty	0.50	Slopes 2 to 6 percent	0.86
		Permeability 0.06-0.6"/hr	0.38	Permeability 0.06-0.6"/hr	0.38	Dusty	0.50
						Permeability 0.06-0.6"/hr	0.38
170:							
Cotharin----------	85	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00
171:							
Cotharin----------	65	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00
		Fragments (>10") >3 percent	1.00	Fragments (>10") >3 percent	1.00	Fragments (>10") >3 percent	1.00
Rock outcrop----------	20	Not rated		Not rated		Not rated	

Table 9a.--Urban and Recreational Uses (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitations	Value	Limitations	Value	Limitations	Value
175:							
Cotharin----------	70	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00
Talepop----------	15	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00
		Dusty	0.50	Dusty	0.50	Surface fragments (<3") >25 percent	1.00
176:							
Cotharin----------	70	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00
Talepop----------	15	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00
		Dusty	0.50	Dusty	0.50	Surface fragments (<3") >25 percent	1.00
178:							
Cotharin----------	35	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00
Talepop----------	35	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00
		Dusty	0.50	Dusty	0.50	Surface fragments (<3") >25 percent	1.00
Urban land----------	15	Not rated		Not rated		Not rated	
179:							
Cotharin, dry----------	80	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00
180:							
Pits and Dumps----------	100	Not rated		Not rated		Not rated	
190:							
Kayiwish, gently sloping	65	Surface clay >/=40 percent	1.00	Surface clay >/=40 percent	1.00	Surface clay >/=40 percent	1.00
		Permeability 0.06-0.6"/hr	0.50	Permeability 0.06-0.6"/hr	0.50	Slopes 2 to 6 percent	0.74
						Permeability 0.06-0.6"/hr	0.50
Kayiwish, nearly level--	20	Ponded (any duration)	1.00	Ponded (any duration)	1.00	Ponded (any duration)	1.00
		Surface clay >/=40 percent	1.00	Surface clay >/=40 percent	1.00	Surface clay >/=40 percent	1.00
		Permeability 0.06-0.6"/hr	0.50	Permeability 0.06-0.6"/hr	0.50	Permeability 0.06-0.6"/hr	0.50

Table 9a.--Urban and Recreational Uses (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitations	Value	Limitations	Value	Limitations	Value
191:							
Kayiwish, gently sloping	65	Surface clay >/=40 percent	1.00	Surface clay >/=40 percent	1.00	Slopes >6 percent	1.00
		Slopes 8 to 15 percent	0.63	Slopes 8 to 15 percent	0.63	Surface clay >/=40 percent	1.00
		Permeability 0.06-0.6"/hr	0.50	Permeability 0.06-0.6"/hr	0.50	Permeability 0.06-0.6"/hr	0.50
Kayiwish, steeply sloping	20	Surface clay >/=40 percent	1.00	Surface clay >/=40 percent	1.00	Slopes >6 percent	1.00
		Slopes >15 percent	1.00	Slopes >15 percent	1.00	Surface clay >/=40 percent	1.00
		Permeability 0.06-0.6"/hr	0.50	Permeability 0.06-0.6"/hr	0.50	Permeability 0.06-0.6"/hr	0.50
200:							
Cumulic Haploxerolls	85	Flooding >/=rare	1.00	Frequent flooding	0.50	Flooding >occasional	1.00
						Slopes 2 to 6 percent	0.86
202:							
Fluvaquents	70	Saturated to <18"	1.00	Saturated to <12"	0.99	Saturated to <18"	1.00
		Flooding >/=rare	1.00	Frequent flooding	0.50	Flooding >occasional	1.00
Riverwash	20	Not rated		Not rated		Not rated	
220:							
Elder, coastal	85	Flooding >/=rare	1.00	Surface sand fraction 70 to 90 percent (by weight)	0.01	Surface sand fraction 70 to 90 percent (by weight)	0.01
		Surface sand fraction 70 to 90 percent (by weight)	0.01				
230:							
Cotharin	70	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00
Talepop	15	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00
		Dusty	0.50	Dusty	0.50	Surface fragments (<3") >25 percent	1.00
231:							
Talepop	50	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00
		Dusty	0.50	Dusty	0.50	Surface fragments (<3") >25 percent	1.00
Rock outcrop	35	Not rated		Not rated		Not rated	

Table 9a.--Urban and Recreational Uses (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitations	Value	Limitations	Value	Limitations	Value
240:							
Tongva	45	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
Cotharin	30	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
241:							
Cotharin	55	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
Tongva	15	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
250:							
Urban land	75	Not rated		Not rated		Not rated	
Xerorthents, landscaped	25	Dusty	0.50	Dusty	0.50	Dusty	0.50
		Permeability 0.06-0.6"/hr	0.38	Permeability 0.06-0.6"/hr	0.38	Permeability 0.06-0.6"/hr	0.38
						Slopes 2 to 6 percent	0.02
251:							
Urban land	75	Not rated		Not rated		Not rated	
Tongva	20	Slopes 8 to 15 percent	0.16	Slopes 8 to 15 percent	0.16	Slopes >6 percent	1.00
252:							
Urban land	70	Not rated		Not rated		Not rated	
Xerorthents, landscaped	25	Flooding >/=rare	1.00	Dusty	0.50	Dusty	0.50
		Dusty	0.50	Permeability 0.06-0.6"/hr	0.38	Slopes 2 to 6 percent	0.38
		Permeability 0.06-0.6"/hr	0.38			Permeability 0.06-0.6"/hr	0.38
270:							
Pacheco, coastal	90	Flooding >/=rare	1.00	None		None	

Table 9a.--Urban and Recreational Uses (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitations	Value	Limitations	Value	Limitations	Value
290:							
Topanga	40	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00
		Dusty	0.50	Dusty	0.50	Surface fragments (<3") >25 percent	1.00
Mipolomol	30	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00
		Fragments (<3") 25 to 50 percent	0.84	Fragments (<3") 25 to 50 percent	0.84	Surface fragments (<3") >25 percent	1.00
Sapwi	15	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
						Depth to bedrock 20 to 40" and slopes >2 percent	0.50
300:							
Zumaridge	55	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00
		Fragments (>10") >3 percent	1.00	Fragments (>10") >3 percent	1.00	Fragments (>10") >3 percent	1.00
Kawenga	30	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
301:							
Zumaridge	55	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00
		Fragments (>10") >3 percent	1.00	Fragments (>10") >3 percent	1.00	Fragments (>10") >3 percent	1.00
Kawenga	30	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
302:							
Zumaridge	40	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00
		Fragments (>10") >3 percent	1.00	Fragments (>10") >3 percent	1.00	Fragments (>10") >3 percent	1.00
Rock outcrop	35	Not rated		Not rated		Not rated	
Sumiwawa	15	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00
		Fragments (<3") 25 to 50 percent	0.61	Fragments (<3") 25 to 50 percent	0.61	Surface fragments (<3") >25 percent	1.00

Table 9a.--Urban and Recreational Uses (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitations	Value	Limitations	Value	Limitations	Value
303:							
Zumaridge	40	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00
		Fragments (>10") >3 percent	1.00	Fragments (>10") >3 percent	1.00	Fragments (>10") >3 percent	1.00
Rock outcrop	35	Not rated		Not rated		Not rated	
Sumiwawa	15	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00
		Fragments (<3") 25 to 50 percent	0.61	Fragments (<3") 25 to 50 percent	0.61	Surface fragments (<3") >25 percent	1.00
304:							
Zumaridge	45	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00
Sapwi	20	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
						Depth to bedrock 20 to 40" and slopes >2 percent	0.50
Kawenga	20	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
305:							
Zumaridge	65	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00
		Fragments (>10") >3 percent	1.00	Fragments (>10") >3 percent	1.00	Fragments (>10") >3 percent	1.00
Rock outcrop	20	Not rated		Not rated		Not rated	
310:							
Gaviota	85	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00
311:							
Gaviota, northerly aspect	75	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00
Rock outcrop	20	Not rated		Not rated		Not rated	
320:							
Botella	85	Dusty	0.50	Dusty	0.50	Slopes 2 to 6 percent	0.98
						Dusty	0.50

Table 9a.--Urban and Recreational Uses (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitations	Value	Limitations	Value	Limitations	Value
330:							
Linne	40	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
Los Osos	25	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Permeability 0.06-0.6"/hr	0.46	Permeability 0.06-0.6"/hr	0.46	Permeability 0.06-0.6"/hr	0.46
Haploxerepts	20	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
						Surface fragments (<3") 10 to 25 percent	0.32
331:							
Linne	75	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
332:							
Linne	85	Slopes 8 to 15 percent	0.63	Slopes 8 to 15 percent	0.63	Slopes >6 percent	1.00
350:							
Los Osos	85	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Permeability 0.06-0.6"/hr	0.46	Permeability 0.06-0.6"/hr	0.46	Permeability 0.06-0.6"/hr	0.46
390:							
Danville, coastal	80	Permeability 0.06-0.6"/hr	0.46	Permeability 0.06-0.6"/hr	0.46	Slopes 2 to 6 percent	0.98
						Permeability 0.06-0.6"/hr	0.46
Urban land	15	Not rated		Not rated		Not rated	
391:							
Danville, coastal	85	Slopes 8 to 15 percent	0.63	Slopes 8 to 15 percent	0.63	Slopes >6 percent	1.00
		Permeability 0.06-0.6"/hr	0.46	Permeability 0.06-0.6"/hr	0.46	Permeability 0.06-0.6"/hr	0.46
400:							
Pachic Argixerolls, coastal	85	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Dusty	0.50	Dusty	0.50	Surface fragments (<3") >25 percent	1.00
		Fragments (<3") 25 to 50 percent	0.12	Fragments (<3") 25 to 50 percent	0.12		
						Dusty	0.50

Table 9a.--Urban and Recreational Uses (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitations	Value	Limitations	Value	Limitations	Value
410:							
Lockwood, coastal-------	80	Slopes 8 to 15 percent	0.63	Slopes 8 to 15 percent	0.63	Slopes >6 percent	1.00
		Dusty	0.50	Dusty	0.50	Surface fragments (<3") >25 percent	1.00
		Fragments (<3") 25 to 50 percent	0.46	Fragments (<3") 25 to 50 percent	0.46	Dusty	0.50
Urban land----------	20	Not rated		Not rated		Not rated	
411:							
Lockwood, coastal-------	80	Dusty	0.50	Dusty	0.50	Surface fragments (<3") >25 percent	1.00
		Fragments (<3") 25 to 50 percent	0.46	Fragments (<3") 25 to 50 percent	0.46	Slopes 2 to 6 percent	0.98
						Dusty	0.50
Urban land----------	20	Not rated		Not rated		Not rated	
430:							
Cropley, coastal--------	85	Surface clay >/=40 percent	1.00	Surface clay >/=40 percent	1.00	Surface clay >/=40 percent	1.00
		Permeability 0.06-0.6"/hr	0.46	Permeability 0.06-0.6"/hr	0.46	Slopes 2 to 6 percent	0.98
						Permeability 0.06-0.6"/hr	0.46
431:							
Cropley, coastal--------	50	Surface clay >/=40 percent	1.00	Surface clay >/=40 percent	1.00	Surface clay >/=40 percent	1.00
		Permeability 0.06-0.6"/hr	0.46	Permeability 0.06-0.6"/hr	0.46	Slopes 2 to 6 percent	0.86
						Permeability 0.06-0.6"/hr	0.46
Cropley----------	35	Surface clay >/=40 percent	1.00	Surface clay >/=40 percent	1.00	Slopes >6 percent	1.00
		Slopes 8 to 15 percent	0.63	Slopes 8 to 15 percent	0.63	Surface clay >/=40 percent	1.00
		Permeability 0.06-0.6"/hr	0.46	Permeability 0.06-0.6"/hr	0.46	Permeability 0.06-0.6"/hr	0.46
432:							
Cropley, coastal--------	85	Surface clay >/=40 percent	1.00	Surface clay >/=40 percent	1.00	Surface clay >/=40 percent	1.00
		Permeability 0.06-0.6"/hr	0.46	Permeability 0.06-0.6"/hr	0.46	Permeability 0.06-0.6"/hr	0.46
433:							
Cropley, coastal--------	40	Surface clay >/=40 percent	1.00	Surface clay >/=40 percent	1.00	Surface clay >/=40 percent	1.00
		Permeability 0.06-0.6"/hr	0.46	Permeability 0.06-0.6"/hr	0.46	Slopes 2 to 6 percent	0.86
						Permeability 0.06-0.6"/hr	0.46
Urban land----------	25	Not rated		Not rated		Not rated	
Haploxererts----------	20	Surface clay >/=40 percent	1.00	Surface clay >/=40 percent	1.00	Slopes >6 percent	1.00
		Slopes >15 percent	1.00	Slopes >15 percent	1.00	Surface clay >/=40 percent	1.00
		Permeability 0.06-0.6"/hr	0.46	Permeability 0.06-0.6"/hr	0.46	Permeability 0.06-0.6"/hr	0.46

Table 9a.--Urban and Recreational Uses (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitations	Value	Limitations	Value	Limitations	Value
434:							
Cropley, coastal--------	35	Surface clay >/=40 percent	1.00	Surface clay >/=40 percent	1.00	Surface clay >/=40 percent	1.00
		Permeability 0.06-0.6"/hr	0.46	Permeability 0.06-0.6"/hr	0.46	Slopes 2 to 6 percent	0.86
						Permeability 0.06-0.6"/hr	0.46
Xerorthents, landscaped	35	Dusty	0.50	Dusty	0.50	Dusty	0.50
		Permeability 0.06-0.6"/hr	0.38	Permeability 0.06-0.6"/hr	0.38	Permeability 0.06-0.6"/hr	0.38
Urban land----------	25	Not rated		Not rated		Not rated	
450:							
Sapwi----------	85	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
						Depth to bedrock 20 to 40" and slopes >2 percent	0.50
451:							
Urban land----------	65	Not rated		Not rated		Not rated	
Sapwi----------	20	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
						Depth to bedrock 20 to 40" and slopes >2 percent	0.50
460:							
Typic Haploxerepts------	85	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
						Surface fragments (<3") 10 to 25 percent	0.44
461:							
Typic Haploxerepts------	85	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Permeability 0.06-0.6"/hr	0.26	Permeability 0.06-0.6"/hr	0.26	Surface fragments (<3") 10 to 25 percent	0.44
						Permeability 0.06-0.6"/hr	0.26
470:							
Sumiwawa----------	40	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00
		Fragments (<3") 25 to 50 percent	0.61	Fragments (<3") 25 to 50 percent	0.61	Surface fragments (<3") >25 percent	1.00

Table 9a.--Urban and Recreational Uses (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitations	Value	Limitations	Value	Limitations	Value
470:							
Hipuk	30	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00
		Fragments (>10") 0.1 to 3.0 percent	0.76	Fragments (>10") 0.1 to 3.0 percent	0.76	Surface fragments (<3") >25 percent	1.00
Rock outcrop	20	Not rated		Not rated		Not rated	
472:							
Rock outcrop	45	Not rated		Not rated		Not rated	
Sumiwawa	30	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00
		Fragments (<3") 25 to 50 percent	0.61	Fragments (<3") 25 to 50 percent	0.61	Surface fragments (<3") >25 percent	1.00
Hipuk	15	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00	Depth to bedrock <20"	1.00
		Fragments (>10") 0.1 to 3.0 percent	0.76	Fragments (>10") 0.1 to 3.0 percent	0.76	Surface fragments (<3") >25 percent	1.00
500:							
Balcom	85	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
503:							
Balcom	70	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
Balcom, dark surface	15	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
530:							
Xerorthents, landscaped	45	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Permeability 0.06-0.6"/hr	0.38	Permeability 0.06-0.6"/hr	0.38	Permeability 0.06-0.6"/hr	0.38
Urban land	35	Not rated		Not rated		Not rated	
Balcom	15	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
531:							
Xerorthents, landscaped	40	Dusty	0.50	Dusty	0.50	Slopes >6 percent	1.00
		Permeability 0.06-0.6"/hr	0.38	Permeability 0.06-0.6"/hr	0.38	Dusty	0.50
		Slopes 8 to 15 percent	0.16	Slopes 8 to 15 percent	0.16	Permeability 0.06-0.6"/hr	0.38

Table 9a.--Urban and Recreational Uses (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitations	Value	Limitations	Value	Limitations	Value
531:							
Urban land----------	35	Not rated		Not rated		Not rated	
Balcom----------	20	Slopes 8 to 15 percent	0.63	Slopes 8 to 15 percent	0.63	Slopes >6 percent	1.00
532:							
Xerorthents, landscaped	50	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Permeability 0.06-0.6"/hr	0.38	Permeability 0.06-0.6"/hr	0.38	Permeability 0.06-0.6"/hr	0.38
Urban land----------	35	Not rated		Not rated		Not rated	
Pachic Argixerolls, gullied----------	15	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Dusty	0.50	Dusty	0.50	Surface fragments (<3") >25 percent	1.00
		Fragments (<3") 25 to 50 percent	0.12	Fragments (<3") 25 to 50 percent	0.12	Dusty	0.50
540:							
Calcic Argixerolls------	85	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >6 percent	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
550:							
Dam----------	100	Not rated		Not rated		Not rated	
W:							
Water----------	100	Not rated		Not rated		Not rated	

The interpretations for camp areas evaluate the following soil properties at varying depths in the soil: Flooding; ponding; wetness; slope; depth to bedrock; depth to cemented pan; fragments less than, equal to, or greater than 3 inches in size; sodium content (SAR); salinity (EC); clayey surface texture; Unified classes for high organic matter content (PT, OL, OH); soil dustiness; and permeability (K_{sat}) that is too high, resulting seepage in some climates.

The interpretations for picnic areas evaluate the following soil properties at varying depths in the soil: Flooding, ponding, wetness, slope, depth to bedrock, depth to cemented pan, salinity (EC), soil pH, soil dustiness, fragments greater than 3 inches in size, surface fragments greater than 10 inches in size, content of sand or clay in the surface layer, Unified classes for high organic matter content (PT, OL, OH), and permeability (K_{sat}) that is too high, resulting in seepage in some climates.

The interpretations for playgrounds evaluate the following soil properties at varying depths in the soil: Flooding, ponding, wetness, slope, depth to bedrock, depth to cemented pan, surface fragments greater than 10 inches in size, fragments equal to or less than 3 inches in size, Unified class for high organic matter content (PT, OL, OH), soil dustiness, content of sand or clay in the surface layer, soil pH, salinity (EC), and permeability that is too high, resulting in seepage in some climates.

Table 9b.--Urban and Recreational Uses (Part 2)

(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 potential limitation. As many as three limitations are listed for each component. There may be more limitations. Fine-earth fraction and coarse fragment content are reported on a weight basis. A brief summary of the rating criteria is given at the end of the table. See text for more information on the limitations)

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitations	Value	Limitations	Value	Limitations	Value
100:							
Chumash	35	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Depth to bedrock <20"	1.00
		Dusty	0.50	Dusty	0.50	Slopes >15 percent	1.00
						AWC <2" to 40"	1.00
Boades	25	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Depth to bedrock <20"	1.00
		Dusty	0.50	Dusty	0.50	Slopes >15 percent	1.00
						AWC <2" to 40"	1.00
Malibu	25	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Slopes >15 percent	1.00
		Dusty	0.50	Dusty	0.50	Depth to bedrock 20 to 40"	0.71
						AWC 2-4" to 40"	0.15
101:							
Chumash	35	Dusty	0.50	Dusty	0.50	Depth to bedrock <20"	1.00
						AWC <2" to 40"	1.00
						Slopes 8 to 15 percent	0.16
Boades	25	Dusty	0.50	Dusty	0.50	Depth to bedrock <20"	1.00
						AWC <2" to 40"	1.00
						Slopes 8 to 15 percent	0.16
Malibu	25	Dusty	0.50	Dusty	0.50	Depth to bedrock 20 to 40"	0.71
						Slopes 8 to 15 percent	0.16
						AWC 2-4" to 40"	0.16
110:							
Malibu	35	Slopes >25 percent	1.00	Slopes 25 to 40 percent	0.50	Slopes >15 percent	1.00
		Dusty	0.50	Dusty	0.50	Depth to bedrock 20 to 40"	0.71
						AWC 2-4" to 40"	0.15
Chumash	30	Slopes >25 percent	1.00	Slopes 25 to 40 percent	0.50	Depth to bedrock <20"	1.00
		Dusty	0.50	Dusty	0.50	Slopes >15 percent	1.00
						AWC <2" to 40"	1.00
Boades	25	Slopes >25 percent	1.00	Slopes 25 to 40 percent	0.50	Depth to bedrock <20"	1.00
		Dusty	0.50	Dusty	0.50	Slopes >15 percent	1.00
						AWC <2" to 40"	1.00

Table 9b.--Urban and Recreational Uses (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitations	Value	Limitations	Value	Limitations	Value
120:							
Mipolomol	45	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Depth to bedrock <20"	1.00
		Dusty	0.50	Dusty	0.50	Slopes >15 percent	1.00
						AWC <2" to 40"	1.00
Topanga	40	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Depth to bedrock <20"	1.00
		Dusty	0.50	Dusty	0.50	Slopes >15 percent	1.00
						AWC <2" to 40"	0.99
121:							
Mipolomol	35	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Depth to bedrock <20"	1.00
		Dusty	0.50	Dusty	0.50	Slopes >15 percent	1.00
						AWC <2" to 40"	1.00
Topanga	35	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Depth to bedrock <20"	1.00
		Dusty	0.50	Dusty	0.50	Slopes >15 percent	1.00
						AWC <2" to 40"	0.99
Rock outcrop	15	Not rated		Not rated		Not rated	
122:							
Calcic Haploxerepts	50	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Slopes >15 percent	1.00
		Dusty	0.50	Dusty	0.50	Depth to bedrock 20 to 40"	0.39
						Fragments (gravel sized) 25 to 50 percent	0.11
Mollic Haploxeralfs	35	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Slopes >15 percent	1.00
		Dusty	0.50	Dusty	0.50	Depth to bedrock 20 to 40"	0.08
130:							
Camarillo, coastal	85	Ponded (any duration)	1.00	Ponded (any duration)	1.00	Ponded (any duration)	1.00
		Frequent flooding	0.50	Frequent flooding	0.50	Frequent flooding	0.90
		Dusty	0.50	Dusty	0.50	Surface EC 4 to 6 mmhos/cm	0.01
140:							
Sulfic Fluvaquents	100	Ponded (any duration)	1.00	Ponded (any duration)	1.00	Ponded (any duration)	1.00
		Surface clay >/=40 percent	1.00	Surface clay >/=40 percent	1.00	Surface clay >/=40 percent	1.00
		Frequent flooding	0.50	Frequent flooding	0.50	Frequent flooding	0.90
150:							
Abaft	60	Surface sand fraction 70 to 90 percent (by weight)	0.60	Surface sand fraction 70 to 90 percent (by weight)	0.60	AWC 2-4" to 40"	0.34
Beaches	30	Not rated		Not rated		Not rated	

Table 9b.--Urban and Recreational Uses (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitations	Value	Limitations	Value	Limitations	Value
151:							
Abaft	55	Surface sand fraction 70 to 90 percent (by weight)	0.60	Surface sand fraction 70 to 90 percent (by weight)	0.60	AWC 2-4" to 40"	0.34
Beaches	30	Not rated		Not rated		Not rated	
Urban land	15	Not rated		Not rated		Not rated	
160:							
Xerorthents, landscaped	95	Dusty	0.50	Dusty	0.50		
170:							
Cotharin	85	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Depth to bedrock <20"	1.00
						Slopes >15 percent	1.00
						AWC <2" to 40"	1.00
171:							
Cotharin	65	Slopes >25 percent	1.00	Surface fragments (>10") >3 percent	1.00	Depth to bedrock <20"	1.00
		Fragments (>10") >3 percent	1.00			Slopes >15 percent	1.00
				Slopes >40 percent	1.00	AWC <2" to 40"	1.00
Rock outcrop	20	Not rated		Not rated		Not rated	
175:							
Cotharin	70	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Depth to bedrock <20"	1.00
						Slopes >15 percent	1.00
						AWC <2" to 40"	1.00
Talepop	15	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Depth to bedrock <20"	1.00
		Dusty	0.50	Dusty	0.50	Slopes >15 percent	1.00
						AWC <2" to 40"	1.00
176:							
Cotharin	70	Slopes >25 percent	1.00	Slopes 25 to 40 percent	0.50	Depth to bedrock <20"	1.00
						Slopes >15 percent	1.00
						AWC <2" to 40"	1.00
Talepop	15	Slopes >25 percent	1.00	Slopes 25 to 40 percent	0.50	Depth to bedrock <20"	1.00
		Dusty	0.50	Dusty	0.50	Slopes >15 percent	1.00
						AWC <2" to 40"	1.00

Table 9b.--Urban and Recreational Uses (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitations	Value	Limitations	Value	Limitations	Value
178:							
Cotharin----------	35	Slopes >25 percent	1.00	Slopes 25 to 40 percent	0.50	Depth to bedrock <20"	1.00
						Slopes >15 percent	1.00
						AWC <2" to 40"	1.00
Talepop----------	35	Slopes >25 percent	1.00	Slopes 25 to 40 percent	0.50	Depth to bedrock <20"	1.00
		Dusty	0.50	Dusty	0.50	Slopes >15 percent	1.00
						AWC <2" to 40"	1.00
Urban land----------	15	Not rated		Not rated		Not rated	
179:							
Cotharin, dry----------	80	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Depth to bedrock <20"	1.00
						Slopes >15 percent	1.00
						AWC <2" to 40"	1.00
180:							
Pits and Dumps----------	100	Not rated		Not rated		Not rated	
190:							
Kayiwish, gently sloping	65	Surface clay >/=40 percent	1.00	Surface clay >/=40 percent	1.00	Surface clay >/=40 percent	1.00
						Depth to bedrock 20 to 40"	0.92
						AWC 2-4" to 40"	0.22
Kayiwish, nearly level--	20	Ponded (any duration)	1.00	Ponded (any duration)	1.00	Ponded (any duration)	1.00
		Surface clay >/=40 percent	1.00	Surface clay >/=40 percent	1.00	Surface clay >/=40 percent	1.00
						Depth to bedrock <20"	0.99
191:							
Kayiwish, gently sloping	65	Surface clay >/=40 percent	1.00	Surface clay >/=40 percent	1.00	Surface clay >/=40 percent	1.00
						Depth to bedrock 20 to 40"	0.92
						Slopes 8 to 15 percent	0.63
Kayiwish, steeply sloping----------	20	Surface clay >/=40 percent	1.00	Surface clay >/=40 percent	1.00	Slopes >15 percent	1.00
		Slopes 15 to 25 percent	0.41			Surface clay >/=40 percent	1.00
						Depth to bedrock 20 to 40"	0.92
200:							
Cumulic Haploxerolls----	85	Frequent flooding	0.50	Frequent flooding	0.50	Frequent flooding	0.90

Table 9b.--Urban and Recreational Uses (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitations	Value	Limitations	Value	Limitations	Value
202:							
Fluvaquents	70	Saturated to <12"	0.99	Saturated to <12"	0.99	Saturated to <12"	0.99
		Frequent flooding	0.50	Frequent flooding	0.50	Frequent flooding	0.90
						AWC 2-4" to 40"	0.19
Riverwash	20	Not rated		Not rated		Not rated	
220:							
Elder, coastal	85	Surface sand fraction 70 to 90 percent (by weight)	0.01	Surface sand fraction 70 to 90 percent (by weight)	0.01	None	
230:							
Cotharin	70	Slopes >25 percent	1.00	Slopes 25 to 40 percent	0.50	Depth to bedrock <20"	1.00
						Slopes >15 percent	1.00
						AWC <2" to 40"	1.00
Talepop	15	Slopes >25 percent	1.00	Slopes 25 to 40 percent	0.50	Depth to bedrock <20"	1.00
		Dusty	0.50	Dusty	0.50	Slopes >15 percent	1.00
						AWC <2" to 40"	1.00
231:							
Talepop	50	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Depth to bedrock <20"	1.00
		Dusty	0.50	Dusty	0.50	Slopes >15 percent	1.00
						AWC <2" to 40"	1.00
Rock outcrop	35	Not rated		Not rated		Not rated	
240:							
Tongva	45	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Slopes >15 percent	1.00
						Depth to bedrock 20 to 40"	0.50
						AWC 2-4" to 40"	0.22
Cotharin	30	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Depth to bedrock <20"	1.00
						Slopes >15 percent	1.00
						AWC <2" to 40"	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
241:							
Cotharin	55	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Depth to bedrock <20"	1.00
						Slopes >15 percent	1.00
						AWC <2" to 40"	1.00

Table 9b.--Urban and Recreational Uses (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitations	Value	Limitations	Value	Limitations	Value
241:							
Rock outcrop----------	15	Not rated		Not rated		Not rated	
Tongva----------	15	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Slopes >15 percent	1.00
						Depth to bedrock 20 to 40"	0.50
						AWC 2-4" to 40"	0.22
250:							
Urban land----------	75	Not rated		Not rated		Not rated	
Xerorthents, landscaped	25	Dusty	0.50	Dusty	0.50	None	
251:							
Urban land----------	75	Not rated		Not rated		Not rated	
Tongva----------	20	None		None		Depth to bedrock 20 to 40"	0.50
						AWC 2-4" to 40"	0.22
						Slopes 8 to 15 percent	0.16
252:							
Urban land----------	70	Not rated		Not rated		Not rated	
Xerorthents, landscaped	25	Dusty	0.50	Dusty	0.50	None	
270:							
Pacheco, coastal--------	90	None		None		None	
290:							
Topanga----------	40	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Depth to bedrock <20"	1.00
		Dusty	0.50	Dusty	0.50	Slopes >15 percent	1.00
						AWC <2" to 40"	0.99
Mipolomol----------	30	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Depth to bedrock <20"	1.00
		Dusty	0.50	Dusty	0.50	Slopes >15 percent	1.00
						AWC <2" to 40"	1.00
Sapwi----------	15	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Slopes >15 percent	1.00
						Depth to bedrock 20 to 40"	0.01
300:							
Zumaridge----------	55	Slopes >25 percent	1.00	Surface fragments (>10") >3 percent	1.00	Depth to bedrock <20"	1.00
		Fragments (>10") >3 percent	1.00			Slopes >15 percent	1.00
				Slopes >40 percent	1.00	AWC <2" to 40"	1.00

Table 9b.--Urban and Recreational Uses (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitations	Value	Limitations	Value	Limitations	Value
300:							
Kawenga	30	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Slopes >15 percent	1.00
301:							
Zumaridge	55	Fragments (>10") >3 percent	1.00	Surface fragments (>10") >3 percent	1.00	Depth to bedrock <20"	1.00
		Slopes >25 percent	1.00			Slopes >15 percent	1.00
				Slopes 25 to 40 percent	0.22	AWC <2" to 40"	1.00
Kawenga	30	Slopes >25 percent	1.00	Slopes 25 to 40 percent	0.22	Slopes >15 percent	1.00
302:							
Zumaridge	40	Fragments (>10") >3 percent	1.00	Surface fragments (>10") >3 percent	1.00	Depth to bedrock <20"	1.00
		Slopes >25 percent	1.00			Slopes >15 percent	1.00
				Slopes 25 to 40 percent	0.22	AWC <2" to 40"	1.00
Rock outcrop	35	Not rated		Not rated		Not rated	
Sumiwawa	15	Slopes >25 percent	1.00	Surface sand fraction 70 to 90 percent (by weight)	0.42	Depth to bedrock <20"	1.00
		Surface sand fraction 70 to 90 percent (by weight)	0.42			Slopes >15 percent	1.00
				Slopes 25 to 40 percent	0.22	AWC <2" to 40"	1.00
303:							
Zumaridge	40	Slopes >25 percent	1.00	Surface fragments (>10") >3 percent	1.00	Depth to bedrock <20"	1.00
		Fragments (>10") >3 percent	1.00			Slopes >15 percent	1.00
				Slopes >40 percent	1.00	AWC <2" to 40"	1.00
Rock outcrop	35	Not rated		Not rated		Not rated	
Sumiwawa	15	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Depth to bedrock <20"	1.00
		Surface sand fraction 70 to 90 percent (by weight)	0.42	Surface sand fraction 70 to 90 percent (by weight)	0.42	Slopes >15 percent	1.00
						AWC <2" to 40"	1.00
304:							
Zumaridge	45	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Depth to bedrock <20"	1.00
						Slopes >15 percent	1.00
						AWC <2" to 40"	1.00
Sapwi	20	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Slopes >15 percent	1.00
						Depth to bedrock 20 to 40"	0.01
Kawenga	20	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Slopes >15 percent	1.00

Table 9b.--Urban and Recreational Uses (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitations	Value	Limitations	Value	Limitations	Value
305:							
Zumaridge	65	Slopes >25 percent	1.00	Surface fragments (>10") >3 percent	1.00	Depth to bedrock <20"	1.00
		Fragments (>10") >3 percent	1.00			Slopes >15 percent	1.00
				Slopes >40 percent	1.00	AWC <2" to 40"	1.00
Rock outcrop	20	Not rated		Not rated		Not rated	
310:							
Gaviota	85	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Depth to bedrock <20"	1.00
						Slopes >15 percent	1.00
						AWC <2" to 40"	1.00
311:							
Gaviota, northerly aspect	75	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Depth to bedrock <20"	1.00
						Slopes >15 percent	1.00
						AWC <2" to 40"	1.00
Rock outcrop	20	Not rated		Not rated		Not rated	
320:							
Botella	85	Dusty	0.50	Dusty	0.50	None	
330:							
Linne	40	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Slopes >15 percent	1.00
						Depth to bedrock 20 to 40"	0.46
Los Osos	25	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Slopes >15 percent	1.00
						Depth to bedrock 20 to 40"	0.08
Haploxerepts	20	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Slopes >15 percent	1.00
		Dusty	0.50	Dusty	0.50		
331:							
Linne	75	Slopes >25 percent	1.00	Slopes 25 to 40 percent	0.56	Slopes >15 percent	1.00
						Depth to bedrock 20 to 40"	0.46
332:							
Linne	85	None		None		Slopes 8 to 15 percent	0.63
						Depth to bedrock 20 to 40"	0.46
350:							
Los Osos	85	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Slopes >15 percent	1.00
						Depth to bedrock 20 to 40"	0.08

Table 9b.--Urban and Recreational Uses (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitations	Value	Limitations	Value	Limitations	Value
390:							
Danville, coastal-------	80	None		None		None	
Urban land----------	15	Not rated		Not rated		Not rated	
391:							
Danville, coastal-------	85	K factor >0.35 and slopes >8 percent	1.00	None		Slopes 8 to 15 percent	0.63
400:							
Pachic Argixerolls, coastal----------	85	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Slopes >15 percent	1.00
		Dusty	0.50	Dusty	0.50	Depth to bedrock 20 to 40"	0.92
						AWC 2-4" to 40"	0.36
410:							
Lockwood, coastal-------	80	Dusty	0.50	Dusty	0.50	Slopes 8 to 15 percent	0.63
						Fragments (gravel sized) 25 to 50 percent	0.46
						AWC 2-4" to 40"	0.01
Urban land----------	20	Not rated		Not rated		Not rated	
411:							
Lockwood, coastal-------	80	Dusty	0.50	Dusty	0.50	Fragments (gravel sized) 25 to 50 percent	0.46
						AWC 2-4" to 40"	0.01
Urban land----------	20	Not rated		Not rated		Not rated	
430:							
Cropley, coastal--------	85	Surface clay >/=40 percent	1.00	Surface clay >/=40 percent	1.00	Surface clay >/=40 percent	1.00
431:							
Cropley, coastal--------	50	Surface clay >/=40 percent	1.00	Surface clay >/=40 percent	1.00	Surface clay >/=40 percent	1.00
Cropley----------	35	Surface clay >/=40 percent	1.00	Surface clay >/=40 percent	1.00	Surface clay >/=40 percent	1.00
						Slopes 8 to 15 percent	0.63
432:							
Cropley, coastal--------	85	Surface clay >/=40 percent	1.00	Surface clay >/=40 percent	1.00	Surface clay >/=40 percent	1.00
433:							
Cropley, coastal--------	40	Surface clay >/=40 percent	1.00	Surface clay >/=40 percent	1.00	Surface clay >/=40 percent	1.00

Table 9b.--Urban and Recreational Uses (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitations	Value	Limitations	Value	Limitations	Value
433:							
Urban land	25	Not rated		Not rated		Not rated	
Haploxererts	20	Surface clay >/=40 percent	1.00	Surface clay >/=40 percent	1.00	Slopes >15 percent	1.00
		Slopes 15 to 25 percent	0.41			Surface clay >/=40 percent	1.00
434:							
Cropley, coastal	35	Surface clay >/=40 percent	1.00	Surface clay >/=40 percent	1.00	Surface clay >/=40 percent	1.00
Xerorthents, landscaped	35	Dusty	0.50	Dusty	0.50	None	
Urban land	25	Not rated		Not rated		Not rated	
450:							
Sapwi	85	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Slopes >15 percent	1.00
						Depth to bedrock 20 to 40"	0.01
451:							
Urban land	65	Not rated		Not rated		Not rated	
Sapwi	20	Slopes >25 percent	1.00	Slopes 25 to 40 percent	0.56	Slopes >15 percent	1.00
						Depth to bedrock 20 to 40"	0.01
460:							
Typic Haploxerepts	85	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Slopes >15 percent	1.00
						Depth to bedrock 20 to 40"	0.01
461:							
Typic Haploxerepts	85	Slopes 15 to 25 percent	0.88	None		Slopes >15 percent	1.00
						Depth to bedrock 20 to 40"	0.01
470:							
Sumiwawa	40	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Depth to bedrock <20"	1.00
		Surface sand fraction 70 to 90 percent (by weight)	0.42	Surface sand fraction 70 to 90 percent (by weight)	0.42	Slopes >15 percent	1.00
						AWC <2" to 40"	1.00
Hipuk	30	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Depth to bedrock <20"	1.00
		Fragments (>10") 0.1 to 3.0 percent	0.76	Surface fragments (>10") 0.1 to 3.0 percent	0.76	Slopes >15 percent	1.00
						AWC <2" to 40"	0.99
Rock outcrop	20	Not rated		Not rated		Not rated	

Table 9b.--Urban and Recreational Uses (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitations	Value	Limitations	Value	Limitations	Value
472:							
Rock outcrop----------	45	Not rated		Not rated		Not rated	
Sumiwawa----------	30	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Depth to bedrock <20"	1.00
		Surface sand fraction 70 to 90 percent (by weight)	0.36	Surface sand fraction 70 to 90 percent (by weight)	0.36	Slopes >15 percent	1.00
						AWC <2" to 40"	1.00
Hipuk----------	15	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Depth to bedrock <20"	1.00
		Fragments (>10") 0.1 to 3.0 percent	0.76	Surface fragments (>10") 0.1 to 3.0 percent	0.76	Slopes >15 percent	1.00
						AWC <2" to 40"	0.99
500:							
Balcom----------	85	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Slopes >15 percent	1.00
		K factor >0.35 and slopes >8 percent	1.00			Depth to bedrock 20 to 40"	0.04
503:							
Balcom----------	70	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Slopes >15 percent	1.00
		K factor >0.35 and slopes >8 percent	1.00			Depth to bedrock 20 to 40"	0.04
Balcom, dark surface----	15	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Slopes >15 percent	1.00
		K factor >0.35 and slopes >8 percent	1.00			Depth to bedrock 20 to 40"	0.01
530:							
Xerorthents, landscaped	45	Slopes 15 to 25 percent	0.92	Dusty	0.50	Slopes >15 percent	1.00
		Dusty	0.50				
Urban land----------	35	Not rated		Not rated		Not rated	
Balcom----------	15	K factor >0.35 and slopes >8 percent	1.00	None		Slopes >15 percent	1.00
						Depth to bedrock 20 to 40"	0.04
		Slopes 15 to 25 percent	0.92				
531:							
Xerorthents, landscaped	40	Dusty	0.50	Dusty	0.50	Slopes 8 to 15 percent	0.16
Urban land----------	35	Not rated		Not rated		Not rated	
Balcom----------	20	K factor >0.35 and slopes >8 percent	1.00	None		Slopes 8 to 15 percent	0.63
						Depth to bedrock 20 to 40"	0.04

Table 9b.--Urban and Recreational Uses (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitations	Value	Limitations	Value	Limitations	Value
532:							
Xerorthents, landscaped	50	Slopes 15 to 25 percent	0.92	Dusty	0.50	Slopes >15 percent	1.00
		Dusty	0.50				
Urban land----------	35	Not rated		Not rated		Not rated	
Pachic Argixerolls, gullied----------	15	Slopes 15 to 25 percent	0.92	Dusty	0.50	Slopes >15 percent	1.00
		Dusty	0.50			Depth to bedrock 20 to 40"	0.92
						AWC 2-4" to 40"	0.36
540:							
Calcic Argixerolls------	85	Slopes >25 percent	1.00	Slopes >40 percent	1.00	Slopes >15 percent	1.00
		K factor >0.35 and slopes >8 percent	1.00	Dusty	0.50	Depth to bedrock 20 to 40"	0.02
		Dusty	0.50				
550:							
Dam----------	100	Not rated		Not rated		Not rated	
W:							
Water----------	100	Not rated		Not rated		Not rated	

The interpretations for paths and trails evaluate the following soil properties at varying depths in the soil: Flooding; ponding; wetness; slope; fragments less than, equal to, or greater than 3 inches in diameter; clay and sand content of the surface layer; fragments on the surface greater than or equal to 10 inches in diameter; Unified classes for high organic matter content (PT, OL, OH); soil dustiness; and the risk of erosion by water.

The interpretations for off-road motorcycle trails evaluate the following soil properties at varying depths in the soil: Flooding; ponding; wetness; slope; soil dustiness; fragments less than, equal to, or greater than 3 inches in diameter; sand and clay content of the surface layer; and Unified classes for high organic matter content (PT, OL, OH).

The interpretations for lawns, landscaping, and golf fairways evaluate the following soil properties at varying depths in the soil: Flooding; ponding; wetness; slope; depth to bedrock; depth to a cemented pan; fragments greater than, equal to, or less than 3 inches in diameter; Unified class for high organic matter content (PT, OL, OH); soil dustiness; sand and clay content of the surface layer; surface fragments greater than or equal to 10 inches in diameter; soil pH; salinity (EC); sodium content (SAR); and content of calcium carbonates and sulfur.

Table 10a.--Building Site Development (Part 1)

(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 potential limitation. As many as three limitations are listed for each component. There may be more limitations. Fine-earth fraction and coarse fragment content are given on a weight basis. A brief summary of the rating criteria and a definition of some of the abbreviations are given at the end of the table. See text for more information on the limitations)

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitations	Value	Limitations	Value	Limitations	Value
100:							
Chumash	35	Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
Boades	25	Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
Malibu	25	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to soft bedrock 20 to 40"	0.71	Shrink-swell (LEP 3 to 6)	0.50
				Shrink-swell (LEP 3 to 6)	0.50		
101:							
Chumash	35	Depth to soft bedrock <20"	1.00	Depth to soft bedrock <20"	1.00	Depth to soft bedrock <20"	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Slopes >8 percent	1.00
		Slopes 8 to 15 percent	0.16	Slopes 8 to 15 percent	0.16	Shrink-swell (LEP 3 to 6)	0.50
Boades	25	Depth to soft bedrock <20"	1.00	Depth to soft bedrock <20"	1.00	Depth to soft bedrock <20"	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Slopes >8 percent	1.00
		Slopes 8 to 15 percent	0.16	Slopes 8 to 15 percent	0.16	Shrink-swell (LEP 3 to 6)	0.50
Malibu	25	Shrink-swell (LEP 3 to 6)	0.50	Depth to soft bedrock 20 to 40"	0.71	Slopes >8 percent	1.00
		Slopes 8 to 15 percent	0.16			Shrink-swell (LEP 3 to 6)	0.50
				Shrink-swell (LEP 3 to 6)	0.50		
				Slopes 8 to 15 percent	0.16		
110:							
Malibu	35	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to soft bedrock 20 to 40"	0.71	Shrink-swell (LEP 3 to 6)	0.50
				Shrink-swell (LEP 3 to 6)	0.50		
Chumash	30	Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50

Table 10a.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Limitations	Value	Dwellings with basements: Limitations	Value	Small commercial buildings: Limitations	Value
110:							
Boades	25	Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
120:							
Mipolomol	45	Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
Topanga	40	Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00	Slopes >8 percent	1.00
121:							
Mipolomol	35	Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
Topanga	35	Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00	Slopes >8 percent	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
122:							
Calcic Haploxerepts	50	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
				Depth to soft bedrock 20 to 40"	0.38		
Mollic Haploxeralfs	35	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
				Depth to soft bedrock 20 to 40"	0.08		
130:							
Camarillo, coastal	85	Ponded (any duration)	1.00	Ponded (any duration)	1.00	Ponded (any duration)	1.00
		Flooding >/=rare	1.00	Flooding >/=rare	1.00	Flooding >/=rare	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
140:							
Sulfic Fluvaquents	100	Ponded (any duration)	1.00	Ponded (any duration)	1.00	Ponded (any duration)	1.00
		Flooding >/=rare	1.00	Flooding >/=rare	1.00	Flooding >/=rare	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00

Table 10a.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Limitations	Value	Dwellings with basements: Limitations	Value	Small commercial buildings: Limitations	Value
150:							
Abaft	60	None		None		None	
Beaches	30	Not rated		Not rated		Not rated	
151:							
Abaft	55	None		None		None	
Beaches	30	Not rated		Not rated		Not rated	
Urban land	15	Not rated		Not rated		Not rated	
160:							
Xerorthents, landscaped	95	None		None		Slopes 4 to 8 percent	0.38
170:							
Cotharin	85	Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
171:							
Cotharin	65	Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
Rock outcrop	20	Not rated		Not rated		Not rated	
175:							
Cotharin	70	Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
Talepop	15	Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
176:							
Cotharin	70	Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
Talepop	15	Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50

Table 10a.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Limitations	Value	Dwellings with basements: Limitations	Value	Small commercial buildings: Limitations	Value
178:							
Cotharin----------	35	Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
Talepop----------	35	Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
Urban land----------	15	Not rated		Not rated		Not rated	
179:							
Cotharin, dry----------	80	Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
180:							
Pits and Dumps----------	100	Not rated		Not rated		Not rated	
190:							
Kayiwish, gently sloping	65	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
				Depth to soft bedrock 20 to 40"	0.92	Slopes 4 to 8 percent	0.26
Kayiwish, nearly level--	20	Ponded (any duration)	1.00	Ponded (any duration)	1.00	Ponded (any duration)	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
				Depth to soft bedrock <20"	0.99		
191:							
Kayiwish, gently sloping	65	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Slopes >8 percent	1.00
		Slopes 8 to 15 percent	0.63	Depth to soft bedrock 20 to 40"	0.92	Shrink-swell (LEP >6)	1.00
				Slopes 8 to 15 percent	0.63		
Kayiwish, steeply sloping----------	20	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Slopes >8 percent	1.00
		Slopes >15 percent	1.00	Slopes >15 percent	1.00	Shrink-swell (LEP >6)	1.00
				Depth to soft bedrock 20 to 40"	0.92		
200:							
Cumulic Haploxerolls----	85	Flooding >/=rare	1.00	Flooding >/=rare	1.00	Flooding >/=rare	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
						Slopes 4 to 8 percent	0.38

Table 10a.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Limitations	Value	Dwellings with basements: Limitations	Value	Small commercial buildings: Limitations	Value
202:							
Fluvaquents	70	Flooding >/=rare	1.00	Flooding >/=rare	1.00	Flooding >/=rare	1.00
		Saturated to <18"	1.00	Saturated to <30"	1.00	Saturated to <18"	1.00
Riverwash	20	Ponded (any duration)	1.00	Ponded (any duration)	1.00	Ponded (any duration)	1.00
		Flooding >/=rare	1.00	Flooding >/=rare	1.00	Flooding >/=rare	1.00
220:							
Elder, coastal	85	Flooding >/=rare	1.00	Flooding >/=rare	1.00	Flooding >/=rare	1.00
230:							
Cotharin	70	Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
Talepop	15	Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
231:							
Talepop	50	Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
Rock outcrop	35	Not rated		Not rated		Not rated	
240:							
Tongva	45	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
				Depth to soft bedrock 20 to 40"	0.50		
Cotharin	30	Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
Rock outcrop	15	Not rated		Not rated		Not rated	
241:							
Cotharin	55	Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
Rock outcrop	15	Not rated		Not rated		Not rated	

Table 10a.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Limitations	Value	Dwellings with basements: Limitations	Value	Small commercial buildings: Limitations	Value
241:							
Tongva	15	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
				Depth to soft bedrock 20 to 40"	0.50		
250:							
Urban land	75	Not rated		Not rated		Not rated	
Xerorthents, landscaped	25	None		None		None	
251:							
Urban land	75	Not rated		Not rated		Not rated	
Tongva	20	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Slopes >8 percent	1.00
		Slopes 8 to 15 percent	0.16	Depth to soft bedrock 20 to 40"	0.50	Shrink-swell (LEP 3 to 6)	0.50
				Slopes 8 to 15 percent	0.16		
252:							
Urban land	70	Not rated		Not rated		Not rated	
Xerorthents, landscaped	25	Flooding >/=rare	1.00	Flooding >/=rare	1.00	Flooding >/=rare	1.00
270:							
Pacheco, coastal	90	Flooding >/=rare	1.00	Flooding >/=rare	1.00	Flooding >/=rare	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
290:							
Topanga	40	Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00	Slopes >8 percent	1.00
Mipolomol	30	Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
Sapwi	15	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to hard bedrock <40"	1.00	Shrink-swell (LEP 3 to 6)	0.50
		Fragments (>3") 25 to 50 percent	0.25	Shrink-swell (LEP 3 to 6)	0.50	Fragments (>3") 25 to 50 percent	0.25
300:							
Zumaridge	55	Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Slopes >15 percent	1.00	Depth to hard bedrock <40"	1.00	Slopes >8 percent	1.00
		Depth to hard bedrock <20"	1.00	Depth to soft bedrock <20"	1.00	Depth to hard bedrock <20"	1.00

Table 10a.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitations	Value	Limitations	Value	Limitations	Value
300:							
Kawenga	30	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
301:							
Zumaridge	55	Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Slopes >15 percent	1.00	Depth to hard bedrock <40"	1.00	Slopes >8 percent	1.00
		Depth to hard bedrock <20"	1.00	Depth to soft bedrock <20"	1.00	Depth to hard bedrock <20"	1.00
Kawenga	30	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
302:							
Zumaridge	40	Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Slopes >15 percent	1.00	Depth to hard bedrock <40"	1.00	Slopes >8 percent	1.00
		Depth to hard bedrock <20"	1.00	Depth to soft bedrock <20"	1.00	Depth to hard bedrock <20"	1.00
Rock outcrop	35	Not rated		Not rated		Not rated	
Sumiwawa	15	Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Slopes >15 percent	1.00	Depth to hard bedrock <40"	1.00	Slopes >8 percent	1.00
		Depth to hard bedrock 20 to 40"	0.98	Depth to soft bedrock <20"	1.00	Depth to hard bedrock 20 to 40"	0.98
303:							
Zumaridge	40	Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Slopes >15 percent	1.00	Depth to hard bedrock <40"	1.00	Slopes >8 percent	1.00
		Depth to hard bedrock <20"	1.00	Depth to soft bedrock <20"	1.00	Depth to hard bedrock <20"	1.00
Rock outcrop	35	Not rated		Not rated		Not rated	
Sumiwawa	15	Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Slopes >15 percent	1.00	Depth to hard bedrock <40"	1.00	Slopes >8 percent	1.00
		Depth to hard bedrock 20 to 40"	0.98	Depth to soft bedrock <20"	1.00	Depth to hard bedrock 20 to 40"	0.98
304:							
Zumaridge	45	Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Slopes >15 percent	1.00	Depth to hard bedrock <40"	1.00	Slopes >8 percent	1.00
		Depth to hard bedrock <20"	1.00	Depth to soft bedrock <20"	1.00	Depth to hard bedrock <20"	1.00
Sapwi	20	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to hard bedrock <40"	1.00	Shrink-swell (LEP 3 to 6)	0.50
		Fragments (>3") 25 to 50 percent	0.25	Shrink-swell (LEP 3 to 6)	0.50	Fragments (>3") 25 to 50 percent	0.25

Table 10a.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Limitations	Value	Dwellings with basements: Limitations	Value	Small commercial buildings: Limitations	Value
304:							
Kawenga	20	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
305:							
Zumaridge	65	Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Slopes >15 percent	1.00	Depth to hard bedrock <40"	1.00	Slopes >8 percent	1.00
		Depth to hard bedrock <20"	1.00	Depth to soft bedrock <20"	1.00	Depth to hard bedrock <20"	1.00
Rock outcrop	20	Not rated		Not rated		Not rated	
310:							
Gaviota	85	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Depth to hard bedrock <20"	1.00	Depth to hard bedrock <40"	1.00	Depth to hard bedrock <20"	1.00
311:							
Gaviota, northerly aspect	75	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Depth to hard bedrock <20"	1.00	Depth to hard bedrock <40"	1.00	Depth to hard bedrock <20"	1.00
Rock outcrop	20	Not rated		Not rated		Not rated	
320:							
Botella	85	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Slopes 4 to 8 percent	0.50
						Shrink-swell (LEP 3 to 6)	0.50
330:							
Linne	40	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
				Depth to soft bedrock 20 to 40"	0.46		
Los Osos	25	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
				Depth to soft bedrock 20 to 40"	0.08		
Haploxerepts	20	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50

Table 10a.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Limitations	Value	Dwellings with basements: Limitations	Value	Small commercial buildings: Limitations	Value
331:							
Linne	75	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
				Depth to soft bedrock 20 to 40"	0.46		
332:							
Linne	85	Slopes 8 to 15 percent	0.63	Slopes 8 to 15 percent	0.63	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
				Depth to soft bedrock 20 to 40"	0.46		
350:							
Los Osos	85	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
				Depth to soft bedrock 20 to 40"	0.08		
390:							
Danville, coastal	80	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
						Slopes 4 to 8 percent	0.50
Urban land	15	Not rated		Not rated		Not rated	
391:							
Danville, coastal	85	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Slopes >8 percent	1.00
		Slopes 8 to 15 percent	0.63	Slopes 8 to 15 percent	0.63	Shrink-swell (LEP >6)	1.00
400:							
Pachic Argixerolls, coastal	85	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to soft bedrock 20 to 40"	0.92	Shrink-swell (LEP 3 to 6)	0.50
				Shrink-swell (LEP 3 to 6)	0.50		
410:							
Lockwood, coastal	80	Slopes 8 to 15 percent	0.63	Slopes 8 to 15 percent	0.63	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
Urban land	20	Not rated		Not rated		Not rated	
411:							
Lockwood, coastal	80	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Slopes 4 to 8 percent	0.50
						Shrink-swell (LEP 3 to 6)	0.50
Urban land	20	Not rated		Not rated		Not rated	

Table 10a.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitations	Value	Limitations	Value	Limitations	Value
430:							
Cropley, coastal--------	85	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
						Slopes 4 to 8 percent	0.50
431:							
Cropley, coastal--------	50	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
						Slopes 4 to 8 percent	0.38
Cropley----------	35	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Slopes >8 percent	1.00
		Slopes 8 to 15 percent	0.63	Slopes 8 to 15 percent	0.63	Shrink-swell (LEP >6)	1.00
432:							
Cropley, coastal--------	85	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
433:							
Cropley, coastal--------	40	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
						Slopes 4 to 8 percent	0.38
Urban land----------	25	Not rated		Not rated		Not rated	
Haploxererts----------	20	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Slopes >8 percent	1.00
		Slopes >15 percent	1.00	Slopes >15 percent	1.00	Shrink-swell (LEP >6)	1.00
434:							
Cropley, coastal--------	35	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
						Slopes 4 to 8 percent	0.38
Xerorthents, landscaped	35	None		None		None	
Urban land----------	25	Not rated		Not rated		Not rated	
450:							
Sapwi----------	85	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to hard bedrock <40"	1.00	Shrink-swell (LEP 3 to 6)	0.50
		Fragments (>3") 25 to 50 percent	0.25	Shrink-swell (LEP 3 to 6)	0.50	Fragments (>3") 25 to 50 percent	0.25
451:							
Urban land----------	65	Not rated		Not rated		Not rated	
Sapwi----------	20	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to hard bedrock <40"	1.00	Shrink-swell (LEP 3 to 6)	0.50
		Fragments (>3") 25 to 50 percent	0.25	Shrink-swell (LEP 3 to 6)	0.50	Fragments (>3") 25 to 50 percent	0.25

Table 10a.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Limitations	Value	Dwellings with basements: Limitations	Value	Small commercial buildings: Limitations	Value
460:							
Typic Haploxerepts------	85	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
				Depth to soft bedrock 20 to 40"	0.01		
461:							
Typic Haploxerepts------	85	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
				Depth to soft bedrock 20 to 40"	0.01		
470:							
Sumiwawa----------	40	Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Slopes >15 percent	1.00	Depth to hard bedrock <40"	1.00	Slopes >8 percent	1.00
		Depth to hard bedrock 20 to 40"	0.98	Depth to soft bedrock <20"	1.00	Depth to hard bedrock 20 to 40"	0.98
Hipuk----------	30	Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Slopes >15 percent	1.00	Depth to hard bedrock <40"	1.00	Slopes >8 percent	1.00
		Depth to hard bedrock 20 to 40"	0.92	Depth to soft bedrock <20"	1.00	Depth to hard bedrock 20 to 40"	0.92
Rock outcrop----------	20	Not rated		Not rated		Not rated	
472:							
Rock outcrop----------	45	Not rated		Not rated		Not rated	
Sumiwawa----------	30	Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Slopes >15 percent	1.00	Depth to hard bedrock <40"	1.00	Slopes >8 percent	1.00
		Depth to hard bedrock 20 to 40"	0.98	Depth to soft bedrock <20"	1.00	Depth to hard bedrock 20 to 40"	0.98
Hipuk----------	15	Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Slopes >15 percent	1.00	Depth to hard bedrock <40"	1.00	Slopes >8 percent	1.00
		Depth to hard bedrock 20 to 40"	0.92	Depth to soft bedrock <20"	1.00	Depth to hard bedrock 20 to 40"	0.92
500:							
Balcom----------	85	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
				Depth to soft bedrock 20 to 40"	0.04		

Table 10a.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Limitations	Value	Dwellings with basements: Limitations	Value	Small commercial buildings: Limitations	Value
503:							
Balcom	70	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
				Depth to soft bedrock 20 to 40"	0.04		
Balcom, dark surface	15	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
				Depth to soft bedrock 20 to 40"	0.01		
530:							
Xerorthents, landscaped	45	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >8 percent	1.00
Urban land	35	Not rated		Not rated		Not rated	
Balcom	15	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
				Depth to soft bedrock 20 to 40"	0.04		
531:							
Xerorthents, landscaped	40	Slopes 8 to 15 percent	0.16	Slopes 8 to 15 percent	0.16	Slopes >8 percent	1.00
Urban land	35	Not rated		Not rated		Not rated	
Balcom	20	Slopes 8 to 15 percent	0.63	Slopes 8 to 15 percent	0.63	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
				Depth to soft bedrock 20 to 40"	0.04		
532:							
Xerorthents, landscaped	50	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >8 percent	1.00
Urban land	35	Not rated		Not rated		Not rated	
Pachic Argixerolls, gullied	15	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to soft bedrock 20 to 40"	0.92	Shrink-swell (LEP 3 to 6)	0.50
				Shrink-swell (LEP 3 to 6)	0.50		

Table 10a.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitations	Value	Limitations	Value	Limitations	Value
540:							
Calcic Argixerolls------	85	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50	Shrink-swell (LEP 3 to 6)	0.50
				Depth to soft bedrock 20 to 40"	0.02		
550:							
Dam----------	100	Not rated		Not rated		Not rated	
W:							
Water----------	100	Not rated		Not rated		Not rated	

The interpretations for dwellings without basements evaluate the following soil properties, some at varying depths in the soil: Flooding, ponding, wetness, slope, subsidence of organic soils, shrink-swell expressed as linear extensibility percent (LEP), organic Unified classes for low soil strength (PT, OL or OH), depth to hard or soft bedrock, depth to a thick or thin cemented pan, and fragments greater than 3 inches in diameter.

The interpretations for dwellings with basements evaluate the following soil properties, some at varying depths in the soil: Flooding, ponding, wetness, slope, subsidence of organic soils, shrink-swell potential expressed as linear extensibility percent (LEP), organic Unified classes for low strength (PT, OL, OH), depth to hard or soft bedrock, depth to a thick or thin cemented pan, and fragments greater than 3 inches in diameter.

The interpretations for small commercial buildings evaluate the following soil properties, some at varying depths in the soil: Flooding, ponding, wetness, slope, subsidence of organic soils, shrink-swell potential expressed as linear extensibility percent (LEP), depth to hard or soft bedrock, depth to a thick or thin cemented pan, and fragments greater than 3 inches in diameter.

Table 10b.--Building Site Development (Part 2)

(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 potential limitation. As many as three limitations are listed for each component. There may be more limitations. Fine-earth fraction and coarse fragment content are given on a weight basis. A brief summary of the rating criteria and a definition of some of the abbreviations are given at the end of the table. See text for further explanation of the limitations)

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitations	Value	Limitations	Value
100:					
Chumash	35	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Low caving potential	0.10
Boades	25	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00
		AASHTO GI 5 to 8 (soil strength)	0.78	Low caving potential	0.10
Malibu	25	Slopes >15 percent	1.00	Slopes >15 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to soft bedrock 20 to 40"	0.71
		AASHTO GI 5 to 8 (soil strength)	0.22	Clay content 40 to 60 percent	0.28
101:					
Chumash	35	Depth to soft bedrock <20"	1.00	Depth to soft bedrock <20"	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Slopes 8 to 15 percent	0.16
		Slopes 8 to 15 percent	0.16	Low caving potential	0.10
Boades	25	Depth to soft bedrock <20"	1.00	Depth to soft bedrock <20"	1.00
		AASHTO GI 5 to 8 (soil strength)	0.78	Slopes 8 to 15 percent	0.16
		Shrink-swell (LEP 3 to 6)	0.50	Low caving potential	0.10
Malibu	25	Shrink-swell (LEP 3 to 6)	0.50	Depth to soft bedrock 20 to 40"	0.71
		AASHTO GI 5 to 8 (soil strength)	0.22	Clay content 40 to 60 percent	0.28
		Slopes 8 to 15 percent	0.16	Slopes 8 to 15 percent	0.16
110:					
Malibu	35	Slopes >15 percent	1.00	Slopes >15 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to soft bedrock 20 to 40"	0.71
		AASHTO GI 5 to 8 (soil strength)	0.22	Clay content 40 to 60 percent	0.28
Chumash	30	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Low caving potential	0.10
Boades	25	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00
		AASHTO GI 5 to 8 (soil strength)	0.78	Low caving potential	0.10

Table 10b.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Limitations	Value	Shallow excavations: Limitations	Value
120:					
Mipolomol	45	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Low caving potential	0.10
Topanga	40	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00
				Low caving potential	0.10
121:					
Mipolomol	35	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Low caving potential	0.10
Topanga	35	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00
				Low caving potential	0.10
Rock outcrop	15	Not rated		Not rated	
122:					
Calcic Haploxerepts	50	Slopes >15 percent	1.00	Slopes >15 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	High caving potential	1.00
		AASHTO GI 5 to 8 (soil strength)	0.22	Depth to soft bedrock 20 to 40"	0.38
Mollic Haploxeralfs	35	Slopes >15 percent	1.00	Slopes >15 percent	1.00
		AASHTO GI >8 (low soil strength)	1.00	Low caving potential	0.10
		Shrink-swell (LEP 3 to 6)	0.50	Depth to soft bedrock 20 to 40"	0.08
130:					
Camarillo, coastal	85	Ponded (any duration)	1.00	Ponded (any duration)	1.00
		Flooding >/=occasional	1.00	High caving potential	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Frequent or occasional flooding	0.50
140:					
Sulfic Fluvaquents	100	Ponded (any duration)	1.00	Ponded (any duration)	1.00
		Flooding >/=occasional	1.00	Clay content 40 to 60 percent	0.50
		Shrink-swell (LEP >6)	1.00	Frequent or occasional flooding	0.50
150:					
Abaft	60	None		High caving potential	1.00
Beaches	30	Not rated		Not rated	

Table 10b.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Limitations	Value	Shallow excavations: Limitations	Value
151:					
Abaft	55	None		High caving potential	1.00
Beaches	30	Not rated		Not rated	
Urban land	15	Not rated		Not rated	
160:					
Xerorthents, landscaped	95	None		Low caving potential	0.10
170:					
Cotharin	85	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00
		AASHTO GI >8 (low soil strength)	1.00	Low caving potential	0.10
171:					
Cotharin	65	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00
		AASHTO GI >8 (low soil strength)	1.00	Low caving potential	0.10
Rock outcrop	20	Not rated		Not rated	
175:					
Cotharin	70	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00
		AASHTO GI >8 (low soil strength)	1.00	Low caving potential	0.10
Talepop	15	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Low caving potential	0.10
176:					
Cotharin	70	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00
		AASHTO GI >8 (low soil strength)	1.00	Low caving potential	0.10
Talepop	15	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Low caving potential	0.10
178:					
Cotharin	35	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00
		AASHTO GI >8 (low soil strength)	1.00	Low caving potential	0.10

Table 10b.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Limitations	Value	Shallow excavations: Limitations	Value
178:					
Talepop	35	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Low caving potential	0.10
Urban land	15	Not rated		Not rated	
179:					
Cotharin, dry	80	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00
		AASHTO GI >8 (low soil strength)	1.00	Low caving potential	0.10
180:					
Pits and Dumps	100	Not rated		Not rated	
190:					
Kayiwish, gently sloping	65	AASHTO GI >8 (low soil strength)	1.00	High caving potential	1.00
		Shrink-swell (LEP >6)	1.00	Depth to soft bedrock 20 to 40"	0.92
				Clay content 40 to 60 percent	0.28
Kayiwish, nearly level	20	AASHTO GI >8 (low soil strength)	1.00	Ponded (any duration)	1.00
		Ponded (any duration)	1.00	High caving potential	1.00
		Shrink-swell (LEP >6)	1.00	Depth to soft bedrock <20"	0.99
191:					
Kayiwish, gently sloping	65	AASHTO GI >8 (low soil strength)	1.00	High caving potential	1.00
		Shrink-swell (LEP >6)	1.00	Depth to soft bedrock 20 to 40"	0.92
		Slopes 8 to 15 percent	0.63	Slopes 8 to 15 percent	0.63
Kayiwish, steeply sloping	20	AASHTO GI >8 (low soil strength)	1.00	High caving potential	1.00
		Shrink-swell (LEP >6)	1.00	Slopes >15 percent	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock 20 to 40"	0.92
200:					
Cumulic Haploxerolls	85	Flooding >/=occasional	1.00	High caving potential	1.00
		AASHTO GI >8 (low soil strength)	1.00	Frequent or occasional flooding	0.50
		Shrink-swell (LEP 3 to 6)	0.50		
202:					
Fluvaquents	70	Flooding >/=occasional	1.00	Saturated to <30"	1.00
		Saturated to <12"	0.99	High caving potential	1.00
				Frequent or occasional flooding	0.50
Riverwash	20	Ponded (any duration)	1.00	Ponded (any duration)	1.00
		Flooding >/=occasional	1.00	Frequent or occasional flooding	0.50
				Low caving potential	0.10

Table 10b.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Limitations	Value	Shallow excavations: Limitations	Value
220:					
Elder, coastal	85	Rare flooding	0.50	High caving potential	1.00
230:					
Cotharin	70	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00
		AASHTO GI >8 (low soil strength)	1.00	Low caving potential	0.10
Talepop	15	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Low caving potential	0.10
231:					
Talepop	50	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Low caving potential	0.10
Rock outcrop	35	Not rated		Not rated	
240:					
Tongva	45	Slopes >15 percent	1.00	Slopes >15 percent	1.00
		AASHTO GI 5 to 8 (soil strength)	0.78	Depth to soft bedrock 20 to 40"	0.50
		Shrink-swell (LEP 3 to 6)	0.50	Low caving potential	0.10
Cotharin	30	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00
		AASHTO GI >8 (low soil strength)	1.00	Low caving potential	0.10
Rock outcrop	15	Not rated		Not rated	
241:					
Cotharin	55	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00
		AASHTO GI >8 (low soil strength)	1.00	Low caving potential	0.10
Rock outcrop	15	Not rated		Not rated	
Tongva	15	Slopes >15 percent	1.00	Slopes >15 percent	1.00
		AASHTO GI 5 to 8 (soil strength)	0.78	Depth to soft bedrock 20 to 40"	0.50
		Shrink-swell (LEP 3 to 6)	0.50	Low caving potential	0.10
250:					
Urban land	75	Not rated		Not rated	
Xerorthents, landscaped	25	None		Low caving potential	0.10

Table 10b.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Limitations	Value	Shallow excavations: Limitations	Value
251:					
Urban land	75	Not rated		Not rated	
Tongva	20	AASHTO GI 5 to 8 (soil strength)	0.78	Depth to soft bedrock 20 to 40"	0.50
		Shrink-swell (LEP 3 to 6)	0.50	Slopes 8 to 15 percent	0.16
		Slopes 8 to 15 percent	0.16	Low caving potential	0.10
252:					
Urban land	70	Not rated		Not rated	
Xerorthents, landscaped	25	Rare flooding	0.50	Low caving potential	0.10
270:					
Pacheco, coastal	90	AASHTO GI >8 (low soil strength)	1.00	High caving potential	1.00
		Shrink-swell (LEP 3 to 6)	0.50		
		Rare flooding	0.50		
290:					
Topanga	40	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00
				Low caving potential	0.10
Mipolomol	30	Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Low caving potential	0.10
Sapwi	15	Slopes >15 percent	1.00	Depth to hard bedrock <40"	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Slopes >15 percent	1.00
		Fragments (>3") 25 to 50 percent	0.25	Fragments (>3") 25 to 50 percent	0.25
300:					
Zumaridge	55	Depth to hard bedrock <20"	1.00	Depth to hard bedrock <40"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00
Kawenga	30	Slopes >15 percent	1.00	Slopes >15 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	High caving potential	1.00
301:					
Zumaridge	55	Depth to hard bedrock <20"	1.00	Depth to hard bedrock <40"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00
Kawenga	30	Slopes >15 percent	1.00	Slopes >15 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	High caving potential	1.00

Table 10b.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Limitations	Value	Shallow excavations: Limitations	Value
302:					
Zumaridge	40	Depth to hard bedrock <20"	1.00	Depth to hard bedrock <40"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00
Rock outcrop	35	Not rated		Not rated	
Sumiwawa	15	Slopes >15 percent	1.00	Depth to hard bedrock <40"	1.00
		Depth to soft bedrock <20"	1.00	Depth to soft bedrock <20"	1.00
		Depth to hard bedrock 20 to 40"	0.98	Slopes >15 percent	1.00
303:					
Zumaridge	40	Depth to hard bedrock <20"	1.00	Depth to hard bedrock <40"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00
Rock outcrop	35	Not rated		Not rated	
Sumiwawa	15	Slopes >15 percent	1.00	Depth to hard bedrock <40"	1.00
		Depth to soft bedrock <20"	1.00	Depth to soft bedrock <20"	1.00
		Depth to hard bedrock 20 to 40"	0.98	Slopes >15 percent	1.00
304:					
Zumaridge	45	Depth to hard bedrock <20"	1.00	Depth to hard bedrock <40"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00
Sapwi	20	Slopes >15 percent	1.00	Depth to hard bedrock <40"	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Slopes >15 percent	1.00
		Fragments (>3") 25 to 50 percent	0.25	Fragments (>3") 25 to 50 percent	0.25
Kawenga	20	Slopes >15 percent	1.00	Slopes >15 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	High caving potential	1.00
305:					
Zumaridge	65	Depth to hard bedrock <20"	1.00	Depth to hard bedrock <40"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <20"	1.00
		Depth to soft bedrock <20"	1.00	Slopes >15 percent	1.00
Rock outcrop	20	Not rated		Not rated	
310:					
Gaviota	85	Depth to hard bedrock <20"	1.00	Depth to hard bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >15 percent	1.00
				Low caving potential	0.10

Table 10b.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Limitations	Value	Shallow excavations: Limitations	Value
311:					
Gaviota, northerly aspect	75	Depth to hard bedrock <20"	1.00	Depth to hard bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >15 percent	1.00
				Low caving potential	0.10
Rock outcrop	20	Not rated		Not rated	
320:					
Botella	85	AASHTO GI >8 (low soil strength)	1.00	Low caving potential	0.10
		Shrink-swell (LEP 3 to 6)	0.50		
330:					
Linne	40	AASHTO GI >8 (low soil strength)	1.00	Slopes >15 percent	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock 20 to 40"	0.46
		Shrink-swell (LEP 3 to 6)	0.50	Low caving potential	0.10
Los Osos	25	AASHTO GI >8 (low soil strength)	1.00	Slopes >15 percent	1.00
		Slopes >15 percent	1.00	Low caving potential	0.10
		Shrink-swell (LEP >6)	1.00	Depth to soft bedrock 20 to 40"	0.08
Haploxerepts	20	Slopes >15 percent	1.00	Slopes >15 percent	1.00
		AASHTO GI >8 (low soil strength)	1.00	Low caving potential	0.10
		Shrink-swell (LEP 3 to 6)	0.50		
331:					
Linne	75	AASHTO GI >8 (low soil strength)	1.00	Slopes >15 percent	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock 20 to 40"	0.46
		Shrink-swell (LEP 3 to 6)	0.50	Low caving potential	0.10
332:					
Linne	85	AASHTO GI >8 (low soil strength)	1.00	Slopes 8 to 15 percent	0.63
		Slopes 8 to 15 percent	0.63	Depth to soft bedrock 20 to 40"	0.46
		Shrink-swell (LEP 3 to 6)	0.50	Low caving potential	0.10
350:					
Los Osos	85	AASHTO GI >8 (low soil strength)	1.00	Slopes >15 percent	1.00
		Slopes >15 percent	1.00	Low caving potential	0.10
		Shrink-swell (LEP >6)	1.00	Depth to soft bedrock 20 to 40"	0.08
390:					
Danville, coastal	80	AASHTO GI >8 (low soil strength)	1.00	Low caving potential	0.10
		Shrink-swell (LEP >6)	1.00	Clay content 40 to 60 percent	0.03
Urban land	15	Not rated		Not rated	

Table 10b.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Limitations	Value	Shallow excavations: Limitations	Value
391:					
Danville, coastal	85	AASHTO GI >8 (low soil strength)	1.00	Slopes 8 to 15 percent	0.63
		Shrink-swell (LEP >6)	1.00	Low caving potential	0.10
		Slopes 8 to 15 percent	0.63	Clay content 40 to 60 percent	0.03
400:					
Pachic Argixerolls, coastal	85	Slopes >15 percent	1.00	Slopes >15 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	High caving potential	1.00
				Depth to soft bedrock 20 to 40"	0.92
410:					
Lockwood, coastal	80	Slopes 8 to 15 percent	0.63	High caving potential	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Slopes 8 to 15 percent	0.63
Urban land	20	Not rated		Not rated	
411:					
Lockwood, coastal	80	Shrink-swell (LEP 3 to 6)	0.50	High caving potential	1.00
Urban land	20	Not rated		Not rated	
430:					
Cropley, coastal	85	AASHTO GI >8 (low soil strength)	1.00	High caving potential	1.00
		Shrink-swell (LEP >6)	1.00	Clay content 40 to 60 percent	0.28
431:					
Cropley, coastal	50	AASHTO GI >8 (low soil strength)	1.00	High caving potential	1.00
		Shrink-swell (LEP >6)	1.00	Clay content 40 to 60 percent	0.28
Cropley	35	AASHTO GI >8 (low soil strength)	1.00	High caving potential	1.00
		Shrink-swell (LEP >6)	1.00	Slopes 8 to 15 percent	0.63
		Slopes 8 to 15 percent	0.63	Clay content 40 to 60 percent	0.28
432:					
Cropley, coastal	85	AASHTO GI >8 (low soil strength)	1.00	High caving potential	1.00
		Shrink-swell (LEP >6)	1.00	Clay content 40 to 60 percent	0.28
433:					
Cropley, coastal	40	AASHTO GI >8 (low soil strength)	1.00	High caving potential	1.00
		Shrink-swell (LEP >6)	1.00	Clay content 40 to 60 percent	0.28
Urban land	25	Not rated		Not rated	
Haploxererts	20	AASHTO GI >8 (low soil strength)	1.00	High caving potential	1.00
		Shrink-swell (LEP >6)	1.00	Slopes >15 percent	1.00
		Slopes >15 percent	1.00	Clay content 40 to 60 percent	0.50

Table 10b.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Limitations	Value	Shallow excavations: Limitations	Value
434:					
Cropley, coastal	35	AASHTO GI >8 (low soil strength)	1.00	High caving potential	1.00
		Shrink-swell (LEP >6)	1.00	Clay content 40 to 60 percent	0.28
Xerorthents, landscaped	35	None		Low caving potential	0.10
Urban land	25	Not rated		Not rated	
450:					
Sapwi	85	Slopes >15 percent	1.00	Depth to hard bedrock <40"	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Slopes >15 percent	1.00
		Fragments (>3") 25 to 50 percent	0.25	Fragments (>3") 25 to 50 percent	0.25
451:					
Urban land	65	Not rated		Not rated	
Sapwi	20	Slopes >15 percent	1.00	Depth to hard bedrock <40"	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Slopes >15 percent	1.00
		Fragments (>3") 25 to 50 percent	0.25	Fragments (>3") 25 to 50 percent	0.25
460:					
Typic Haploxerepts	85	Slopes >15 percent	1.00	Slopes >15 percent	1.00
		AASHTO GI 5 to 8 (soil strength)	0.78	Low caving potential	0.10
		Shrink-swell (LEP 3 to 6)	0.50	Depth to soft bedrock 20 to 40"	0.01
461:					
Typic Haploxerepts	85	Slopes >15 percent	1.00	Slopes >15 percent	1.00
		AASHTO GI 5 to 8 (soil strength)	0.78	Low caving potential	0.10
		Shrink-swell (LEP 3 to 6)	0.50	Depth to soft bedrock 20 to 40"	0.01
470:					
Sumiwawa	40	Slopes >15 percent	1.00	Depth to hard bedrock <40"	1.00
		Depth to soft bedrock <20"	1.00	Depth to soft bedrock <20"	1.00
		Depth to hard bedrock 20 to 40"	0.98	Slopes >15 percent	1.00
Hipuk	30	Slopes >15 percent	1.00	Depth to hard bedrock <40"	1.00
		Depth to soft bedrock <20"	1.00	Depth to soft bedrock <20"	1.00
		Depth to hard bedrock 20 to 40"	0.92	Slopes >15 percent	1.00
Rock outcrop	20	Not rated		Not rated	
472:					
Rock outcrop	45	Not rated		Not rated	

Table 10b.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Limitations	Value	Shallow excavations: Limitations	Value
472:					
Sumiwawa	30	Slopes >15 percent	1.00	Depth to hard bedrock <40"	1.00
		Depth to soft bedrock <20"	1.00	Depth to soft bedrock <20"	1.00
		Depth to hard bedrock 20 to 40"	0.98	Slopes >15 percent	1.00
Hipuk	15	Slopes >15 percent	1.00	Depth to hard bedrock <40"	1.00
		Depth to soft bedrock <20"	1.00	Depth to soft bedrock <20"	1.00
		Depth to hard bedrock 20 to 40"	0.92	Slopes >15 percent	1.00
500:					
Balcom	85	AASHTO GI >8 (low soil strength)	1.00	Slopes >15 percent	1.00
		Slopes >15 percent	1.00	Low caving potential	0.10
		Shrink-swell (LEP 3 to 6)	0.50	Depth to soft bedrock 20 to 40"	0.04
503:					
Balcom	70	Slopes >15 percent	1.00	Slopes >15 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Low caving potential	0.10
				Depth to soft bedrock 20 to 40"	0.04
Balcom, dark surface	15	Slopes >15 percent	1.00	Slopes >15 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Low caving potential	0.10
				Depth to soft bedrock 20 to 40"	0.01
530:					
Xerorthents, landscaped	45	Slopes >15 percent	1.00	Slopes >15 percent	1.00
				Low caving potential	0.10
Urban land	35	Not rated		Not rated	
Balcom	15	Slopes >15 percent	1.00	Slopes >15 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Low caving potential	0.10
				Depth to soft bedrock 20 to 40"	0.04
531:					
Xerorthents, landscaped	40	Slopes 8 to 15 percent	0.16	Slopes 8 to 15 percent	0.16
				Low caving potential	0.10
Urban land	35	Not rated		Not rated	
Balcom	20	Slopes 8 to 15 percent	0.63	Slopes 8 to 15 percent	0.63
		Shrink-swell (LEP 3 to 6)	0.50	Low caving potential	0.10
				Depth to soft bedrock 20 to 40"	0.04

Table 10b.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Limitations	Local roads and streets: Value	Shallow excavations: Limitations	Shallow excavations: Value
532:					
Xerorthents, landscaped	50	Slopes >15 percent	1.00	Slopes >15 percent	1.00
				Low caving potential	0.10
Urban land	35	Not rated		Not rated	
Pachic Argixerolls, gullied	15	Slopes >15 percent	1.00	Slopes >15 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	High caving potential	1.00
				Depth to soft bedrock 20 to 40"	0.92
540:					
Calcic Argixerolls	85	Slopes >15 percent	1.00	Slopes >15 percent	1.00
		AASHTO GI >8 (low soil strength)	1.00	Low caving potential	0.10
		Shrink-swell (LEP 3 to 6)	0.50	Depth to soft bedrock 20 to 40"	0.02
550:					
Dam	100	Not rated		Not rated	
W:					
Water	100	Not rated		Not rated	

The interpretations for local roads and streets evaluate the following soil properties at varying depths in the soil: Flooding, ponding, wetness, slope, organic Unified classes for low soil strength (PT, OL or OH), amount of clay, depth to hard or soft bedrock, depth to a thick or thin cemented pan, fragments greater than 3 inches in diameter, soil bulk density, and the potential of the soil to cave in.

The interpretations for shallow excavation evaluate the following soil properties at varying depths in the soil: Flooding, ponding, wetness, slope, subsidence of organic soils, shrink-swell potential expressed as linear extensibility percent (LEP), potential frost action, depth to hard or soft bedrock, depth to a thick or thin cemented pan, fragments greater than 3 inches in diameter, and soil strength expressed as the AASHTO group index number (AASHTO GI).

Table 11a.--Sanitary Facilities (Part 1)

(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 potential limitation. As many as three limitations are listed for each component. There may be more limitations. Fine-earth fraction and coarse fragment content are given on a weight basis. A brief summary of the rating criteria is given at the end of the table. See text for further explanation of the limitations)

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Limitations	Value	Limitations	Value
100:					
Chumash	35	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Restricted permeability due to bedrock or hardpan	1.00		
Boades	25	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Restricted permeability due to bedrock or hardpan	1.00		
Malibu	25	Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00	Depth to soft bedrock <40"	1.00
				Slopes >8 percent	1.00
		Depth to bedrock <40"	1.00	Permeability 0.6 to 2.0"/hr (some seepage)	0.50
		Slopes >15 percent	1.00		
101:					
Chumash	35	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Restricted permeability due to bedrock or hardpan	1.00	Slopes >8 percent	1.00
		Slopes 8 to 15 percent	0.16		
Boades	25	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Restricted permeability due to bedrock or hardpan	1.00	Slopes >8 percent	1.00
		Slopes 8 to 15 percent	0.16		
Malibu	25	Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00	Depth to soft bedrock <40"	1.00
				Slopes >8 percent	1.00
		Depth to bedrock <40"	1.00	Permeability 0.6 to 2.0"/hr (some seepage)	0.50
		Slopes 8 to 15 percent	0.16		
110:					
Malibu	35	Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00	Depth to soft bedrock <40"	1.00
				Slopes >8 percent	1.00
		Depth to bedrock <40"	1.00	Permeability 0.6 to 2.0"/hr (some seepage)	0.50
		Slopes >15 percent	1.00		

Table 11a.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Limitations	Value	Sewage lagoons: Limitations	Value
110:					
Chumash	30	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Restricted permeability due to bedrock or hardpan	1.00		
Boades	25	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Restricted permeability due to bedrock or hardpan	1.00		
120:					
Mipolomol	45	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Restricted permeability due to bedrock or hardpan	1.00		
Topanga	40	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Restricted permeability due to bedrock or hardpan	1.00	Permeability 0.6 to 2.0"/hr (some seepage)	0.50
121:					
Mipolomol	35	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Restricted permeability due to bedrock or hardpan	1.00		
Topanga	35	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Restricted permeability due to bedrock or hardpan	1.00	Permeability 0.6 to 2.0"/hr (some seepage)	0.50
Rock outcrop	15	Not rated		Not rated	
122:					
Calcic Haploxerepts	50	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Permeability 0.6 to 2.0"/hr (slow percolation)	0.50	Permeability 0.6 to 2.0"/hr (some seepage)	0.50
Mollic Haploxeralfs	35	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00		

Table 11a.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Limitations	Value	Sewage lagoons: Limitations	Value
130:					
Camarillo, coastal	85	Flooding	1.00	Ponded (any duration)	1.00
		Ponded (any duration)	1.00	Flooding >/=occasional	1.00
		Seepage in bottom layer	1.00	Permeability >2"/hr (seepage)	1.00
140:					
Sulfic Fluvaquents	100	Flooding	1.00	Ponded (any duration)	1.00
		Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00	Flooding >/=occasional	1.00
		Ponded (any duration)	1.00		
150:					
Abaft	60	Seepage in bottom layer	1.00	Permeability >2"/hr (seepage)	1.00
		Permeability >6"/hr between 24 and 60" (seepage and poor filter)	1.00		
Beaches	30	Not rated		Not rated	
151:					
Abaft	55	Seepage in bottom layer	1.00	Permeability >2"/hr (seepage)	1.00
		Permeability >6"/hr between 24 and 60" (seepage and poor filter)	1.00		
Beaches	30	Not rated		Not rated	
Urban land	15	Not rated		Not rated	
160:					
Xerorthents, landscaped	95	Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00	Slopes 2 to 8 percent	0.58
		Depth to bedrock 40 to 72"	0.69	Depth to soft bedrock 40 to 60"	0.26
170:					
Cotharin	85	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Restricted permeability due to bedrock or hardpan	1.00		
171:					
Cotharin	65	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Restricted permeability due to bedrock or hardpan	1.00		
Rock outcrop	20	Not rated		Not rated	

Table 11a.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Limitations	Value	Sewage lagoons: Limitations	Value
175:					
Cotharin	70	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Restricted permeability due to bedrock or hardpan	1.00		
Talepop	15	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Restricted permeability due to bedrock or hardpan	1.00		
176:					
Cotharin	70	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Restricted permeability due to bedrock or hardpan	1.00		
Talepop	15	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Restricted permeability due to bedrock or hardpan	1.00		
178:					
Cotharin	35	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Restricted permeability due to bedrock or hardpan	1.00		
Talepop	35	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Restricted permeability due to bedrock or hardpan	1.00		
Urban land	15	Not rated		Not rated	
179:					
Cotharin, dry	80	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Restricted permeability due to bedrock or hardpan	1.00		
180:					
Pits and Dumps	100	Not rated		Not rated	

Table 11a.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Limitations	Value	Sewage lagoons: Limitations	Value
190:					
Kayiwish, gently sloping	65	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Restricted permeability due to bedrock or hardpan	1.00	Slopes 2 to 8 percent	0.50
Kayiwish, nearly level	20	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Ponded (any duration)	1.00	Ponded (any duration)	1.00
		Restricted permeability due to bedrock or hardpan	1.00		
191:					
Kayiwish, gently sloping	65	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Restricted permeability due to bedrock or hardpan	1.00	Slopes >8 percent	1.00
		Slopes 8 to 15 percent	0.63		
Kayiwish, steeply sloping	20	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Restricted permeability due to bedrock or hardpan	1.00		
200:					
Cumulic Haploxerolls	85	Flooding	1.00	Flooding >/=occasional	1.00
		Seepage in bottom layer	1.00	Slopes 2 to 8 percent	0.58
		Permeability 0.6 to 2.0"/hr (slow percolation)	0.50	Permeability 0.6 to 2.0"/hr (some seepage)	0.50
202:					
Fluvaquents	70	Flooding	1.00	Flooding >/=occasional	1.00
		Saturated to <48"	1.00	Permeability >2"/hr (seepage)	1.00
		Seepage in bottom layer	1.00		
Riverwash	20	Flooding	1.00	Ponded (any duration)	1.00
		Ponded (any duration)	1.00	Flooding >/=occasional	1.00
220:					
Elder, coastal	85	Seepage in bottom layer	1.00	Permeability >2"/hr (seepage)	1.00
		Rare flooding	0.40	Rare flooding	0.50
230:					
Cotharin	70	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Restricted permeability due to bedrock or hardpan	1.00		

Table 11a.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Limitations	Value	Sewage lagoons: Limitations	Value
230:					
Talepop	15	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Restricted permeability due to bedrock or hardpan	1.00		
231:					
Talepop	50	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Restricted permeability due to bedrock or hardpan	1.00		
Rock outcrop	35	Not rated		Not rated	
240:					
Tongva	45	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Permeability 0.6 to 2.0"/hr (slow percolation)	0.71	Permeability 0.6 to 2.0"/hr (some seepage)	0.29
Cotharin	30	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Restricted permeability due to bedrock or hardpan	1.00		
Rock outcrop	15	Not rated		Not rated	
241:					
Cotharin	55	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Restricted permeability due to bedrock or hardpan	1.00		
Rock outcrop	15	Not rated		Not rated	
Tongva	15	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Permeability 0.6 to 2.0"/hr (slow percolation)	0.71	Permeability 0.6 to 2.0"/hr (some seepage)	0.29
250:					
Urban land	75	Not rated		Not rated	
Xerorthents, landscaped	25	Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00	Depth to soft bedrock 40 to 60"	0.26
		Depth to bedrock 40 to 72"	0.69		

Table 11a.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Limitations	Value	Sewage lagoons: Limitations	Value
251:					
Urban land	75	Not rated		Not rated	
Tongva	20	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Permeability 0.6 to 2.0"/hr (slow percolation)	0.71	Slopes >8 percent	1.00
		Slopes 8 to 15 percent	0.16	Permeability 0.6 to 2.0"/hr (some seepage)	0.29
252:					
Urban land	70	Not rated		Not rated	
Xerorthents, landscaped	25	Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00	Rare flooding	0.50
		Depth to bedrock 40 to 72"	0.69	Depth to soft bedrock 40 to 60"	0.26
		Rare flooding	0.40	Slopes 2 to 8 percent	0.25
270:					
Pacheco, coastal	90	Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00	Rare flooding	0.50
		Rare flooding	0.40		
290:					
Topanga	40	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Restricted permeability due to bedrock or hardpan	1.00	Permeability 0.6 to 2.0"/hr (some seepage)	0.50
Mipolomol	30	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Restricted permeability due to bedrock or hardpan	1.00		
Sapwi	15	Depth to bedrock <40"	1.00	Depth to hard bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00	Fragments (>3") 20 to 35 percent	0.28
300:					
Zumaridge	55	Depth to bedrock <40"	1.00	Depth to hard bedrock <40"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <40"	1.00
		Restricted permeability due to bedrock or hardpan	1.00	Slopes >8 percent	1.00

Table 11a.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Limitations	Value	Sewage lagoons: Limitations	Value
300:					
Kawenga	30	Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Permeability 0.6 to 2.0"/hr (slow percolation)	0.72	Permeability 0.6 to 2.0"/hr (some seepage)	0.50
		Depth to bedrock 40 to 72"	0.55	Depth to soft bedrock 40 to 60"	0.10
301:					
Zumaridge	55	Depth to bedrock <40"	1.00	Depth to hard bedrock <40"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <40"	1.00
		Restricted permeability due to bedrock or hardpan	1.00	Slopes >8 percent	1.00
Kawenga	30	Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Permeability 0.6 to 2.0"/hr (slow percolation)	0.72	Permeability 0.6 to 2.0"/hr (some seepage)	0.50
		Depth to bedrock 40 to 72"	0.55	Depth to soft bedrock 40 to 60"	0.10
302:					
Zumaridge	40	Depth to bedrock <40"	1.00	Depth to hard bedrock <40"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <40"	1.00
		Restricted permeability due to bedrock or hardpan	1.00	Slopes >8 percent	1.00
Rock outcrop	35	Not rated		Not rated	
Sumiwawa	15	Depth to bedrock <40"	1.00	Depth to hard bedrock <40"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <40"	1.00
		Restricted permeability due to bedrock or hardpan	1.00	Slopes >8 percent	1.00
303:					
Zumaridge	40	Depth to bedrock <40"	1.00	Depth to hard bedrock <40"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <40"	1.00
		Restricted permeability due to bedrock or hardpan	1.00	Slopes >8 percent	1.00
Rock outcrop	35	Not rated		Not rated	
Sumiwawa	15	Depth to bedrock <40"	1.00	Depth to hard bedrock <40"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <40"	1.00
		Restricted permeability due to bedrock or hardpan	1.00	Slopes >8 percent	1.00

Table 11a.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Limitations	Value	Sewage lagoons: Limitations	Value
304:					
Zumaridge	45	Depth to bedrock <40"	1.00	Depth to hard bedrock <40"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <40"	1.00
		Restricted permeability due to bedrock or hardpan	1.00	Slopes >8 percent	1.00
Sapwi	20	Depth to bedrock <40"	1.00	Depth to hard bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00	Fragments (>3") 20 to 35 percent	0.28
Kawenga	20	Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Permeability 0.6 to 2.0"/hr (slow percolation)	0.72	Permeability 0.6 to 2.0"/hr (some seepage)	0.50
		Depth to bedrock 40 to 72"	0.55	Depth to soft bedrock 40 to 60"	0.10
305:					
Zumaridge	65	Depth to bedrock <40"	1.00	Depth to hard bedrock <40"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <40"	1.00
		Restricted permeability due to bedrock or hardpan	1.00	Slopes >8 percent	1.00
Rock outcrop	20	Not rated		Not rated	
310:					
Gaviota	85	Depth to bedrock <40"	1.00	Depth to hard bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Restricted permeability due to bedrock or hardpan	1.00		
311:					
Gaviota, northerly aspect	75	Depth to bedrock <40"	1.00	Depth to hard bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Restricted permeability due to bedrock or hardpan	1.00		
Rock outcrop	20	Not rated		Not rated	
320:					
Botella	85	Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00	Slopes 2 to 8 percent	0.67

Table 11a.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Limitations	Value	Sewage lagoons: Limitations	Value
330:					
Linne	40	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00		
Los Osos	25	Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00	Depth to soft bedrock <40"	1.00
				Slopes >8 percent	1.00
		Depth to bedrock <40"	1.00		
		Slopes >15 percent	1.00		
Haploxerepts	20	Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00	Depth to soft bedrock 40 to 60"	0.71
		Depth to bedrock 40 to 72"	0.89		
331:					
Linne	75	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00		
332:					
Linne	85	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00	Slopes >8 percent	1.00
		Slopes 8 to 15 percent	0.63		
350:					
Los Osos	85	Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00	Depth to soft bedrock <40"	1.00
				Slopes >8 percent	1.00
		Depth to bedrock <40"	1.00		
		Slopes >15 percent	1.00		
390:					
Danville, coastal	80	Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00	Slopes 2 to 8 percent	0.67
Urban land	15	Not rated		Not rated	
391:					
Danville, coastal	85	Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00	Slopes >8 percent	1.00
		Slopes 8 to 15 percent	0.63		

Table 11a.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Limitations	Value	Sewage lagoons: Limitations	Value
400:					
Pachic Argixerolls, coastal	85	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Restricted permeability due to bedrock or hardpan	1.00		
410:					
Lockwood, coastal	80	Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00	Slopes >8 percent	1.00
		Slopes 8 to 15 percent	0.63		
Urban land	20	Not rated		Not rated	
411:					
Lockwood, coastal	80	Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00	Slopes 2 to 8 percent	0.67
Urban land	20	Not rated		Not rated	
430:					
Cropley, coastal	85	Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00	Slopes 2 to 8 percent	0.67
431:					
Cropley, coastal	50	Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00	Slopes 2 to 8 percent	0.58
Cropley	35	Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00	Slopes >8 percent	1.00
		Slopes 8 to 15 percent	0.63		
432:					
Cropley, coastal	85	Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00	None	
433:					
Cropley, coastal	40	Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00	Slopes 2 to 8 percent	0.58
Urban land	25	Not rated		Not rated	
Haploxererts	20	Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00	Slopes >8 percent	1.00
				Depth to soft bedrock 40 to 60"	0.42
		Slopes >15 percent	1.00		
		Depth to bedrock 40 to 72"	0.78		

Table 11a.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Limitations	Value	Sewage lagoons: Limitations	Value
434:					
Cropley, coastal	35	Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00	Slopes 2 to 8 percent	0.58
Xerorthents, landscaped	35	Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00	Depth to soft bedrock 40 to 60"	0.26
		Depth to bedrock 40 to 72"	0.69		
Urban land	25	Not rated		Not rated	
450:					
Sapwi	85	Depth to bedrock <40"	1.00	Depth to hard bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00	Fragments (>3") 20 to 35 percent	0.28
451:					
Urban land	65	Not rated		Not rated	
Sapwi	20	Depth to bedrock <40"	1.00	Depth to hard bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00	Fragments (>3") 20 to 35 percent	0.28
460:					
Typic Haploxerepts	85	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00		
461:					
Typic Haploxerepts	85	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00		
470:					
Sumiwawa	40	Depth to bedrock <40"	1.00	Depth to hard bedrock <40"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <40"	1.00
		Restricted permeability due to bedrock or hardpan	1.00	Slopes >8 percent	1.00

Table 11a.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Limitations	Value	Sewage lagoons: Limitations	Value
470:					
Hipuk	30	Depth to bedrock <40"	1.00	Depth to hard bedrock <40"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <40"	1.00
		Restricted permeability due to bedrock or hardpan	1.00	Slopes >8 percent	1.00
Rock outcrop	20	Not rated		Not rated	
472:					
Rock outcrop	45	Not rated		Not rated	
Sumiwawa	30	Depth to bedrock <40"	1.00	Depth to hard bedrock <40"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <40"	1.00
		Restricted permeability due to bedrock or hardpan	1.00	Slopes >8 percent	1.00
Hipuk	15	Depth to bedrock <40"	1.00	Depth to hard bedrock <40"	1.00
		Slopes >15 percent	1.00	Depth to soft bedrock <40"	1.00
		Restricted permeability due to bedrock or hardpan	1.00	Slopes >8 percent	1.00
500:					
Balcom	85	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00		
503:					
Balcom	70	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00		
Balcom, dark surface	15	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00		
530:					
Xerorthents, landscaped	45	Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00	Slopes >8 percent	1.00
				Depth to soft bedrock 40 to 60"	0.26
		Slopes >15 percent	1.00		
		Depth to bedrock 40 to 72"	0.69		
Urban land	35	Not rated		Not rated	

Table 11a.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Limitations	Value	Sewage lagoons: Limitations	Value
530:					
Balcom	15	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00		
531:					
Xerorthents, landscaped	40	Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00	Slopes >8 percent	1.00
				Depth to soft bedrock 40 to 60"	0.26
		Depth to bedrock 40 to 72"	0.69		
		Slopes 8 to 15 percent	0.16		
Urban land	35	Not rated		Not rated	
Balcom	20	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00	Slopes >8 percent	1.00
		Slopes 8 to 15 percent	0.63		
532:					
Xerorthents, landscaped	50	Permeability <0.6"/hr between 24 and 60" (slow percolation)	1.00	Slopes >8 percent	1.00
				Depth to soft bedrock 40 to 60"	0.26
		Slopes >15 percent	1.00		
		Depth to bedrock 40 to 72"	0.69		
Urban land	35	Not rated		Not rated	
Pachic Argixerolls, gullied	15	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Restricted permeability due to bedrock or hardpan	1.00		
540:					
Calcic Argixerolls	85	Depth to bedrock <40"	1.00	Depth to soft bedrock <40"	1.00
		Slopes >15 percent	1.00	Slopes >8 percent	1.00
		Permeability 0.6 to 2.0"/hr (slow percolation)	0.50	Permeability 0.6 to 2.0"/hr (some seepage)	0.50
550:					
Dam	100	Not rated		Not rated	

Table 11a.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Limitations	Value	Limitations	Value
W:					
Water	100	Not rated		Not rated	

The interpretations for septic tanks adsorption fields evaluate the following soil properties at varying depths in the soil: Flooding; ponding; wetness; slope; subsidence of organic soils; depth to hard or soft bedrock; depth to a cemented pan; permeability that is too fast, resulting in seepage; and permeability that is too slow or impermeable layer at a shallow depth.

The interpretations for sewage lagoons evaluate the following soil properties at varying depths in the soil: Flooding, ponding, wetness, slope, organic Unified classes for low strength (PT, OL, OH), depth to hard or soft bedrock, depth to a cemented pan, fragments greater than 3 inches in diameter, and permeability that is too fast, resulting in seepage.

Table 11b.--Sanitary Facilities (Part 2)

(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 potential limitation. The suitability class is based on the limitation with the highest value. As many as three limitations are listed for each component. There may be more limitations. Fine-earth fraction and coarse fragment content are given on a weight basis. A brief summary of the rating criteria is given at the end of the table. See text for further explanation of the suitability ratings and limitations)

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitations	Value	Limitations	Value	Suitability class and limitations	Value
100:							
Chumash	35	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
			1.00			Slopes >15 percent	1.00
Boades	25	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
Malibu	25	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
101:							
Chumash	35	Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Not suited	
				Slopes 8 to 15 percent	0.16	Depth to bedrock <40"	1.00
		Slopes 8 to 15 percent	0.16			Slopes 8 to 15 percent	0.16
Boades	25	Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Not suited	
				Slopes 8 to 15 percent	0.16	Depth to bedrock <40"	1.00
		Slopes 8 to 15 percent	0.16			Slopes 8 to 15 percent	0.16
Malibu	25	Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Not suited	
				Slopes 8 to 15 percent	0.16	Depth to bedrock <40"	1.00
		Slopes 8 to 15 percent	0.16			Slopes 8 to 15 percent	0.16
110:							
Malibu	35	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
Chumash	30	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
						Fragments (<75 mm) 25 to 50 percent	0.46

Table 11b.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Limitations	Value	Area sanitary landfill: Limitations	Value	Daily cover for landfill: Suitability class and limitations	Value
110:							
Boades	25	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
120:							
Mipolomol	45	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
						Fragments (<75 mm) 25 to 50 percent	0.84
Topanga	40	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
						Fragments (<75 mm) 25 to 50 percent	0.14
121:							
Mipolomol	35	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
						Fragments (<75 mm) 25 to 50 percent	0.84
Topanga	35	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
						Fragments (<75 mm) 25 to 50 percent	0.14
Rock outcrop	15	Not rated		Not rated		Not rated	
122:							
Calcic Haploxerepts	50	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
						Fragments (<75 mm) 25 to 50 percent	0.12
Mollic Haploxeralfs	35	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
		Clay loam, silty clay, or silty clay loam	0.50			Silt or clay at 10 to 60"	0.50

Table 11b.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Limitations	Value	Area sanitary landfill: Limitations	Value	Daily cover for landfill: Suitability class and limitations	Value
130:							
Camarillo, coastal------	85	Flooding >/=occasional	1.00	Ponded (any duration)	1.00	Not suited	
		Ponded (any duration)	1.00	Frequent flooding	0.80	Ponded (any duration)	1.00
		Seepage in bottom layer	1.00			Permeability >2.0"/hr	0.50
140:							
Sulfic Fluvaquents------	100	Flooding >/=occasional	1.00	Ponded (any duration)	1.00	Not suited	
		Ponded (any duration)	1.00	Frequent flooding	0.80	Ponded (any duration)	1.00
		Clay or silty clay	1.00			Silty clay or clay between 10 and 60"	1.00
						Packing (OL, OH, CH or MH)	1.00
150:							
Abaft----------	60	Seepage in bottom layer	1.00	Seepage at 20 to 40"	1.00	Not suited	
		Sandy textures (coarse sandy loam, loamy sand, loamy fine sand, loamy very fine sand)	0.50			Permeability >2.0"/hr	1.00
						Loamy coarse sand, loamy sand, loamy fine sand, very fine sand	0.50
Beaches----------	30	Not rated		Not rated		Not rated	
151:							
Abaft----------	55	Sandy textures (coarse sand, sand, fine sand, loamy coarse sand, very fine sand)	1.00	Seepage at 20 to 40"	1.00	Not suited	
						Sand, fine sand, coarse sand	1.00
		Seepage in bottom layer	1.00			Permeability >2.0"/hr	1.00
Beaches----------	30	Not rated		Not rated		Not rated	
Urban land----------	15	Not rated		Not rated		Not rated	
160:							
Xerorthents, landscaped	95	Lithic or paralithic bedrock at <72"	1.00	Depth to bedrock 40 to 60"	0.26	Suited	
						Depth to bedrock 40 to 60"	0.26
170:							
Cotharin----------	85	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
171:							
Cotharin----------	65	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00

Table 11b.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Limitations	Value	Area sanitary landfill: Limitations	Value	Daily cover for landfill: Suitability class and limitations	Value
171:							
Rock outcrop----------	20	Not rated		Not rated		Not rated	
175:							
Cotharin----------	70	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
Talepop----------	15	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
						Fragments (<75 mm) 25 to 50 percent	0.17
176:							
Cotharin----------	70	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
Talepop----------	15	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
						Fragments (<75 mm) 25 to 50 percent	0.17
178:							
Cotharin----------	35	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
Talepop----------	35	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
						Fragments (<75 mm) 25 to 50 percent	0.17
Urban land----------	15	Not rated		Not rated		Not rated	
179:							
Cotharin, dry----------	80	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
180:							
Pits and Dumps----------	100	Not rated		Not rated		Not rated	

Table 11b.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Limitations	Value	Area sanitary landfill: Limitations	Value	Daily cover for landfill: Suitability class and limitations	Value
190:							
Kayiwish, gently sloping	65	Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Not suited	
		Clay or silty clay	1.00			Depth to bedrock <40"	1.00
						Silty clay or clay between 10 and 60"	1.00
						Packing (OL, OH, CH or MH)	1.00
Kayiwish, nearly level--	20	Ponded (any duration)	1.00	Ponded (any duration)	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
				Very rare flooding	0.20	Ponded (any duration)	1.00
		Clay or silty clay	1.00			Silty clay or clay between 10 and 60"	1.00
191:							
Kayiwish, gently sloping	65	Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Not suited	
				Slopes 8 to 15 percent	0.63	Depth to bedrock <40"	1.00
		Clay or silty clay	1.00			Silty clay or clay between 10 and 60"	1.00
		Slopes 8 to 15 percent	0.63			Packing (OL, OH, CH or MH)	1.00
Kayiwish, steeply sloping----------	20	Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Not suited	
				Slopes >15 percent	1.00	Depth to bedrock <40"	1.00
		Clay or silty clay	1.00			Silty clay or clay between 10 and 60"	1.00
		Slopes >15 percent	1.00			Packing (OL, OH, CH or MH)	1.00
200:							
Cumulic Haploxerolls----	85	Flooding >/=occasional	1.00	Frequent flooding	0.80	Suited	
		Seepage in bottom layer	1.00			Silt or clay between 10 and 60"	0.50
		Clay loam, silty clay, or silty clay loam	0.50			Clay loam, silty clay, or silty clay loam	0.50
202:							
Fluvaquents----------	70	Flooding >/=occasional	1.00	Saturated to <60"	1.00	Not suited	
		Saturated to <72"	1.00	Seepage at 20 to 40"	1.00	Saturated to <18"	1.00
		Sandy textures (coarse sand, sand, fine sand, loamy coarse sand, very fine sand)	1.00	Frequent flooding	0.80	Sand, fine sand, coarse sand	1.00
						Permeability >2.0"/hr	1.00
Riverwash----------	20	Not rated		Not rated		Not rated	

Table 11b.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Limitations	Value	Area sanitary landfill: Limitations	Value	Daily cover for landfill: Suitability class and limitations	Value
220:							
Elder, coastal	85	Seepage in bottom layer	1.00	Seepage at 20 to 40"	1.00	Suited	
		Rare flooding	0.50	Rare flooding	0.40	Permeability >2.0"/hr	0.50
230:							
Cotharin	70	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
Talepop	15	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
						Fragments (<75 mm) 25 to 50 percent	0.17
231:							
Talepop	50	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
						Fragments (<75 mm) 25 to 50 percent	0.17
Rock outcrop	35	Not rated		Not rated		Not rated	
240:							
Tongva	45	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
Cotharin	30	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
241:							
Cotharin	55	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
Tongva	15	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00

Table 11b.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Limitations	Value	Area sanitary landfill: Limitations	Value	Daily cover for landfill: Suitability class and limitations	Value
250:							
Urban land	75	Not rated		Not rated		Not rated	
Xerorthents, landscaped	25	Lithic or paralithic bedrock at <72"	1.00	Depth to bedrock 40 to 60"	0.26	Suited	
						Depth to bedrock 40 to 60"	0.26
251:							
Urban land	75	Not rated		Not rated		Not rated	
Tongva	20	Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Not suited	
				Slopes 8 to 15 percent	0.16	Depth to bedrock <40"	1.00
		Slopes 8 to 15 percent	0.16			Slopes 8 to 15 percent	0.16
252:							
Urban land	70	Not rated		Not rated		Not rated	
Xerorthents, landscaped	25	Lithic or paralithic bedrock at <72"	1.00	Rare flooding	0.40	Suited	
				Depth to bedrock 40 to 60"	0.26	Depth to bedrock 40 to 60"	0.26
		Rare flooding	0.50				
270:							
Pacheco, coastal	90	Rare flooding	0.50	Rare flooding	0.40	Suited	
		Clay loam, silty clay, or silty clay loam	0.50			Silt or clay between 10 and 60"	0.50
						Clay loam, silty clay, or silty clay loam	0.50
290:							
Topanga	40	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
						Fragments (<75 mm) 25 to 50 percent	0.14
Mipolomol	30	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
						Fragments (<75 mm) 25 to 50 percent	0.84
Sapwi	15	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
		Clay loam, silty clay, or silty clay loam	0.50			Silt or clay between 10 and 60"	0.50

Table 11b.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Limitations	Value	Area sanitary landfill: Limitations	Value	Daily cover for landfill: Suitability class and limitations	Value
300:							
Zumaridge	55	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
						Permeability >2.0"/hr	1.00
Kawenga	30	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Depth to bedrock 40 to 60"	0.10	Slopes >15 percent	1.00
						Fragments (<75 mm) 25 to 50 percent	0.36
						Depth to bedrock 40 to 60"	0.10
301:							
Zumaridge	55	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
						Permeability >2.0"/hr	1.00
Kawenga	30	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Depth to bedrock 40 to 60"	0.10	Slopes >15 percent	1.00
						Fragments (<75 mm) 25 to 50 percent	0.36
						Depth to bedrock 40 to 60"	0.10
302:							
Zumaridge	40	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
						Permeability >2.0"/hr	1.00
Rock outcrop	35	Not rated		Not rated		Not rated	
Sumiwawa	15	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
		Seepage in bottom layer	1.00			Permeability >2.0"/hr	1.00
303:							
Zumaridge	40	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
						Permeability >2.0"/hr	1.00
Rock outcrop	35	Not rated		Not rated		Not rated	

Table 11b.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Limitations	Value	Area sanitary landfill: Limitations	Value	Daily cover for landfill: Suitability class and limitations	Value
303:							
Sumiwawa	15	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
		Seepage in bottom layer	1.00			Slopes >15 percent	1.00
						Permeability >2.0"/hr	1.00
304:							
Zumaridge	45	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
						Permeability >2.0"/hr	1.00
Sapwi	20	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
		Clay loam, silty clay, or silty clay loam	0.50			Silt or clay between 10 and 60"	0.50
Kawenga	20	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Depth to bedrock 40 to 60"	0.10	Slopes >15 percent	1.00
						Fragments (<75 mm) 25 to 50 percent	0.36
						Depth to bedrock 40 to 60"	0.10
305:							
Zumaridge	65	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
						Permeability >2.0"/hr	1.00
Rock outcrop	20	Not rated		Not rated		Not rated	
310:							
Gaviota	85	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
		Seepage in bottom layer	1.00			Permeability >2.0"/hr	0.50
311:							
Gaviota, northerly aspect	75	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
		Seepage in bottom layer	1.00			Permeability >2.0"/hr	0.50

Table 11b.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Limitations	Value	Area sanitary landfill: Limitations	Value	Daily cover for landfill: Suitability class and limitations	Value
311:							
Rock outcrop	20	Not rated		Not rated		Not rated	
320:							
Botella	85	Clay loam, silty clay, or silty clay loam	0.50	None		Suited	
						Silt or clay between 10 and 60"	0.50
						Clay loam, silty clay, or silty clay loam	0.50
330:							
Linne	40	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
		Clay loam, silty clay, or silty clay loam	0.50			Silt or clay between 10 and 60"	0.50
Los Osos	25	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
		Clay or silty clay	1.00			Silty clay or clay between 10 and 60"	1.00
Haploxerepts	20	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Depth to bedrock 40 to 60"	0.71	Slopes >15 percent	1.00
						Depth to bedrock 40 to 60"	0.71
		Clay loam, silty clay, or silty clay loam	0.50			Silt or clay between 10 and 60"	0.50
331:							
Linne	75	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
		Clay loam, silty clay, or silty clay loam	0.50			Silt or clay between 10 and 60"	0.50
332:							
Linne	85	Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Not suited	
				Slopes 8 to 15 percent	0.63	Depth to bedrock <40"	1.00
		Slopes 8 to 15 percent	0.63			Slopes 8 to 15 percent	0.63
		Clay loam, silty clay, or silty clay loam	0.50			Silt or clay between 10 and 60"	0.50

Table 11b.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Limitations	Value	Area sanitary landfill: Limitations	Value	Daily cover for landfill: Suitability class and limitations	Value
350:							
Los Osos	85	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
		Clay or silty clay	1.00			Silty clay or clay between 10 and 60"	1.00
390:							
Danville, coastal	80	Clay or silty clay	1.00	None		Not suited	
						Silty clay or clay between 10 and 60"	1.00
						Clay or silty clay	1.00
Urban land	15	Not rated		Not rated		Not rated	
391:							
Danville, coastal	85	Clay or silty clay	1.00	Slopes 8 to 15 percent	0.63	Not suited	
		Slopes 8 to 15 percent	0.63			Silty clay or clay between 10 and 60"	1.00
						Clay or silty clay	1.00
						Slopes 8 to 15 percent	0.63
400:							
Pachic Argixerolls, coastal	85	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
		Clay loam, silty clay, or silty clay loam	0.50			Silt or clay between 10 and 60"	0.50
410:							
Lockwood, coastal	80	Slopes 8 to 15 percent	0.63	Slopes 8 to 15 percent	0.63	Suited	
						Slopes 8 to 15 percent	0.63
						Fragments (<75 mm) 25 to 50 percent	0.53
Urban land	20	Not rated		Not rated		Not rated	
411:							
Lockwood, coastal	80	None		None		Suited	
						Fragments (<75 mm) 25 to 50 percent	0.53
Urban land	20	Not rated		Not rated		Not rated	

Table 11b.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Limitations	Value	Area sanitary landfill: Limitations	Value	Daily cover for landfill: Suitability class and limitations	Value
430:							
Cropley, coastal--------	85	None		None		Suited	
431:							
Cropley, coastal--------	50	None		None		Suited	
Cropley----------	35	Slopes 8 to 15 percent	0.63	Slopes 8 to 15 percent	0.63	Suited	
						Slopes 8 to 15 percent	0.63
432:							
Cropley, coastal--------	85	None		None		Suited	
433:							
Cropley, coastal--------	40	None		None		Suited	
Urban land----------	25	Not rated		Not rated		Not rated	
Haploxererts----------	20	Lithic or paralithic bedrock at <72"	1.00	Slopes >15 percent	1.00	Not suited	
				Depth to bedrock 40 to 60"	0.42	Silty clay or clay between 10 and 60"	1.00
		Clay or silty clay	1.00				
		Slopes >15 percent	1.00			Packing (OL, OH, CH or MH)	1.00
						Clay or silty clay	1.00
434:							
Cropley, coastal--------	35	None		None		Suited	
Xerorthents, landscaped	35	Lithic or paralithic bedrock at <72"	1.00	Depth to bedrock 40 to 60"	0.26	Suited	
						Depth to bedrock 40 to 60"	0.26
Urban land----------	25	Not rated		Not rated		Not rated	
450:							
Sapwi----------	85	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
		Clay loam, silty clay, or silty clay loam	0.50			Silt or clay between 10 and 60"	0.50
451:							
Urban land----------	65	Not rated		Not rated		Not rated	

Table 11b.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Limitations	Value	Area sanitary landfill: Limitations	Value	Daily cover for landfill: Suitability class and limitations	Value
451:							
Sapwi	20	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
		Clay loam, silty clay, or silty clay loam	0.50			Silt or clay between 10 and 60"	0.50
460:							
Typic Haploxerepts	85	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
		Clay loam, silty clay, or silty clay loam	0.50			Silt or clay between 10 and 60"	0.50
461:							
Typic Haploxerepts	85	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
		Clay loam, silty clay, or silty clay loam	0.50			Silt or clay between 10 and 60"	0.50
470:							
Sumiwawa	40	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
		Seepage in bottom layer	1.00			Permeability >2.0"/hr	1.00
Hipuk	30	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
Rock outcrop	20	Not rated		Not rated		Not rated	
472:							
Rock outcrop	45	Not rated		Not rated		Not rated	
Sumiwawa	30	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
		Seepage in bottom layer	1.00			Permeability >2.0"/hr	1.00
Hipuk	15	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00

Table 11b.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Limitations	Value	Area sanitary landfill: Limitations	Value	Daily cover for landfill: Suitability class and limitations	Value
500:							
Balcom	85	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
		Clay loam, silty clay, or silty clay loam	0.50			Silt or clay between 10 and 60"	0.50
503:							
Balcom	70	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
		Clay loam, silty clay, or silty clay loam	0.50			Silt or clay between 10 and 60"	0.50
Balcom, dark surface	15	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
		Clay loam, silty clay, or silty clay loam	0.50			Silt or clay between 10 and 60"	0.50
530:							
Xerorthents, landscaped	45	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Depth to bedrock 40 to 60"	0.26	Slopes >15 percent	1.00
						Depth to bedrock 40 to 60"	0.26
Urban land	35	Not rated		Not rated		Not rated	
Balcom	15	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
		Clay loam, silty clay, or silty clay loam	0.50			Silt or clay between 10 and 60"	0.50
531:							
Xerorthents, landscaped	40	Lithic or paralithic bedrock at <72"	1.00	Depth to bedrock 40 to 60"	0.26	Suited	
						Depth to bedrock 40 to 60"	0.26
		Slopes 8 to 15 percent	0.16	Slopes 8 to 15 percent	0.16	Slopes 8 to 15 percent	0.16
Urban land	35	Not rated		Not rated		Not rated	
Balcom	20	Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Not suited	
				Slopes 8 to 15 percent	0.63	Depth to bedrock <40"	1.00
		Slopes 8 to 15 percent	0.63			Slopes 8 to 15 percent	0.63
		Clay loam, silty clay, or silty clay loam	0.50			Silt or clay between 10 and 60"	0.50

Table 11b.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Limitations	Value	Area sanitary landfill: Limitations	Value	Daily cover for landfill: Suitability class and limitations	Value
532:							
Xerorthents, landscaped	50	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Depth to bedrock 40 to 60"	0.26	Slopes >15 percent	1.00
						Depth to bedrock 40 to 60"	0.26
Urban land	35	Not rated		Not rated		Not rated	
Pachic Argixerolls, gullied	15	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
		Clay loam, silty clay, or silty clay loam	0.50			Silt or clay between 10 and 60"	0.50
540:							
Calcic Argixerolls	85	Slopes >15 percent	1.00	Slopes >15 percent	1.00	Not suited	
		Lithic or paralithic bedrock at <72"	1.00	Bedrock at <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15 percent	1.00
550:							
Dam	100	Not rated		Not rated		Not rated	
W:							
Water	100	Not rated		Not rated		Not rated	

The interpretations for trench sanitary landfills evaluate the following soil properties at varying depths in the soil: Flooding, ponding, wetness, slope, depth to hard or soft bedrock, depth to a thick or thin cemented pan, fragments 3 to 10 inches in diameter, sodium content (SAR), soil pH, clayey or sandy textures, and permeability that is too high, resulting in seepage in some climates.

The interpretations for area sanitary landfills evaluate the following soil properties at varying depths in the soil: Flooding, ponding, wetness, slope, depth to bedrock, depth to a cemented pan, and permeability that is too high, resulting in seepage in some climates.

The interpretations for daily cover for landfill evaluate the following soil properties at varying depths in the soil: Ponding, wetness, slope, depth to bedrock, depth to a cemented pan, fragments greater than or less than 3 inches in diameter, Unified class for peat (PT), Unified classes for packing (OL, OH, CH, MH), sandy or clayey textures, soil pH, carbonates, sodium content (SAR), salinity (EC), soil climate, kaolinitic mineralogy, and permeability that is too high, resulting in seepage.

Table 12a.--Construction Materials (Part 1)

(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 1.00. The closer the value is to 0, the greater the potential limitation. Values of 0 are absolute limitations. Values closer to 1.0 have less of a limitation. Values of 1.00 have absolutely no limitation. The rating is based on the limitation with the highest value. Fine-earth fraction and fragment content are given on a weight basis. A brief summary of the rating criteria and a definition of some of the abbreviations are at the end of the table. See text for further explanation of the rating classes and limiting features)

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
100:							
Chumash	35	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20"	0.00
						Rock fragment content	0.18
Boades	25	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20"	0.00
						Rock fragment content	0.82
Malibu	25	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40"	0.38
						Rock fragment content	0.82
101:							
Chumash	35	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20"	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.18
						Slope 8 to 12 percent	0.84
Boades	25	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20"	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.82
						Slope 8 to 12 percent	0.84
Malibu	25	Poor		Poor		Fair	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock 20 to 40"	0.38
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.82
						Slope 8 to 12 percent	0.84
110:							
Malibu	35	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40"	0.38
						Rock fragment content	0.82

Table 12a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
110:							
Chumash	30	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20"	0.00
						Rock fragment content	0.00
Boades	25	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20"	0.00
						Rock fragment content	0.82
120:							
Mipolomol	45	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20"	0.00
						Rock fragment content	0.00
Topanga	40	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20"	0.00
						Rock fragment content	0.00
121:							
Mipolomol	35	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20"	0.00
						Rock fragment content	0.00
Topanga	35	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20"	0.00
						Rock fragment content	0.00
Rock outcrop	15	Not rated		Not rated		Not rated	
122:							
Calcic Haploxerepts	50	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40"	0.56
Mollic Haploxeralfs	35	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.76
						Depth to bedrock 20 to 40"	0.80
						Clay 27 to 40 percent	0.98

Table 12a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
130:							
Camarillo, coastal	85	Poor		Fair		Not rated	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00		
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer possible source	0.34		
140:							
Sulfic Fluvaquents	100	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
				Thickest layer not a source	0.00	pH 4.5 to 6.5	0.88
150:							
Abaft	60	Poor		Fair		Fair	
		Bottom layer not a source	0.00	Bottom layer possible source	0.08	Sand fraction 75 to 85 percent	0.14
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer possible source	0.08		
Beaches	30	Not rated		Not rated		Not rated	
151:							
Abaft	55	Poor		Fair		Fair	
		Bottom layer not a source	0.00	Bottom layer possible source	0.08	Sand fraction 75 to 85 percent	0.14
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer possible source	0.08		
Beaches	30	Not rated		Not rated		Not rated	
Urban land	15	Not rated		Not rated		Not rated	
160:							
Xerorthents, landscaped	95	Poor		Poor		Good	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00		
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		
170:							
Cotharin	85	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20"	0.00

Table 12a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
171:							
Cotharin	65	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20"	0.00
Rock outcrop	20	Not rated		Not rated		Not rated	
175:							
Cotharin	70	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20"	0.00
Talepop	15	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20"	0.00
						Rock fragment content	0.00
176:							
Cotharin	70	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20"	0.00
Talepop	15	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20"	0.00
						Rock fragment content	0.00
178:							
Cotharin	35	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20"	0.00
Talepop	35	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20"	0.00
						Rock fragment content	0.00
Urban land	15	Not rated		Not rated		Not rated	

Table 12a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
179:							
Cotharin, dry----------	80	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20"	0.00
180:							
Pits and Dumps----------	100	Not rated		Not rated		Not rated	
190:							
Kayiwish, gently sloping	65	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40"	0.20
Kayiwish, nearly level--	20	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40"	0.06
191:							
Kayiwish, gently sloping	65	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40"	0.20
						Slope 12 to 15 percent	0.37
Kayiwish, steeply sloping----------	20	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Slope >15 percent	0.00
						Depth to bedrock 20 to 40"	0.20
200:							
Cumulic Haploxerolls----	85	Fair		Good		Fair	
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer possible source	0.03	Clay 27 to 40 percent	0.98
		Bottom layer possible source	0.03				
202:							
Fluvaquents----------	70	Fair		Fair		Poor	
		Bottom layer not a source	0.00	Bottom layer possible source	0.61	Sand fraction >85 percent	0.00
		Thickest layer possible source	0.57	Thickest layer possible source	0.63	Hard to reclaim	0.00
						Rock fragment content	0.00
						Saturated to 12 to 36"	0.00
Riverwash----------	20	Not rated		Not rated		Not rated	

Table 12a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
220:							
Elder, coastal	85	Poor		Fair		Good	
		Bottom layer not a source	0.00	Bottom layer possible source	0.02	Sand fraction <75 percent	1.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer possible source	0.02		
230:							
Cotharin	70	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20"	0.00
Talepop	15	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20"	0.00
						Rock fragment content	0.00
231:							
Talepop	50	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20"	0.00
						Rock fragment content	0.00
Rock outcrop	35	Not rated		Not rated		Not rated	
240:							
Tongva	45	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40"	0.50
Cotharin	30	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20"	0.00
Rock outcrop	15	Not rated		Not rated		Not rated	
241:							
Cotharin	55	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20"	0.00
Rock outcrop	15	Not rated		Not rated		Not rated	

Table 12a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
241:							
Tongva	15	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40"	0.50
250:							
Urban land	75	Not rated		Not rated		Not rated	
Xerorthents, landscaped	25	Poor		Poor		Good	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00		
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		
251:							
Urban land	75	Not rated		Not rated		Not rated	
Tongva	20	Poor		Poor		Fair	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock 20 to 40"	0.50
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Slope 8 to 12 percent	0.84
252:							
Urban land	70	Not rated		Not rated		Not rated	
Xerorthents, landscaped	25	Poor		Poor		Good	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00		
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		
270:							
Pacheco, coastal	90	Poor		Poor		Fair	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	EC 4 to 8 dS/m	0.88
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.92
290:							
Topanga	40	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20"	0.00
						Rock fragment content	0.00
Mipolomol	30	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20"	0.00
						Rock fragment content	0.00

Table 12a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
290:							
Sapwi	15	Poor		Poor		Poor	
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Rock fragment content	0.41
						Depth to bedrock 20 to 40"	0.92
						Clay 27 to 40 percent	0.98
300:							
Zumaridge	55	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20"	0.00
						Rock fragment content	0.88
Kawenga	30	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Hard to reclaim	0.54
301:							
Zumaridge	55	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20"	0.00
						Rock fragment content	0.88
Kawenga	30	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Hard to reclaim	0.54
302:							
Zumaridge	40	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20"	0.00
						Rock fragment content	0.88
Rock outcrop	35	Not rated		Not rated		Not rated	
Sumiwawa	15	Poor		Fair		Poor	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer possible source	0.08	Depth to bedrock <20"	0.00
						Rock fragment content	0.00
						Sand fraction 75 to 85 percent	0.30

Table 12a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
303:							
Zumaridge	40	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20"	0.00
						Rock fragment content	0.88
Rock outcrop	35	Not rated		Not rated		Not rated	
Sumiwawa	15	Poor		Fair		Poor	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer possible source	0.08	Depth to bedrock <20"	0.00
						Rock fragment content	0.00
						Sand fraction 75 to 85 percent	0.30
304:							
Zumaridge	45	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20"	0.00
						Rock fragment content	0.88
Sapwi	20	Poor		Poor		Poor	
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Rock fragment content	0.41
						Depth to bedrock 20 to 40"	0.92
						Clay 27 to 40 percent	0.98
Kawenga	20	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Hard to reclaim	0.54
305:							
Zumaridge	65	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20"	0.00
						Rock fragment content	0.88
Rock outcrop	20	Not rated		Not rated		Not rated	
310:							
Gaviota	85	Poor		Fair		Poor	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer possible source	0.04	Depth to bedrock <20"	0.00

Table 12a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
311:							
Gaviota, northerly aspect	75	Poor		Fair		Poor	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer possible source	0.04	Depth to bedrock <20"	0.00
Rock outcrop	20	Not rated		Not rated		Not rated	
320:							
Botella	85	Poor		Poor		Fair	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay 27 to 40 percent	0.88
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		
330:							
Linne	40	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40"	0.52
						Clay 27 to 40 percent	0.98
Los Osos	25	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40 percent	0.00
						Depth to bedrock 20 to 40"	0.80
Haploxerepts	20	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Hard to reclaim	0.88
						Clay 27 to 40 percent	0.98
331:							
Linne	75	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40"	0.52
						Clay 27 to 40 percent	0.98
332:							
Linne	85	Poor		Poor		Fair	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope 12 to 15 percent	0.37
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40"	0.52
						Clay 27 to 40 percent	0.98

Table 12a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
350:							
Los Osos	85	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40 percent	0.00
						Depth to bedrock 20 to 40"	0.80
390:							
Danville, coastal	80	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		
Urban land	15	Not rated		Not rated		Not rated	
391:							
Danville, coastal	85	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Slope 12 to 15 percent	0.37
400:							
Pachic Argixerolls, coastal	85	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40"	0.20
410:							
Lockwood, coastal	80	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Slope 12 to 15 percent	0.37
						Hard to reclaim	0.46
Urban land	20	Not rated		Not rated		Not rated	
411:							
Lockwood, coastal	80	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Hard to reclaim	0.46
Urban land	20	Not rated		Not rated		Not rated	

Table 12a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
430:							
Cropley, coastal--------	85	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		
431:							
Cropley, coastal--------	50	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		
Cropley----------	35	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Slope 12 to 15 percent	0.37
432:							
Cropley, coastal--------	85	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		
433:							
Cropley, coastal--------	40	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		
Urban land----------	25	Not rated		Not rated		Not rated	
Haploxererts----------	20	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Slope >15 percent	0.00
434:							
Cropley, coastal--------	35	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		

Table 12a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
434:							
Xerorthents, landscaped	35	Poor		Poor		Good	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00		
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		
Urban land	25	Not rated		Not rated		Not rated	
450:							
Sapwi	85	Poor		Poor		Poor	
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Rock fragment content	0.41
						Depth to bedrock 20 to 40"	0.92
						Clay 27 to 40 percent	0.98
451:							
Urban land	65	Not rated		Not rated		Not rated	
Sapwi	20	Poor		Poor		Poor	
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Rock fragment content	0.41
						Depth to bedrock 20 to 40"	0.92
						Clay 27 to 40 percent	0.98
460:							
Typic Haploxerepts	85	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40"	0.94
						Clay 27 to 40 percent	0.98
461:							
Typic Haploxerepts	85	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40"	0.94
						Clay 27 to 40 percent	0.98
470:							
Sumiwawa	40	Poor		Fair		Poor	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer possible source source	0.08	Depth to bedrock <20"	0.00
						Rock fragment content	0.00
						Sand fraction 75 to 85 percent	0.30

Table 12a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
470:							
Hipuk	30	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20"	0.00
						Rock fragment content	0.92
Rock outcrop	20	Not rated		Not rated		Not rated	
472:							
Rock outcrop	45	Not rated		Not rated		Not rated	
Sumiwawa	30	Poor		Fair		Poor	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer possible source	0.07	Depth to bedrock <20"	0.00
						Rock fragment content	0.00
						Sand fraction 75 to 85 percent	0.38
Hipuk	15	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20"	0.00
						Rock fragment content	0.92
500:							
Balcom	85	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40"	0.86
						Clay 27 to 40 percent	0.98
503:							
Balcom	70	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40"	0.86
						Clay 27 to 40 percent	0.98
Balcom, dark surface	15	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40"	0.96
						Clay 27 to 40 percent	0.98

Table 12a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
530:							
Xerorthents, landscaped	45	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		
Urban land----------	35	Not rated		Not rated		Not rated	
Balcom----------	15	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40"	0.86
						Clay 27 to 40 percent	0.98
531:							
Xerorthents, landscaped	40	Poor		Poor		Fair	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope 8 to 12 percent	0.84
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		
Urban land----------	35	Not rated		Not rated		Not rated	
Balcom----------	20	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope 12 to 15 percent	0.37
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40"	0.86
						Clay 27 to 40 percent	0.98
532:							
Xerorthents, landscaped	50	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		
Urban land----------	35	Not rated		Not rated		Not rated	
Pachic Argixerolls, gullied----------	15	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40"	0.20
540:							
Calcic Argixerolls------	85	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40"	0.90

Table 12a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class and limiting features	Value	Potential source of sand: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
550:							
Dam	100	Not rated		Not rated		Not rated	
W:							
Water	100	Not rated		Not rated		Not rated	

The interpretations for a source of gravel evaluate coarse fragments greater than 0.2 inch in diameter in the bottom layer or in the thickest layer of the soil.

The interpretations for a source of sand evaluate the amount of sand and fine gravel in the thickest layer or in the bottom layer of the soil. Organic soil layers with a Unified engineering class for peat (PT) are also evaluated.

The interpretations for a source of topsoil evaluate the following soil properties at varying depths: Calcium carbonates, clay content, soil bulk density, sand content, soil wetness, coarse fragments 0.2 to 3.0 inches in diameter, fragments greater than 3 inches in diameter, organic matter content (OM), sodium content expressed as the sodium adsorption ratio (SAR), salinity expressed as dS/m of electrical conductivity (EC), depth to bedrock, slope, and soil pH.

Table 12b.--Construction Materials (Part 2)

(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 1.00. The closer the value is to 0, the greater the potential limitation. Values of 0 are absolute limitations. Values closer to 1.00 have less of a limitation. Values of 1.00 have absolutely no limitation. The rating is based on the limitation with the highest value. Fine-earth fraction and fragment content are given on a weight basis. A brief summary of the rating criteria and a definition of some of the abbreviations are given at the end of the table. See text for further explanation of the rating classes and limiting features)

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value
100:					
Chumash	35	Poor		Poor	
		AWC <3" to a depth of 60"	0.00	Depth to bedrock <40"	0.00
		OM 0.5 to 1.0 percent	0.50	Slopes >25 percent	0.00
Boades	25	Poor		Poor	
		AWC <3" to a depth of 60"	0.00	Depth to bedrock <40"	0.00
		pH 4.0 to 6.5 to a depth of 40"	0.84	Slopes >25 percent	0.00
				AASHTO GI 5 to 8 (soil strength)	0.22
				LEP 3 to 9	0.75
Malibu	25	Fair		Poor	
		AWC 3 to 6" to a depth of 60"	0.05	Depth to bedrock <40"	0.00
		pH 4.0 to 6.5 to a depth of 40"	1.00	Slopes >25 percent	0.00
				LEP 3 to 9	0.51
				AASHTO GI 5 to 8 (soil strength)	0.78
101:					
Chumash	35	Poor		Poor	
		AWC <3" to a depth of 60"	0.00	Depth to bedrock <40"	0.00
		OM 0.5 to 1.0 percent	0.50		
Boades	25	Poor		Poor	
		AWC <3" to a depth of 60"	0.00	Depth to bedrock <40"	0.00
		pH 4.0 to 6.5 to a depth of 40"	0.84	AASHTO GI 5 to 8 (soil strength)	0.22
				LEP 3 to 9	0.75
Malibu	25	Fair		Poor	
		AWC 3 to 6" to a depth of 60"	0.05	Depth to bedrock <40"	0.00
		pH 4.0 to 6.5 to a depth of 40"	1.00	LEP 3 to 9	0.53
				AASHTO GI 5 to 8 (soil strength)	0.78

Table 12b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value
110:					
Malibu	35	Fair		Poor	
		AWC 3 to 6" to a depth of 60"	0.05	Depth to bedrock <40"	0.00
		pH 4.0 to 6.5 to a depth of 40"	1.00	Slopes >25 percent	0.00
				LEP 3 to 9	0.51
				AASHTO GI 5 to 8 (soil strength)	0.78
Chumash	30	Poor		Poor	
		AWC <3" to a depth of 60"	0.00	Depth to bedrock <40"	0.00
		OM 0.5 to 1.0 percent	0.50	Slopes >25 percent	0.00
Boades	25	Poor		Poor	
		AWC <3" to a depth of 60"	0.00	Depth to bedrock <40"	0.00
		pH 4.0 to 6.5 to a depth of 40"	0.84	Slopes >25 percent	0.00
				AASHTO GI 5 to 8 (soil strength)	0.22
				LEP 3 to 9	0.75
120:					
Mipolomol	45	Poor		Poor	
		AWC <3" to a depth of 60"	0.00	Depth to bedrock <40"	0.00
				Slopes >25 percent	0.00
				LEP 3 to 9	0.75
Topanga	40	Poor		Poor	
		AWC <3" to a depth of 60"	0.00	Depth to bedrock <40"	0.00
				Slopes >25 percent	0.00
121:					
Mipolomol	35	Poor		Poor	
		AWC <3" to a depth of 60"	0.00	Depth to bedrock <40"	0.00
				Slopes >25 percent	0.00
				LEP 3 to 9	0.75
Topanga	35	Poor		Poor	
		AWC <3" to a depth of 60"	0.00	Depth to bedrock <40"	0.00
				Slopes >25 percent	0.00
Rock outcrop	15	Not rated		Not rated	
122:					
Calcic Haploxerepts	50	Fair		Poor	
		AWC 3 to 6" to a depth of 60"	0.61	Depth to bedrock <40"	0.00
				Slopes >25 percent	0.00
				LEP 3 to 9	0.75
				AASHTO GI 5 to 8 (soil strength)	0.78

Table 12b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value
122:					
Mollic Haploxeralfs	35	Fair		Poor	
		OM 0.5 to 1.0 percent	0.50	Depth to bedrock <40"	0.00
		Clay 27 to 40 percent	0.98	Slopes >25 percent	0.00
				AASHTO GI >8 (low soil strength)	0.00
				LEP 3 to 9	0.75
130:					
Camarillo, coastal	85	Good		Fair	
				LEP 3 to 9	0.84
140:					
Sulfic Fluvaquents	100	Poor		Fair	
		Clay >40 percent	0.00	LEP 3 to 9	0.25
		pH 4.0 to 6.5 to a depth of 40"	0.32		
		AWC 3 to 6" to a depth of 60"	0.76		
150:					
Abaft	60	Poor		Good	
		WEG 1 or 2	0.00		
		OM <0.5 percent	0.00		
		Sand fraction 75 to 85 percent	0.30		
		AWC 3 to 6" to a depth of 60"	0.71		
Beaches	30	Not rated		Not rated	
151:					
Abaft	55	Poor		Good	
		WEG 1 or 2	0.00		
		OM <0.5 percent	0.00		
		Sand fraction 75 to 85 percent	0.30		
		AWC 3 to 6" to a depth of 60"	0.71		
Beaches	30	Not rated		Not rated	
Urban land	15	Not rated		Not rated	
160:					
Xerorthents, landscaped	95	Fair		Fair	
		OM 0.5 to 1.0 percent	0.50	Depth to bedrock 40 to 60"	0.74

Table 12b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value
170:					
Cotharin	85	Poor		Poor	
		AWC <3" to a depth of 60"	0.00	Depth to bedrock <40"	0.00
		pH 4.0 to 6.5 to a depth of 40"	0.92	Slopes >25 percent	0.00
				AASHTO GI >8 (low soil strength)	0.00
				LEP 3 to 9	0.75
171:					
Cotharin	65	Poor		Poor	
		AWC <3" to a depth of 60"	0.00	Depth to bedrock <40"	0.00
		pH 4.0 to 6.5 to a depth of 40"	0.92	Slopes >25 percent	0.00
				AASHTO GI >8 (low soil strength)	0.00
				LEP 3 to 9	0.75
Rock outcrop	20	Not rated		Not rated	
175:					
Cotharin	70	Poor		Poor	
		AWC <3" to a depth of 60"	0.00	Depth to bedrock <40"	0.00
		pH 4.0 to 6.5 to a depth of 40"	0.92	Slopes >25 percent	0.00
				AASHTO GI >8 (low soil strength)	0.00
				LEP 3 to 9	0.75
Talepop	15	Poor		Poor	
		AWC <3" to a depth of 60"	0.00	Depth to bedrock <40"	0.00
				Slopes >25 percent	0.00
176:					
Cotharin	70	Poor		Poor	
		AWC <3" to a depth of 60"	0.00	Depth to bedrock <40"	0.00
		pH 4.0 to 6.5 to a depth of 40"	0.92	Slopes >25 percent	0.00
				AASHTO GI >8 (low soil strength)	0.00
				LEP 3 to 9	0.75
Talepop	15	Poor		Poor	
		AWC <3" to a depth of 60"	0.00	Depth to bedrock <40"	0.00
				Slopes >25 percent	0.00
178:					
Cotharin	35	Poor		Poor	
		AWC <3" to a depth of 60"	0.00	Depth to bedrock <40"	0.00
		pH 4.0 to 6.5 to a depth of 40"	0.92	Slopes >25 percent	0.00
				AASHTO GI >8 (low soil strength)	0.00
				LEP 3 to 9	0.75

Table 12b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value
178:					
Talepop	35	Poor		Poor	
		AWC <3" to a depth of 60"	0.00	Depth to bedrock <40"	0.00
				Slopes >25 percent	0.00
Urban land	15	Not rated		Not rated	
179:					
Cotharin, dry	80	Poor		Poor	
		AWC <3" to a depth of 60"	0.00	Depth to bedrock <40"	0.00
		pH 4.0 to 6.5 to a depth of 40"	0.92	Slopes >25 percent	0.00
				AASHTO GI >8 (low soil strength)	0.00
				LEP 3 to 9	0.75
180:					
Pits and Dumps	100	Not rated		Not rated	
190:					
Kayiwish, gently sloping	65	Poor		Poor	
		Clay >40 percent	0.00	Depth to bedrock <40"	0.00
		AWC 3 to 6" to a depth of 60"	0.03	AASHTO GI >8 (low soil strength)	0.00
				LEP 3 to 9	0.25
Kayiwish, nearly level	20	Poor		Poor	
		Clay >40 percent	0.00	Depth to bedrock <40"	0.00
		AWC <3" to a depth of 60"	0.00	AASHTO GI >8 (low soil strength)	0.00
				LEP 3 to 9	0.25
191:					
Kayiwish, gently sloping	65	Poor		Poor	
		Clay >40 percent	0.00	Depth to bedrock <40"	0.00
		AWC 3 to 6" to a depth of 60"	0.03	AASHTO GI >8 (low soil strength)	0.00
				LEP 3 to 9	0.25
Kayiwish, steeply sloping	20	Poor		Poor	
		Clay >40 percent	0.00	Depth to bedrock <40"	0.00
		AWC 3 to 6" to a depth of 60"	0.03	AASHTO GI >8 (low soil strength)	0.00
				LEP 3 to 9	0.25
				Slopes 15 to 25 percent	0.59
200:					
Cumulic Haploxerolls	85	Fair		Poor	
		Clay 27 to 40 percent	0.98	AASHTO GI >8 (low soil strength)	0.00
				LEP 3 to 9	0.81

Table 12b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value
202:					
Fluvaquents	70	Poor		Poor	
		Sand fraction >85 percent	0.00	Saturated to 12 to 36"	0.00
		OM <0.5 percent	0.00		
		AWC 3 to 6" to a depth of 60"	0.29		
Riverwash	20	Not rated		Not rated	
220:					
Elder, coastal	85	Fair		Good	
		OM 0.5 to 1.0 percent	0.50		
230:					
Cotharin	70	Poor		Poor	
		AWC <3" to a depth of 60"	0.00	Depth to bedrock <40"	0.00
		pH 4.0 to 6.5 to a depth of 40"	0.92	Slopes >25 percent	0.00
				AASHTO GI >8 (low soil strength)	0.00
				LEP 3 to 9	0.75
Talepop	15	Poor		Poor	
		AWC <3" to a depth of 60"	0.00	Depth to bedrock <40"	0.00
				Slopes >25 percent	0.00
231:					
Talepop	50	Poor		Poor	
		AWC <3" to a depth of 60"	0.00	Depth to bedrock <40"	0.00
				Slopes >25 percent	0.00
Rock outcrop	35	Not rated		Not rated	
240:					
Tongva	45	Fair		Poor	
		AWC 3 to 6" to a depth of 60"	0.03	Depth to bedrock <40"	0.00
		pH 4.0 to 6.5 to a depth of 40"	0.92	Slopes >25 percent	0.00
				AASHTO GI 5 to 8 (soil strength)	0.22
				LEP 3 to 9	0.75
Cotharin	30	Poor		Poor	
		AWC <3" to a depth of 60"	0.00	Depth to bedrock <40"	0.00
		pH 4.0 to 6.5 to a depth of 40"	0.92	Slopes >25 percent	0.00
				AASHTO GI >8 (low soil strength)	0.00
				LEP 3 to 9	0.75
Rock outcrop	15	Not rated		Not rated	

Table 12b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value
241:					
Cotharin	55	Poor		Poor	
		AWC <3" to a depth of 60"	0.00	Depth to bedrock <40"	0.00
		pH 4.0 to 6.5 to a depth of 40"	0.92	Slopes >25 percent	0.00
				AASHTO GI >8 (low soil strength)	0.00
				LEP 3 to 9	0.75
Rock outcrop	15	Not rated		Not rated	
Tongva	15	Fair		Poor	
		AWC 3 to 6" to a depth of 60"	0.03	Depth to bedrock <40"	0.00
		pH 4.0 to 6.5 to a depth of 40"	0.92	Slopes >25 percent	0.00
				AASHTO GI 5 to 8 (soil strength)	0.22
				LEP 3 to 9	0.75
250:					
Urban land	75	Not rated		Not rated	
Xerorthents, landscaped	25	Fair		Fair	
		OM 0.5 to 1.0 percent	0.50	Depth to bedrock 40 to 60"	0.74
251:					
Urban land	75	Not rated		Not rated	
Tongva	20	Fair		Poor	
		AWC 3 to 6" to a depth of 60"	0.03	Depth to bedrock <40"	0.00
		pH 4.0 to 6.5 to a depth of 40"	0.92	AASHTO GI 5 to 8 (soil strength)	0.22
				LEP 3 to 9	0.75
252:					
Urban land	70	Not rated		Not rated	
Xerorthents, landscaped	25	Fair		Fair	
		OM 0.5 to 1.0 percent	0.50	Depth to bedrock 40 to 60"	0.74
270:					
Pacheco, coastal	90	Fair		Poor	
		OM 0.5 to 1.0 percent	0.50	AASHTO GI >8 (low soil strength)	0.00
		K factor 0.10 to 0.35	0.68	LEP 3 to 9	0.75
290:					
Topanga	40	Poor		Poor	
		AWC <3" to a depth of 60"	0.00	Depth to bedrock <40"	0.00
				Slopes >25 percent	0.00

Table 12b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value
290:					
Mipolomol	30	Poor		Poor	
		AWC <3" to a depth of 60"	0.00	Depth to bedrock <40"	0.00
				Slopes >25 percent	0.00
				LEP 3 to 9	0.75
Sapwi	15	Poor		Poor	
		Fragments (>10") >15 percent	0.00	Depth to bedrock <40"	0.00
		AWC 3 to 6" to a depth of 60"	0.90	Slopes >25 percent	0.00
		pH 4.0 to 6.5 to a depth of 40"	0.92	LEP 3 to 9	0.75
		Clay 27 to 40 percent	0.98		
300:					
Zumaridge	55	Poor		Poor	
		AWC <3" to a depth of 60"	0.00	Depth to bedrock <40"	0.00
		pH 4.0 to 6.5 to a depth of 40"	0.92	Slopes >25 percent	0.00
Kawenga	30	Fair		Poor	
		pH 4.0 to 6.5 to a depth of 40"	0.92	Slopes >25 percent	0.00
				LEP 3 to 9	0.75
				Depth to bedrock 40 to 60"	0.90
301:					
Zumaridge	55	Poor		Poor	
		AWC <3" to a depth of 60"	0.00	Depth to bedrock <40"	0.00
		pH 4.0 to 6.5 to a depth of 40"	0.92	Slopes >25 percent	0.00
Kawenga	30	Fair		Poor	
		pH 4.0 to 6.5 to a depth of 40"	0.92	Slopes >25 percent	0.00
				LEP 3 to 9	0.75
				Depth to bedrock 40 to 60"	0.90
302:					
Zumaridge	40	Poor		Poor	
		AWC <3" to a depth of 60"	0.00	Depth to bedrock <40"	0.00
		pH 4.0 to 6.5 to a depth of 40"	0.92	Slopes >25 percent	0.00
Rock outcrop	35	Not rated		Not rated	
Sumiwawa	15	Poor		Poor	
		AWC <3" to a depth of 60"	0.00	Depth to bedrock <40"	0.00
		OM 0.5 to 1.0 percent	0.50	Slopes >25 percent	0.00
		Sand fraction 75 to 85 percent	0.65		
		pH 4.0 to 6.5 to a depth of 40"	0.99		

Table 12b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value
303:					
Zumaridge	40	Poor		Poor	
		AWC <3" to a depth of 60"	0.00	Depth to bedrock <40"	0.00
		pH 4.0 to 6.5 to a depth of 40"	0.92	Slopes >25 percent	0.00
Rock outcrop	35	Not rated		Not rated	
Sumiwawa	15	Poor		Poor	
		AWC <3" to a depth of 60"	0.00	Depth to bedrock <40"	0.00
		OM 0.5 to 1.0 percent	0.50	Slopes >25 percent	0.00
		Sand fraction 75 to 85 percent	0.65		
		pH 4.0 to 6.5 to a depth of 40"	0.99		
304:					
Zumaridge	45	Poor		Poor	
		AWC <3" to a depth of 60"	0.00	Depth to bedrock <40"	0.00
		pH 4.0 to 6.5 to a depth of 40"	0.92	Slopes >25 percent	0.00
Sapwi	20	Poor		Poor	
		Fragments (>10") >15 percent	0.00	Depth to bedrock <40"	0.00
		AWC 3 to 6" to a depth of 60"	0.90	Slopes >25 percent	0.00
		pH 4.0 to 6.5 to a depth of 40"	0.92	LEP 3 to 9	0.75
		Clay 27 to 40 percent	0.98		
Kawenga	20	Fair		Poor	
		pH 4.0 to 6.5 to a depth of 40"	0.92	Slopes >25 percent	0.00
				LEP 3 to 9	0.75
				Depth to bedrock 40 to 60"	0.90
305:					
Zumaridge	65	Poor		Poor	
		AWC <3" to a depth of 60"	0.00	Depth to bedrock <40"	0.00
		pH 4.0 to 6.5 to a depth of 40"	0.92	Slopes >25 percent	0.00
Rock outcrop	20	Not rated		Not rated	
310:					
Gaviota	85	Poor		Poor	
		AWC <3" to a depth of 60"	0.00	Depth to bedrock <40"	0.00
		OM <0.5 percent	0.00	Slopes >25 percent	0.00

Table 12b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value
311:					
Gaviota, northerly aspect	75	Poor		Poor	
		AWC <3" to a depth of 60"	0.00	Depth to bedrock <40"	0.00
		OM <0.5 percent	0.00	Slopes >25 percent	0.00
Rock outcrop	20	Not rated		Not rated	
320:					
Botella	85	Fair		Poor	
		Clay 27 to 40 percent	0.88	AASHTO GI >8 (low soil strength)	0.00
				LEP 3 to 9	0.75
330:					
Linne	40	Fair		Poor	
		AWC 3 to 6" to a depth of 60"	0.94	Depth to bedrock <40"	0.00
		Clay 27 to 40 percent	0.98	Slopes >25 percent	0.00
				AASHTO GI >8 (low soil strength)	0.00
				LEP 3 to 9	0.75
Los Osos	25	Poor		Poor	
		OM <0.5 percent	0.00	Depth to bedrock <40"	0.00
		Clay >40 percent	0.00	Slopes >25 percent	0.00
		pH 4.0 to 6.5 to a depth of 40"	0.95	AASHTO GI >8 (low soil strength)	0.00
		AWC 3 to 6" to a depth of 60"	0.98	LEP 3 to 9	0.25
Haploxerepts	20	Fair		Poor	
		OM 0.5 to 1.0 percent	0.50	Slopes >25 percent	0.00
		Clay 27 to 40 percent	0.98	AASHTO GI >8 (low soil strength)	0.00
				Depth to bedrock 40 to 60"	0.29
				LEP 3 to 9	0.75
331:					
Linne	75	Fair		Poor	
		AWC 3 to 6" to a depth of 60"	0.94	Depth to bedrock <40"	0.00
		Clay 27 to 40 percent	0.98	AASHTO GI >8 (low soil strength)	0.00
				Slopes >25 percent	0.00
				LEP 3 to 9	0.75
332:					
Linne	85	Fair		Poor	
		AWC 3 to 6" to a depth of 60"	0.94	Depth to bedrock <40"	0.00
		Clay 27 to 40 percent	0.98	AASHTO GI >8 (low soil strength)	0.00
				LEP 3 to 9	0.75

Table 12b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value
350:					
Los Osos	85	Poor		Poor	
		OM <0.5 percent	0.00	Depth to bedrock <40"	0.00
		Clay >40 percent	0.00	Slopes >25 percent	0.00
		pH 4.0 to 6.5 to a depth of 40"	0.95	AASHTO GI >8 (low soil strength)	0.00
		AWC 3 to 6" to a depth of 60"	0.98	LEP 3 to 9	0.25
390:					
Danville, coastal	80	Poor		Poor	
		OM <0.5 percent	0.00	AASHTO GI >8 (low soil strength)	0.00
		Clay >40 percent	0.00	LEP 3 to 9	0.25
		K factor <0.10	0.99		
Urban land	15	Not rated		Not rated	
391:					
Danville, coastal	85	Poor		Poor	
		OM <0.5 percent	0.00	AASHTO GI >8 (low soil strength)	0.00
		Clay >40 percent	0.00	LEP 3 to 9	0.25
		K factor <0.10	0.99		
400:					
Pachic Argixerolls, coastal	85	Fair		Poor	
		AWC 3 to 6" to a depth of 60"	0.01	Depth to bedrock <40"	0.00
		OM 0.5 to 1.0 percent	0.50	Slopes >25 percent	0.00
				LEP 3 to 9	0.75
410:					
Lockwood, coastal	80	Poor		Fair	
		OM <0.5 percent	0.00	LEP 3 to 9	0.75
Urban land	20	Not rated		Not rated	
411:					
Lockwood, coastal	80	Poor		Fair	
		OM <0.5 percent	0.00	LEP 3 to 9	0.75
Urban land	20	Not rated		Not rated	
430:					
Cropley, coastal	85	Poor		Poor	
		Clay >40 percent	0.00	AASHTO GI >8 (low soil strength)	0.00
		OM <0.5 percent	0.00	LEP 3 to 9	0.25
		K factor 0.10 to 0.35	0.90		

Table 12b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value
431:					
Cropley, coastal	50	Poor		Poor	
		Clay >40 percent	0.00	AASHTO GI >8 (low soil strength)	0.00
		OM <0.5 percent	0.00	LEP 3 to 9	0.25
		K factor 0.10 to 0.35	0.90		
Cropley	35	Poor		Poor	
		Clay >40 percent	0.00	AASHTO GI >8 (low soil strength)	0.00
		OM <0.5 percent	0.00	LEP 3 to 9	0.25
		K factor 0.10 to 0.35	0.90		
432:					
Cropley, coastal	85	Poor		Poor	
		Clay >40 percent	0.00	AASHTO GI >8 (low soil strength)	0.00
		OM <0.5 percent	0.00	LEP 3 to 9	0.25
		K factor 0.10 to 0.35	0.90		
433:					
Cropley, coastal	40	Poor		Poor	
		Clay >40 percent	0.00	AASHTO GI >8 (low soil strength)	0.00
		OM <0.5 percent	0.00	LEP 3 to 9	0.25
		K factor 0.10 to 0.35	0.90		
Urban land	25	Not rated		Not rated	
Haploxererts	20	Poor		Poor	
		Clay >40 percent	0.00	AASHTO GI >8 (low soil strength)	0.00
		K factor 0.10 to 0.35	0.90	LEP 3 to 9	0.25
				Depth to bedrock 40 to 60"	0.58
				Slopes 15 to 25 percent	0.59
434:					
Cropley, coastal	35	Poor		Poor	
		Clay >40 percent	0.00	AASHTO GI >8 (low soil strength)	0.00
		OM <0.5 percent	0.00	LEP 3 to 9	0.25
		K factor 0.10 to 0.35	0.90		
Xerorthents, landscaped	35	Fair		Fair	
		OM 0.5 to 1.0 percent	0.50	Depth to bedrock 40 to 60"	0.74
Urban land	25	Not rated		Not rated	

Table 12b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value
450:					
Sapwi	85	Poor		Poor	
		Fragments (>10") >15 percent	0.00	Depth to bedrock <40"	0.00
		AWC 3 to 6" to a depth of 60"	0.90	Slopes >25 percent	0.00
		pH 4.0 to 6.5 to a depth of 40"	0.92	LEP 3 to 9	0.75
		Clay 27 to 40 percent	0.98		
451:					
Urban land	65	Not rated		Not rated	
Sapwi	20	Poor		Poor	
		Fragments (>10") >15 percent	0.00	Depth to bedrock <40"	0.00
		AWC 3 to 6" to a depth of 60"	0.90	Slopes >25 percent	0.00
		pH 4.0 to 6.5 to a depth of 40"	0.92	LEP 3 to 9	0.75
		Clay 27 to 40 percent	0.98		
460:					
Typic Haploxerepts	85	Poor		Poor	
		OM <0.5 percent	0.00	Depth to bedrock <40"	0.00
		Clay 27 to 40 percent	0.98	Slopes >25 percent	0.00
				AASHTO GI 5 to 8 (soil strength)	0.22
				LEP 3 to 9	0.75
461:					
Typic Haploxerepts	85	Poor		Poor	
		OM <0.5 percent	0.00	Depth to bedrock <40"	0.00
		Clay 27 to 40 percent	0.98	Slopes 15 to 25 percent	0.12
				AASHTO GI 5 to 8 (soil strength)	0.22
				LEP 3 to 9	0.75
470:					
Sumiwawa	40	Poor		Poor	
		AWC <3" to a depth of 60"	0.00	Depth to bedrock <40"	0.00
		OM 0.5 to 1.0 percent	0.50	Slopes >25 percent	0.00
		Sand fraction 75 to 85 percent	0.65		
		pH 4.0 to 6.5 to a depth of 40"	0.99		
Hipuk	30	Poor		Poor	
		AWC <3" to a depth of 60"	0.00	Depth to bedrock <40"	0.00
		pH 4.0 to 6.5 to a depth of 40"	0.68	Slopes >25 percent	0.00
				LEP 3 to 9	0.75
Rock outcrop	20	Not rated		Not rated	

Table 12b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value
472:					
Rock outcrop	45	Not rated		Not rated	
Sumiwawa	30	Poor		Poor	
		AWC <3" to a depth of 60"	0.00	Depth to bedrock <40"	0.00
		OM 0.5 to 1.0 percent	0.50	Slopes >25 percent	0.00
		Sand fraction 75 to 85 percent	0.76		
		pH 4.0 to 6.5 to a depth of 40"	0.99		
Hipuk	15	Poor		Poor	
		AWC <3" to a depth of 60"	0.00	Depth to bedrock <40"	0.00
		pH 4.0 to 6.5 to a depth of 40"	0.68	Slopes >25 percent	0.00
				LEP 3 to 9	0.75
500:					
Balcom	85	Fair		Poor	
		Clay 27 to 40 percent	0.98	Depth to bedrock <40"	0.00
		K factor <0.10	0.99	Slopes >25 percent	0.00
				AASHTO GI >8 (low soil strength)	0.00
				LEP 3 to 9	0.75
503:					
Balcom	70	Fair		Poor	
		Clay 27 to 40 percent	0.98	Depth to bedrock <40"	0.00
		K factor <0.10	0.99	Slopes >25 percent	0.00
				LEP 3 to 9	0.75
Balcom, dark surface	15	Fair		Poor	
		Clay 27 to 40 percent	0.98	Depth to bedrock <40"	0.00
		K factor <0.10	0.99	Slopes >25 percent	0.00
				LEP 3 to 9	0.75
530:					
Xerorthents, landscaped	45	Fair		Fair	
		OM 0.5 to 1.0 percent	0.50	Slopes 15 to 25 percent	0.08
				Depth to bedrock 40 to 60"	0.74
Urban land	35	Not rated		Not rated	
Balcom	15	Fair		Poor	
		Clay 27 to 40 percent	0.98	Depth to bedrock <40"	0.00
		K factor <0.10	0.99	Slopes 15 to 25 percent	0.08
				LEP 3 to 9	0.75

Table 12b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value
531:					
Xerorthents, landscaped	40	Fair		Fair	
		OM 0.5 to 1.0 percent	0.50	Depth to bedrock 40 to 60"	0.74
Urban land	35	Not rated		Not rated	
Balcom	20	Fair		Poor	
		Clay 27 to 40 percent	0.98	Depth to bedrock <40"	0.00
		K factor <0.10	0.99	LEP 3 to 9	0.75
532:					
Xerorthents, landscaped	50	Fair		Fair	
		OM 0.5 to 1.0 percent	0.50	Slopes 15 to 25 percent	0.08
				Depth to bedrock 40 to 60"	0.74
Urban land	35	Not rated		Not rated	
Pachic Argixerolls, gullied	15	Fair		Poor	
		AWC 3 to 6" to a depth of 60"	0.01	Depth to bedrock <40"	0.00
		OM 0.5 to 1.0 percent	0.50	Slopes 15 to 25 percent	0.08
				LEP 3 to 9	0.75
540:					
Calcic Argixerolls	85	Fair		Poor	
		K factor 0.10 to 0.35	0.90	Depth to bedrock <40"	0.00
				Slopes >25 percent	0.00
				AASHTO GI >8 (low soil strength)	0.00
				LEP 3 to 9	0.75
550:					
Dam	100	Not rated		Not rated	
W:					
Water	100	Not rated		Not rated	

The interpretations for source of reclamation material evaluate the following soil properties at varying depths in the soil: Sand and clay content, fragment content, organic matter content (OM), wind erodibility group (WEG), available water capacity (AWC), soil pH, salinity (EC), sodium content (SAR), carbonate content, and susceptibility of the soil to erosion by water (K factor).

The interpretations for source of roadfill evaluate the following soil properties at varying depths in the soil: Shrink-swell potential expressed as linear extensibility percent (LEP), depth to rock or a cemented pan, wetness, slope, soil strength expressed as AASHTO group index number (AASHTO GI), and fragment content.

Table 13.--Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. As many as three limitations are lisited for each component. There may be more limitations. Fine-earth fraction and coarse fragment content are given on a weight basis. A brief summary of the rating criteria and a definition of some of the abbreviations are given at the end of the table. See text for more information on the limitations)

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Pond reservoir areas	
		Limitations	Value	Limitations	Value
100:					
Chumash	35	Thin layer	1.00	Slopes >7 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to bedrock <20"	1.00
Boades	25	Thin layer	1.00	Slopes >7 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to bedrock <20"	1.00
		High piping potential	0.12		
Malibu	25	Thin layer	0.93	Slopes >7 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to bedrock 20 to 60"	0.93
				Permeability 0.6-2.0"/hr (some seepage)	0.50
101:					
Chumash	35	Thin layer	1.00	Depth to bedrock <20"	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Slopes >7 percent	1.00
Boades	25	Thin layer	1.00	Depth to bedrock <20"	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Slopes >7 percent	1.00
		High piping potential	0.12		
Malibu	25	Thin layer	0.93	Slopes >7 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to bedrock 20 to 60"	0.93
				Permeability 0.6-2.0"/hr (some seepage)	0.50
110:					
Malibu	35	Thin layer	0.93	Slopes >7 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to bedrock 20 to 60"	0.93
				Permeability 0.6-2.0"/hr (some seepage)	0.50
Chumash	30	Thin layer	1.00	Slopes >7 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to bedrock <20"	1.00
Boades	25	Thin layer	1.00	Slopes >7 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to bedrock <20"	1.00
		High piping potential	0.12		

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees: Limitations	Value	Pond reservoir areas: Limitations	Value
120:					
Mipolomol	45	Thin layer	1.00	Slopes >7 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to bedrock <20"	1.00
Topanga	40	Thin layer	1.00	Slopes >7 percent	1.00
				Depth to bedrock <20"	1.00
				Permeability 0.6-2.0"/hr (some seepage)	0.50
121:					
Mipolomol	35	Thin layer	1.00	Slopes >7 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to bedrock <20"	1.00
Topanga	35	Thin layer	1.00	Slopes >7 percent	1.00
				Depth to bedrock <20"	1.00
				Permeability 0.6-2.0"/hr (some seepage)	0.50
Rock outcrop	15	Not rated		Not rated	
122:					
Calcic Haploxerepts	50	Thin layer	0.84	Slopes >7 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to bedrock 20 to 60"	0.84
		High piping potential	0.50	Permeability 0.6-2.0"/hr (some seepage)	0.50
Mollic Haploxeralfs	35	Thin layer	0.68	Slopes >7 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to bedrock 20 to 60"	0.68
130:					
Camarillo, coastal	85	Ponded (any duration)	1.00	Permeability >2"/hr (seepage)	1.00
		Very high piping potential	1.00		
		Shrink-swell (LEP 3 to 6)	0.50		
140:					
Sulfic Fluvaquents	100	Ponded (any duration)	1.00	None	
		Shrink-swell (LEP >6)	1.00		
		MH or CH Unified class and PI <40 percent	0.50		
150:					
Abaft	60	Possible seepage	0.50	Permeability >2"/hr (seepage)	1.00
Beaches	30	Not rated		Not rated	

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees: Limitations	Value	Pond reservoir areas: Limitations	Value
151:					
Abaft	55	Possible seepage	0.50	Permeability >2"/hr (seepage)	1.00
Beaches	30	Not rated		Not rated	
Urban land	15	Not rated		Not rated	
160:					
Xerorthents, landscaped	95	High piping potential	0.50	Slopes 2 to 7 percent	0.48
		Thin layer	0.06	Depth to bedrock 20 to 60"	0.06
170:					
Cotharin	85	Thin layer	1.00	Slopes >7 percent	1.00
		High piping potential	0.77	Depth to bedrock <20"	1.00
		Shrink-swell (LEP 3 to 6)	0.50		
171:					
Cotharin	65	Thin layer	1.00	Slopes >7 percent	1.00
		High piping potential	0.77	Depth to bedrock <20"	1.00
		Shrink-swell (LEP 3 to 6)	0.50		
Rock outcrop	20	Not rated		Not rated	
175:					
Cotharin	70	Thin layer	1.00	Slopes >7 percent	1.00
		High piping potential	0.77	Depth to bedrock <20"	1.00
		Shrink-swell (LEP 3 to 6)	0.50		
Talepop	15	Thin layer	1.00	Slopes >7 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to bedrock <20"	1.00
176:					
Cotharin	70	Thin layer	1.00	Slopes >7 percent	1.00
		High piping potential	0.77	Depth to bedrock <20"	1.00
		Shrink-swell (LEP 3 to 6)	0.50		
Talepop	15	Thin layer	1.00	Slopes >7 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to bedrock <20"	1.00
178:					
Cotharin	35	Thin layer	1.00	Slopes >7 percent	1.00
		High piping potential	0.77	Depth to bedrock <20"	1.00
		Shrink-swell (LEP 3 to 6)	0.50		

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees: Limitations	Value	Pond reservoir areas: Limitations	Value
178:					
Talepop	35	Thin layer	1.00	Slopes >7 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to bedrock <20"	1.00
Urban land	15	Not rated		Not rated	
179:					
Cotharin, dry	80	Thin layer	1.00	Slopes >7 percent	1.00
		High piping potential	0.77	Depth to bedrock <20"	1.00
		Shrink-swell (LEP 3 to 6)	0.50		
180:					
Pits and Dumps	100	Not rated		Not rated	
190:					
Kayiwish, gently sloping	65	Shrink-swell (LEP >6)	1.00	Depth to bedrock 20 to 60"	0.98
		Thin layer	0.98	Slopes 2 to 7 percent	0.31
		MH or CH Unified class and PI <40 percent	0.50		
Kayiwish, nearly level	20	Ponded (any duration)	1.00	Depth to bedrock <20"	0.99
		Shrink-swell (LEP >6)	1.00		
		Thin layer	0.99		
191:					
Kayiwish, gently sloping	65	Shrink-swell (LEP >6)	1.00	Slopes >7 percent	1.00
		Thin layer	0.98	Depth to bedrock 20 to 60"	0.98
		MH or CH Unified class and PI <40 percent	0.50		
Kayiwish, steeply sloping	20	Shrink-swell (LEP >6)	1.00	Slopes >7 percent	1.00
		Thin layer	0.98	Depth to bedrock 20 to 60"	0.98
		MH or CH Unified class and PI <40 percent	0.50		
200:					
Cumulic Haploxerolls	85	Shrink-swell (LEP 3 to 6)	0.50	Permeability 0.6-2.0"/hr (some seepage)	0.50
				Slopes 2 to 7 percent	0.48
202:					
Fluvaquents	70	Saturated to <24"	1.00	Permeability >2"/hr (seepage)	1.00
		Seepage	1.00		
Riverwash	20	Not rated		Not rated	

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees: Limitations	Value	Pond reservoir areas: Limitations	Value
220:					
Elder, coastal	85	None		Permeability >2"/hr (seepage)	1.00
230:					
Cotharin	70	Thin layer	1.00	Slopes >7 percent	1.00
		High piping potential	0.77	Depth to bedrock <20"	1.00
		Shrink-swell (LEP 3 to 6)	0.50		
Talepop	15	Thin layer	1.00	Slopes >7 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to bedrock <20"	1.00
231:					
Talepop	50	Thin layer	1.00	Slopes >7 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to bedrock <20"	1.00
Rock outcrop	35	Not rated		Not rated	
240:					
Tongva	45	Thin layer	0.87	Slopes >7 percent	1.00
		High piping potential	0.70	Depth to bedrock 20 to 60"	0.87
		Shrink-swell (LEP 3 to 6)	0.50	Permeability 0.6-2.0"/hr (some seepage)	0.29
Cotharin	30	Thin layer	1.00	Slopes >7 percent	1.00
		High piping potential	0.77	Depth to bedrock <20"	1.00
		Shrink-swell (LEP 3 to 6)	0.50		
Rock outcrop	15	Not rated		Not rated	
241:					
Cotharin	55	Thin layer	1.00	Slopes >7 percent	1.00
		High piping potential	0.77	Depth to bedrock <20"	1.00
		Shrink-swell (LEP 3 to 6)	0.50		
Rock outcrop	15	Not rated		Not rated	
Tongva	15	Thin layer	0.87	Slopes >7 percent	1.00
		High piping potential	0.70	Depth to bedrock 20 to 60"	0.87
		Shrink-swell (LEP 3 to 6)	0.50	Permeability 0.6-2.0"/hr (some seepage)	0.29
250:					
Urban land	75	Not rated		Not rated	
Xerorthents, landscaped	25	High piping potential	0.50	Depth to bedrock 20 to 60"	0.06
		Thin layer	0.06		

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees: Limitations	Value	Pond reservoir areas: Limitations	Value
251:					
Urban land	75	Not rated		Not rated	
Tongva	20	Thin layer	0.87	Slopes >7 percent	1.00
		High piping potential	0.70	Depth to bedrock 20 to 60"	0.87
		Shrink-swell (LEP 3 to 6)	0.50	Permeability 0.6-2.0"/hr (some seepage)	0.29
252:					
Urban land	70	Not rated		Not rated	
Xerorthents, landscaped	25	High piping potential	0.50	Depth to bedrock 20 to 60"	0.06
		Thin layer	0.06	Slopes 2 to 7 percent	0.02
270:					
Pacheco, coastal	90	Shrink-swell (LEP 3 to 6)	0.50	None	
		Low piping potential	0.03		
290:					
Topanga	40	Thin layer	1.00	Slopes >7 percent	1.00
				Depth to bedrock <20"	1.00
				Permeability 0.6-2.0"/hr (some seepage)	0.50
Mipolomol	30	Thin layer	1.00	Slopes >7 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to bedrock <20"	1.00
Sapwi	15	Fragments (>3") >35 percent	0.99	Slopes >7 percent	1.00
		Thin layer	0.58	Depth to bedrock 20 to 60"	0.58
		Shrink-swell (LEP 3 to 6)	0.50		
300:					
Zumaridge	55	Thin layer	1.00	Slopes >7 percent	1.00
		Organic matter (PT, OL, OH)	1.00	Depth to bedrock <20"	1.00
		Slight seepage	0.10		
Kawenga	30	Shrink-swell (LEP 3 to 6)	0.50	Slopes >7 percent	1.00
		Thin layer	0.02	Permeability 0.6-2.0"/hr (some seepage)	0.50
				Depth to bedrock 20 to 60"	0.02
301:					
Zumaridge	55	Thin layer	1.00	Slopes >7 percent	1.00
		Organic matter (PT, OL, OH)	1.00	Depth to bedrock <20"	1.00
		Slight seepage	0.10		

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees: Limitations	Value	Pond reservoir areas: Limitations	Value
301:					
Kawenga	30	Shrink-swell (LEP 3 to 6)	0.50	Slopes >7 percent	1.00
		Thin layer	0.02	Permeability 0.6-2.0"/hr (some seepage)	0.50
				Depth to bedrock 20 to 60"	0.02
302:					
Zumaridge	40	Thin layer	1.00	Slopes >7 percent	1.00
		Organic matter (PT, OL, OH)	1.00	Depth to bedrock <20"	1.00
		Slight seepage	0.10		
Rock outcrop	35	Not rated		Not rated	
Sumiwawa	15	Thin layer	1.00	Slopes >7 percent	1.00
		Possible seepage	0.50	Permeability >2"/hr (seepage)	1.00
				Depth to bedrock <20"	1.00
303:					
Zumaridge	40	Thin layer	1.00	Slopes >7 percent	1.00
		Organic matter (PT, OL, OH)	1.00	Depth to bedrock <20"	1.00
		Slight seepage	0.10		
Rock outcrop	35	Not rated		Not rated	
Sumiwawa	15	Thin layer	1.00	Slopes >7 percent	1.00
		Possible seepage	0.50	Permeability >2"/hr (seepage)	1.00
				Depth to bedrock <20"	1.00
304:					
Zumaridge	45	Thin layer	1.00	Slopes >7 percent	1.00
		Organic matter (PT, OL, OH)	1.00	Depth to bedrock <20"	1.00
		Slight seepage	0.10		
Sapwi	20	Fragments (>3") >35 percent	0.99	Slopes >7 percent	1.00
		Thin layer	0.58	Depth to bedrock 20 to 60"	0.58
		Shrink-swell (LEP 3 to 6)	0.50		
Kawenga	20	Shrink-swell (LEP 3 to 6)	0.50	Slopes >7 percent	1.00
		Thin layer	0.02	Permeability 0.6-2.0"/hr (some seepage)	0.50
				Depth to bedrock 20 to 60"	0.02

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees: Limitations	Value	Pond reservoir areas: Limitations	Value
305:					
Zumaridge	65	Thin layer	1.00	Slopes >7 percent	1.00
		Organic matter (PT, OL, OH)	1.00	Depth to bedrock <20"	1.00
		Slight seepage	0.10		
Rock outcrop	20	Not rated		Not rated	
310:					
Gaviota	85	Thin layer	1.00	Slopes >7 percent	1.00
				Depth to bedrock <20"	1.00
311:					
Gaviota, northerly aspect	75	Thin layer	1.00	Slopes >7 percent	1.00
				Depth to bedrock <20"	1.00
Rock outcrop	20	Not rated		Not rated	
320:					
Botella	85	Shrink-swell (LEP 3 to 6)	0.50	Slopes 2 to 7 percent	0.66
330:					
Linne	40	Thin layer	0.86	Slopes >7 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to bedrock 20 to 60"	0.86
Los Osos	25	Shrink-swell (LEP >6)	1.00	Slopes >7 percent	1.00
		Thin layer	0.68	Depth to bedrock 20 to 60"	0.68
		MH or CH Unified class and PI <40 percent	0.50		
Haploxerepts	20	Shrink-swell (LEP 3 to 6)	0.50	Slopes >7 percent	1.00
		Thin layer	0.19	Depth to bedrock 20 to 60"	0.19
331:					
Linne	75	Thin layer	0.86	Slopes >7 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to bedrock 20 to 60"	0.86
332:					
Linne	85	Thin layer	0.86	Slopes >7 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to bedrock 20 to 60"	0.86
350:					
Los Osos	85	Shrink-swell (LEP >6)	1.00	Slopes >7 percent	1.00
		Thin layer	0.68	Depth to bedrock 20 to 60"	0.68
		MH or CH Unified class and PI <40 percent	0.50		

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees: Limitations	Value	Pond reservoir areas: Limitations	Value
390:					
Danville, coastal	80	Shrink-swell (LEP >6)	1.00	Slopes 2 to 7 percent	0.66
Urban land	15	Not rated		Not rated	
391:					
Danville, coastal	85	Shrink-swell (LEP >6)	1.00	Slopes >7 percent	1.00
400:					
Pachic Argixerolls, coastal	85	Thin layer	0.98	Slopes >7 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to bedrock 20 to 60"	0.98
410:					
Lockwood, coastal	80	Shrink-swell (LEP 3 to 6)	0.50	Slopes >7 percent	1.00
Urban land	20	Not rated		Not rated	
411:					
Lockwood, coastal	80	Shrink-swell (LEP 3 to 6)	0.50	Slopes 2 to 7 percent	0.66
Urban land	20	Not rated		Not rated	
430:					
Cropley, coastal	85	Shrink-swell (LEP >6)	1.00	Slopes 2 to 7 percent	0.66
431:					
Cropley, coastal	50	Shrink-swell (LEP >6)	1.00	Slopes 2 to 7 percent	0.48
Cropley	35	Shrink-swell (LEP >6)	1.00	Slopes >7 percent	1.00
432:					
Cropley, coastal	85	Shrink-swell (LEP >6)	1.00	None	
433:					
Cropley, coastal	40	Shrink-swell (LEP >6)	1.00	Slopes 2 to 7 percent	0.48
Urban land	25	Not rated		Not rated	
Haploxererts	20	Shrink-swell (LEP >6)	1.00	Slopes >7 percent	1.00
		MH or CH Unified class and PI <40 percent	0.50	Depth to bedrock 20 to 60"	0.11
		Thin layer	0.11		

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees: Limitations	Value	Pond reservoir areas: Limitations	Value
434:					
Cropley, coastal	35	Shrink-swell (LEP >6)	1.00	Slopes 2 to 7 percent	0.48
Xerorthents, landscaped	35	High piping potential	0.50	Depth to bedrock 20 to 60"	0.06
		Thin layer	0.06		
Urban land	25	Not rated		Not rated	
450:					
Sapwi	85	Fragments (>3") >35 percent	0.99	Slopes >7 percent	1.00
		Thin layer	0.58	Depth to bedrock 20 to 60"	0.58
		Shrink-swell (LEP 3 to 6)	0.50		
451:					
Urban land	65	Not rated		Not rated	
Sapwi	20	Fragments (>3") >35 percent	0.99	Slopes >7 percent	1.00
		Thin layer	0.58	Depth to bedrock 20 to 60"	0.58
		Shrink-swell (LEP 3 to 6)	0.50		
460:					
Typic Haploxerepts	85	Thin layer	0.56	Slopes >7 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to bedrock 20 to 60"	0.56
461:					
Typic Haploxerepts	85	Thin layer	0.56	Slopes >7 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to bedrock 20 to 60"	0.56
470:					
Sumiwawa	40	Thin layer	1.00	Slopes >7 percent	1.00
		Possible seepage	0.50	Permeability >2"/hr (seepage)	1.00
				Depth to bedrock <20"	1.00
Hipuk	30	Thin layer	1.00	Slopes >7 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to bedrock <20"	1.00
Rock outcrop	20	Not rated		Not rated	
472:					
Rock outcrop	45	Not rated		Not rated	
Sumiwawa	30	Thin layer	1.00	Slopes >7 percent	1.00
		Possible seepage	0.50	Permeability >2"/hr (seepage)	1.00
				Depth to bedrock <20"	1.00

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Pond reservoir areas	
		Limitations	Value	Limitations	Value
472:					
Hipuk	15	Thin layer	1.00	Slopes >7 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to bedrock <20"	1.00
500:					
Balcom	85	Thin layer	0.63	Slopes >7 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to bedrock 20 to 60"	0.63
503:					
Balcom	70	Thin layer	0.63	Slopes >7 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to bedrock 20 to 60"	0.63
Balcom, dark surface	15	Thin layer	0.54	Slopes >7 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to bedrock 20 to 60"	0.54
530:					
Xerorthents, landscaped	45	High piping potential	0.50	Slopes >7 percent	1.00
		Thin layer	0.06	Depth to bedrock 20 to 60"	0.06
Urban land	35	Not rated		Not rated	
Balcom	15	Thin layer	0.63	Slopes >7 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to bedrock 20 to 60"	0.63
531:					
Xerorthents, landscaped	40	High piping potential	0.50	Slopes >7 percent	1.00
		Thin layer	0.06	Depth to bedrock 20 to 60"	0.06
Urban land	35	Not rated		Not rated	
Balcom	20	Thin layer	0.63	Slopes >7 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to bedrock 20 to 60"	0.63
532:					
Xerorthents, landscaped	50	High piping potential	0.50	Slopes >7 percent	1.00
		Thin layer	0.06	Depth to bedrock 20 to 60"	0.06

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees: Limitations	Embankments, dikes, and levees: Value	Pond reservoir areas: Limitations	Pond reservoir areas: Value
532:					
Urban land	35	Not rated		Not rated	
Pachic Argixerolls, gullied	15	Thin layer	0.98	Slopes >7 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to bedrock 20 to 60"	0.98
540:					
Calcic Argixerolls	85	Thin layer	0.59	Slopes >7 percent	1.00
		Shrink-swell (LEP 3 to 6)	0.50	Depth to bedrock 20 to 60"	0.59
		Low piping potential	0.05	Permeability 0.6-2.0"/hr (some seepage)	0.50
550:					
Dam	100	Not rated		Not rated	
W:					
Water	100	Not rated		Not rated	

The interpretations for embankments, dikes, and levees evaluate the following soil properties at varying depths in the soil: Ponding; wetness; depth to a restrictive layer; fragments greater than 3 inches in diameter; salinity (EC); Unified classes for high organic content (PT, OL, OH); Unified classes that are hard to pack (MH, CH); permeability that is too high, resulting in seepage; piping as determined by Atterberg limits of liquid limit (LL) and plasticity index (PI); sodium content (SAR); and gypsum content.

The interpretations for pond reservoir areas evaluate the following soil properties at varying depths in the soil: Slope, depth to hard or soft bedrock, depth to a cemented pan, marly textures, gypsum content, and permeability that is too high, resulting in seepage.

Table 14.--Engineering Index Properties

(Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
100:												
Chumash---------	0-7	Gravelly loam	SC	A-4	0	0	61-78	57-76	46-73	32-55	25-40	7-19
	7-17	Weathered bedrock			0	0	---	---	---	---	---	---
Boades----------	0-2	Loam	CL	A-6	0	0	85-92	84-91	71-86	52-65	33-45	12-19
	2-14	Loam, clay loam, gravelly loam	CL	A-6, A-2	0	0	61-85	57-84	46-82	34-64	31-51	12-25
	14-24	Weathered bedrock			0	0	---	---	---	---	---	---
Malibu----------	0-19	Loam	CL	A-6	0	0	78-85	76-84	65-79	48-60	33-45	12-19
	19-27	Clay	CH	A-7-6	0	0	84-100	83-100	70-100	60-87	50-66	29-40
	27-37	Weathered bedrock			0	0	---	---	---	---	---	---
101:												
Chumash---------	0-9	Gravelly loam	SC	A-4	0	0	61-78	57-76	46-73	32-55	25-40	7-19
	9-19	Weathered bedrock			0	0	---	---	---	---	---	---
Boades----------	0-2	Loam	CL	A-6	0	0	85-92	84-91	71-86	52-65	33-45	12-19
	2-14	Loam, gravelly loam, clay loam	CL	A-2, A-6	0	0	61-85	57-84	46-82	34-64	31-51	12-25
	14-24	Weathered bedrock			0	0	---	---	---	---	---	---
Malibu----------	0-20	Loam	CL	A-6	0	0	78-85	76-84	65-79	48-60	33-45	12-19
	20-27	Clay	CH	A-7-6	0	0	84-100	83-100	70-100	60-87	50-66	29-40
	27-37	Weathered bedrock			0	0	---	---	---	---	---	---
110:												
Malibu----------	0-19	Loam	CL	A-6	0	0	78-85	76-84	65-79	48-60	33-45	12-19
	19-27	Clay	CH	A-7-6	0	0	84-100	83-100	70-100	60-87	50-66	29-40
	27-37	Weathered bedrock			0	0	---	---	---	---	---	---
Chumash---------	0-7	Gravelly loam	SC	A-4	0	0	61-78	57-76	46-73	32-55	25-40	7-19
	7-17	Weathered bedrock			0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
110:												
Boades----------	0-2	Loam	CL	A-6	0	0	85-92	84-91	71-86	52-65	33-45	12-19
	2-14	Loam, gravelly loam, clay loam	GC, GC-GM, SC, SC-SM	A-2, A-6	0	0	61-85	57-84	46-82	34-64	31-51	12-25
	14-24	Weathered bedrock			0	0	---	---	---	---	---	---
120:												
Mipolomol-------	0-12	Channery loam	GC	A-6	0	0	56-79	52-77	44-72	32-55	33-45	12-19
	12-22	Weathered bedrock			0	0	---	---	---	---	---	---
Topanga---------	0-2	Gravelly loam	GC-GM	A-4	0	0	61-78	57-76	47-75	34-56	27-43	7-18
	2-15	Gravelly loam	GC-GM	A-4	0	0	61-78	57-76	47-75	34-56	27-43	7-18
	15-18	Loam, gravelly clay loam	SC, SC-SM, GC, GC-GM	A-6, A-2	0	0	61-85	57-84	47-83	35-66	31-51	12-25
	18-27	Weathered bedrock			0	0	---	---	---	---	---	---
121:												
Mipolomol-------	0-12	Channery loam	GC	A-6	0	0	56-79	52-77	44-72	32-55	33-45	12-19
	12-22	Weathered bedrock			0	0	---	---	---	---	---	---
Topanga---------	0-2	Gravelly loam	GC-GM	A-4	0	0	61-78	57-76	47-75	34-56	27-43	7-18
	2-15	Gravelly loam	GC-GM	A-4	0	0	61-78	57-76	47-75	34-56	27-43	7-18
	15-18	Loam, clay loam, gravelly clay loam	SC, SC-SM, GC, GC-GM	A-6, A-2	0	0	61-85	57-84	46-82	34-64	31-51	12-25
	18-28	Weathered bedrock			0	0	---	---	---	---	---	---
Rock outcrop----	---	---	---	---	---	---	---	---	---	---	---	---
122:												
Calcic Haploxerepts---	0-4	Gravelly silt loam	SC	A-6	0	0	59-77	57-76	52-76	44-66	31-43	12-19
	4-12	Gravelly silt loam	SC	A-6	0	0	59-77	57-76	52-76	44-66	31-43	12-19
	12-31	Gravelly silt loam	SC	A-6	0	0	59-77	57-76	52-76	44-66	31-43	12-19
	31-41	Weathered bedrock			0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				*Pct*	*Pct*					*Pct*	
122:												
Mollic Haploxeralfs---	0-5	Loam	CL	A-6	0	0	78-100	76-100	65-94	48-71	30-40	12-19
	5-35	Clay loam	CL	A-7-6	0	0	78-100	76-100	66-95	50-75	38-47	19-25
	35-45	Weathered bedrock			0	0	---	---	---	---	---	---
130:												
Camarillo, coastal--------	0-24	Loam	CL-ML, ML	A-4	0	0	---	---	---	---	24-47	6-19
	24-50	Stratified sandy loam to sandy clay loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0	95-100	95-100	85-95	45-65	25-35	5-15
	50-80	Fine sand	SM	A-2, A-3	0	0	81-100	62-100	56-97	5-14	0-20	NP-2
140:												
Sulfic Fluvaquents----	0-41	Silty clay	MH	A-7	0	0	---	---	---	---	54-84	29-39
	41-60	Silty clay	CH	A-7	0	0	---	---	---	---	45-65	25-40
150:												
Abaft----------	0-4	Loamy sand	SM	A-2	0	0	100	100	75-80	25-30	0-20	NP-2
	4-60	Stratified fine sand to loamy coarse sand to loamy sand	SM	A-2	0	0	100	100	50-80	15-35	0-19	NP-2
Beaches---------	---	---	---	---	---	---	---	---	---	---	---	---
151:												
Abaft----------	0-4	Loamy sand	SM	A-2	0	0	100	100	75-80	25-30	0-20	NP-2
	4-60	Stratified fine sand to loamy coarse sand to loamy sand	SM	A-2	0	0	100	100	50-80	15-35	0-19	NP-2
Beaches---------	---	---	---	---	---	---	---	---	---	---	---	---
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
160:												
Xerorthents, landscaped-----	0-4	Loam	CL	A-6	0	0	84-100	84-100	70-93	49-67	29-39	12-19
	4-52	Loam	CL	A-6	0	0	84-100	84-100	70-93	49-67	29-39	12-19
	52-62	Weathered bedrock			0	0	0	0	0	0	0-0	NP
170:												
Cotharin--------	0-1	Slightly decomposed plant material	PT		0	0	---	---	---	---	---	---
	1-9	Loam	CL	A-6	0	0	100	100	86-95	65-74	33-45	12-19
	9-11	Loam	CL	A-6	0	0	100	100	85-94	62-71	33-45	12-19
	11-21	Weathered bedrock			0	0	---	---	---	---	---	---
171:												
Cotharin--------	0-1	Slightly decomposed plant material	PT		0	0	---	---	---	---	---	---
	1-9	Loam	CL	A-6	0	0	100	100	86-95	65-74	33-45	12-19
	9-11	Loam	CL	A-6	0	0	100	100	85-94	62-71	33-45	12-19
	11-21	Weathered bedrock			0	0	---	---	---	---	---	---
Rock outcrop----	---	---	---	---	---	---	---	---	---	---	---	---
175:												
Cotharin--------	0-1	Slightly decomposed plant material	PT		0	0	---	---	---	---	---	---
	1-9	Loam	CL	A-6	0	0	100	100	86-95	65-74	33-45	12-19
	9-11	Loam	CL	A-6	0	0	100	100	85-94	62-71	33-45	12-19
	11-21	Weathered bedrock			0	0	---	---	---	---	---	---
Talepop---------	0-1	Gravelly loam	GC	A-6	0	0	61-78	57-76	46-73	32-55	28-45	7-19
	1-5	Loam, clay loam, gravelly loam	GC	A-6	0	0	61-85	57-84	46-82	34-64	31-51	12-25
	5-15	Weathered bedrock			0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				*Pct*	*Pct*					*Pct*	
176:												
Cotharin--------	0-1	Slightly decomposed plant material	PT		0	0	---	---	---	---	---	---
	1-9	Loam	CL	A-6	0	0	100	100	86-95	65-74	33-45	12-19
	9-11	Loam	CL	A-6	0	0	100	100	85-94	62-71	33-45	12-19
	11-21	Weathered bedrock			0	0	---	---	---	---	---	---
Talepop---------	0-1	Gravelly loam	GC	A-6	0	0	61-78	57-76	46-73	32-55	28-45	7-19
	1-5	Loam, clay loam, gravelly loam	GC	A-7-6	0	0	61-85	57-84	46-82	34-64	31-51	12-25
	5-15	Weathered bedrock			0	0	---	---	---	---	---	---
178:												
Cotharin--------	0-1	Slightly decomposed plant material	PT		0	0	---	---	---	---	---	---
	1-9	Loam	CL	A-6	0	0	100	100	86-95	65-74	33-45	12-19
	9-11	Loam	CL	A-6	0	0	100	100	85-94	62-71	33-45	12-19
	11-21	Weathered bedrock			0	0	---	---	---	---	---	---
Talepop---------	0-1	Gravelly loam	GC	A-6	0	0	61-78	57-76	46-73	32-55	28-45	7-19
	1-5	Loam, clay loam, gravelly loam	GC	A-7-6	0	0	61-85	57-84	46-82	34-64	31-51	12-25
	5-15	Weathered bedrock			0	0	---	---	---	---	---	---
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
179:												
Cotharin, dry---	0-1	Slightly decomposed plant material	PT		0	0	---	---	---	---	---	---
	1-9	Loam	CL	A-6	0	0	100	100	86-95	65-74	33-45	12-19
	9-11	Loam	CL	A-6	0	0	100	100	85-94	62-71	33-45	12-19
	11-21	Weathered bedrock			0	0	---	---	---	---	---	---
180:												
Pits and Dumps--	---	---	---	---	---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
190:												
Kayiwish, gently sloping--------	0-4	Clay	CH	A-7-6	0	0	84-100	83-100	70-100	60-87	54-70	29-40
	4-21	Clay	CH	A-7-6	0	0	84-100	83-100	70-100	60-87	52-69	29-40
	21-24	Clay	CH	A-7-6	0	0	84-100	83-100	70-100	60-87	50-66	29-40
	24-33	Weathered bedrock			0	0	---	---	---	---	---	---
Kayiwish, nearly level----------	0-2	Clay	CH		0	0	100	100	85-100	72-87	54-70	29-40
	2-19	Clay	CH	A-7-6	0	0	84-100	83-100	70-100	60-87	54-70	29-40
	19-21	Clay	CH	A-7-6	0	0	84-100	83-100	70-100	60-87	51-68	29-40
	21-31	Weathered bedrock			0	0	---	---	---	---	---	---
191:												
Kayiwish, gently sloping--------	0-4	Clay	CH	A-7-6	0	0	84-100	83-100	70-100	60-87	54-70	29-40
	4-21	Clay	CH	A-7-6	0	0	84-100	83-100	70-100	60-87	52-69	29-40
	21-24	Clay	CH	A-7-6	0	0	84-100	83-100	70-100	60-87	50-66	29-40
	24-33	Weathered bedrock			0	0	---	---	---	---	---	---
Kayiwish, steeply sloping	0-2	Clay	CH	A-7-6	0	0	84-100	83-100	70-100	60-87	54-70	29-40
	2-24	Clay	CH	A-7-6	0	0	84-100	83-100	70-100	60-87	54-70	29-40
	24-33	Weathered bedrock			0	0	---	---	---	---	---	---
200:												
Cumulic Haploxerolls---	0-16	Stratified sandy loam	SM	A-2	0	0	---	---	---	---	20-35	2-10
	16-69	Stratified clay loam	CL	A-6	0	0	85-100	84-100	---	---	41-53	19-25
	69-83	Extremely gravelly coarse sand	SW	A-1	28-40	28-40	21-57	17-55	8-26	2-8	0-18	NP-1

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				*Pct*	*Pct*					*Pct*	
202:												
Fluvaquents-----	0-5	Loam	CL	A-6	0	0	100	100	85-94	62-71	31-45	12-19
	5-10	Fine sandy loam	SC-SM	A-4	0	0	100	100	88-96	39-47	22-31	6-12
	10-14	Sandy loam	SM	A-2	0	0	100	100	72-80	35-43	23-35	6-12
	14-19	Loamy sand	SM	A-2	0	0	79-100	77-100	58-85	13-26	16-27	2-10
	19-48	Extremely gravelly sand	GW	A-1	0	0	24-31	17-25	12-20	1-3	0-21	NP-4
	48-55	Gravelly coarse sand	SW-SM	A-1	0	0	57-79	53-77	24-40	5-11	0-21	NP-4
Riverwash-------	---	---	---	---	---	---	---	---	---	---	---	---
220:												
Elder, coastal--	0-8	Fine sandy loam	SM	A-4	0	0	79-100	77-100	67-98	26-44	21-37	4-12
	8-42	Fine sandy loam	SC-SM	A-2	0	0	78-100	76-100	67-98	26-44	20-31	4-12
	42-43	Loamy sand	SM	A-2	0	0	78-100	76-100	59-82	22-33	16-22	1-4
	43-51	Fine sandy loam	SC-SM	A-4	0	0	78-100	76-100	67-98	26-44	20-31	4-12
	51-52	Loamy sand	SM	A-2	0	0	78-100	76-100	59-82	22-33	16-22	1-4
	52-60	Fine sandy loam	SC-SM	A-2	0	0	78-100	76-100	67-98	26-44	20-31	4-12
230:												
Cotharin--------	0-1	Slightly decomposed plant material	PT		0	0	---	---	---	---	---	---
	1-9	Loam	CL	A-6	0	0	100	100	86-95	65-74	33-45	12-19
	9-11	Loam	CL	A-6	0	0	100	100	85-94	62-71	33-45	12-19
	11-21	Weathered bedrock			0	0	---	---	---	---	---	---
Talepop---------	0-1	Gravelly loam	GC	A-6	0	0	61-78	57-76	46-73	32-55	28-45	7-19
	1-5	Loam, clay loam, gravelly loam	GC	A-7-6	0	0	61-85	57-84	46-82	34-64	31-51	12-25
	5-15	Weathered bedrock			0	0	---	---	---	---	---	---
231:												
Talepop---------	0-1	Gravelly loam	GC	A-6	0	0	61-78	57-76	46-73	32-55	28-45	7-19
	1-5	Loam, clay loam, gravelly loam	GC	A-7-6	0	0	61-85	57-84	46-82	34-64	31-51	12-25
	5-15	Weathered bedrock			0	0	---	---	---	---	---	---
Rock outcrop----	---	---	---	---	---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
240:												
Tongva----------	0-2	Moderately decomposed plant material	PT		0	0	---	---	---	---	---	---
	2-4	Loam	CL	A-6	0	0	78-92	76-91	62-88	43-66	28-47	7-19
	4-30	Loam	CL	A-6	0	0	78-92	76-91	65-86	48-65	33-47	12-19
	30-39	Weathered bedrock			0	0	---	---	---	---	---	---
Cotharin--------	0-1	Slightly decomposed plant material	PT		0	0	---	---	---	---	---	---
	1-9	Loam	CL	A-6	0	0	100	100	86-95	65-74	33-45	12-19
	9-11	Loam	CL	A-6	0	0	100	100	85-94	62-71	33-45	12-19
	11-21	Weathered bedrock			0	0	---	---	---	---	---	---
Rock outcrop----	---	---	---	---	---	---	---	---	---	---	---	---
241:												
Cotharin--------	0-1	Slightly decomposed plant material	PT		0	0	---	---	---	---	---	---
	1-9	Loam	CL	A-6	0	0	100	100	86-95	65-74	33-45	12-19
	9-11	Loam	CL	A-6	0	0	100	100	85-94	62-71	33-45	12-19
	11-21	Weathered bedrock			0	0	---	---	---	---	---	---
Rock outcrop----	---	---	---	---	---	---	---	---	---	---	---	---
Tongva----------	0-2	Moderately decomposed plant material	PT		0	0	---	---	---	---	---	---
	2-4	Loam	CL	A-6	0	0	78-92	76-91	62-88	43-66	28-47	7-19
	4-30	Loam	CL	A-6	0	0	78-92	76-91	65-86	48-65	33-47	12-19
	30-39	Weathered bedrock			0	0	---	---	---	---	---	---
250:												
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
Xerorthents, landscaped-----	0-4	Loam	CL	A-6	0	0	84-100	84-100	70-93	49-67	29-39	12-19
	4-52	Loam	CL	A-6	0	0	84-100	84-100	70-93	49-67	29-39	12-19
	52-62	Weathered bedrock			0	0	0	0	0	0	0-0	NP

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				*Pct*	*Pct*					*Pct*	
251:												
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
Tongva----------	0-2	Moderately decomposed plant material	PT		0	0	---	---	---	---	---	---
	2-4	Loam	CL	A-6	0	0	78-92	76-91	62-88	43-66	28-47	7-19
	4-30	Loam	CL	A-6	0	0	78-92	76-91	65-86	48-65	33-47	12-19
	30-39	Weathered bedrock			0	0	---	---	---	---	---	---
252:												
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
Xerorthents, landscaped-----	0-4	Loam	CL	A-6	0	0	84-100	84-100	70-93	49-67	29-39	12-19
	4-52	Loam	CL	A-6	0	0	84-100	84-100	70-93	49-67	29-39	12-19
	52-62	Weathered bedrock			0	0	0	0	0	0	0-0	NP
270:												
Pacheco, coastal	0-17	Silty clay loam	CL	A-7-6	0	0	100	91-100	87-100	76-91	41-53	19-25
	17-46	Silt loam, silty clay loam	CL	A-6	0	0	90-100	76-100	71-100	63-93	36-47	17-25
	46-60	Stratified sand to silty clay loam	CL, CL-ML	A-4, A-6	0	0	90-100	85-100	60-80	50-60	25-35	5-15
290:												
Topanga---------	0-2	Gravelly loam	GC-GM	A-4	0	0	61-78	57-76	47-75	34-56	27-43	7-18
	2-15	Gravelly loam	GC-GM	A-4	0	0	61-78	57-76	47-75	34-56	27-43	7-18
	15-18	Loam, clay loam, gravelly clay loam	SC, SC-SM, GC, GC-GM	A-6, A-2	0	0	61-85	57-84	47-83	35-66	31-51	12-25
	18-27	Weathered bedrock			0	0	---	---	---	---	---	---
Mipolomol-------	0-12	Channery loam	GC	A-6	0	0	56-79	52-77	44-72	32-55	33-45	12-19
	12-22	Weathered bedrock			0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
290:												
Sapwi----------	0-1	Slightly decomposed plant material	PT		0	0	---	---	---	---	---	---
	1-4	Loam	CL	A-6	0	0	77-100	76-100	62-96	43-72	28-47	7-19
	4-24	Stony clay loam	SC	A-7-6	8-23	8-23	69-91	67-91	59-86	45-68	41-53	19-25
	24-38	Very stony clay loam	GC	A-7-6	16-30	16-30	39-72	36-71	31-67	24-53	41-51	19-25
	38-48	Unweathered bedrock			0	0	---	---	---	---	---	---
300:												
Zumaridge-------	0-2	Moderately decomposed plant material	PT		0	0	---	---	---	---	---	---
	2-10	Loam	CL	A-4	0	0	80-100	79-100	65-92	45-67	23-37	4-12
	10-13	Weathered bedrock			0	0	---	---	---	---	---	---
	13-23	Unweathered bedrock			0	0	---	---	---	---	---	---
Kawenga---------	0-2	Moderately decomposed plant material	PT		0	0	---	---	---	---	---	---
	2-27	Gravelly loam, loam	GC	A-4	0	0	59-77	57-76	46-73	32-55	28-47	7-19
	27-37	Gravelly clay loam, gravelly loam, clay loam	CL	A-6	0	0	59-77	57-76	46-75	34-59	33-53	12-25
	37-55	Gravelly clay loam, gravelly loam	CL	A-6	0	0	59-77	57-76	46-75	34-59	33-53	12-25
	55-65	Weathered bedrock			0	0	---	---	---	---	---	---
301:												
Zumaridge-------	0-2	Moderately decomposed plant material	PT		0	0	---	---	---	---	---	---
	2-10	Loam	CL	A-4	0	0	80-100	79-100	65-92	45-67	23-37	4-12
	10-13	Weathered bedrock			0	0	---	---	---	---	---	---
	13-23	Unweathered bedrock			0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
301:												
Kawenga---------	0-2	Moderately decomposed plant material	PT		0	0	---	---	---	---	---	---
	2-27	Gravelly loam, loam	GC	A-4	0	0	59-77	57-76	46-73	32-55	28-47	7-19
	27-37	Gravelly clay loam, gravelly loam, clay loam	CL	A-6	0	0	59-77	57-76	46-75	34-59	33-53	12-25
	37-55	Gravelly clay loam, gravelly loam	CL	A-6	0	0	59-77	57-76	46-75	34-59	33-53	12-25
	55-65	Weathered bedrock			0	0	---	---	---	---	---	---
302:												
Zumaridge-------	0-2	Moderately decomposed plant material	PT		0	0	---	---	---	---	---	---
	2-10	Loam	CL	A-4	0	0	80-100	79-100	65-92	45-67	23-37	4-12
	10-13	Weathered bedrock			0	0	---	---	---	---	---	---
	13-23	Unweathered bedrock			0	0	---	---	---	---	---	---
Rock outcrop----	---	---	---	---	---	---	---	---	---	---	---	---
Sumiwawa--------	0-9	Gravelly loamy sand	SM	A-2-4	0	0	62-79	53-77	40-64	14-25	0-22	NP-4
	9-13	Loamy sand	SM	A-2-4	0	0	79-92	77-92	59-75	21-30	0-22	NP-4
	13-22	Weathered bedrock			0	0	---	---	---	---	---	---
	22-31	Unweathered bedrock			0	0	---	---	---	---	---	---
303:												
Zumaridge-------	0-2	Moderately decomposed plant material	PT		0	0	---	---	---	---	---	---
	2-10	Loam	CL	A-4	0	0	80-100	79-100	65-92	45-67	23-37	4-12
	10-13	Weathered bedrock			0	0	---	---	---	---	---	---
	13-23	Unweathered bedrock			0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
303:												
Rock outcrop----	---	---	---	---	---	---	---	---	---	---	---	---
Sumiwawa--------	0-9	Gravelly loamy sand	SM	A-2-4	0	0	62-79	53-77	40-64	14-25	0-22	NP-4
	9-13	Loamy sand	SM	A-2-4	0	0	79-92	77-92	59-75	21-30	0-22	NP-4
	13-22	Weathered bedrock			0	0	---	---	---	---	---	---
	22-31	Unweathered bedrock			0	0	---	---	---	---	---	---
304:												
Zumaridge-------	0-2	Moderately decomposed plant material	PT		0	0	---	---	---	---	---	---
	2-10	Loam	CL	A-4	0	0	80-100	79-100	65-92	45-67	23-37	4-12
	10-13	Weathered bedrock			0	0	---	---	---	---	---	---
	13-23	Unweathered bedrock			0	0	---	---	---	---	---	---
Sapwi-----------	0-1	Slightly decomposed plant material	PT		0	0	---	---	---	---	---	---
	1-4	Loam	CL	A-6	0	0	77-100	76-100	62-96	43-72	28-47	7-19
	4-24	Stony clay loam	SC	A-7-6	8-23	8-23	69-91	67-91	59-86	45-68	41-53	19-25
	24-38	Very stony clay loam	GC	A-7-6	16-30	16-30	39-72	36-71	31-67	24-53	41-51	19-25
	38-48	Unweathered bedrock			0	0	---	---	---	---	---	---
Kawenga---------	0-2	Moderately decomposed plant material	PT		0	0	---	---	---	---	---	---
	2-27	Gravelly loam, loam	GC	A-4	0	0	59-77	57-76	46-73	32-55	28-47	7-19
	27-37	Gravelly clay loam, gravelly loam, clay loam	CL	A-6	0	0	59-77	57-76	46-75	34-59	33-53	12-25
	37-55	Gravelly clay loam, gravelly loam	CL	A-7-6	0	0	59-77	57-76	46-75	34-59	33-53	12-25
	55-65	Weathered bedrock			0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				*Pct*	*Pct*					*Pct*	
305:												
Zumaridge-------	0-2	Moderately decomposed plant material	PT		0	0	---	---	---	---	---	---
	2-10	Loam	CL	A-4	0	0	80-100	79-100	65-92	45-67	23-37	4-12
	10-13	Weathered bedrock			0	0	---	---	---	---	---	---
	13-23	Unweathered bedrock			0	0	---	---	---	---	---	---
Rock outcrop----	---	---	---	---	---	---	---	---	---	---	---	---
310:												
Gaviota---------	0-8	Sandy loam	SC-SM	A-2	0	0	100	100	72-80	34-42	18-28	4-10
	8-18	Unweathered bedrock			0	0	---	---	---	---	---	---
311:												
Gaviota, northerly aspect---------	0-8	Sandy loam	SC-SM	A-2	0	0	100	100	72-80	34-42	18-28	4-10
	8-18	Unweathered bedrock			0	0	---	---	---	---	---	---
Rock outcrop----	---	---	---	---	---	---	---	---	---	---	---	---
320:												
Botella---------	0-8	Loam	CL	A-4	0	0	84-100	84-100	69-95	49-71	31-51	10-19
	8-60	Clay loam	CL	A-7	0	0	84-100	83-100	74-94	57-74	41-49	21-25
330:												
Linne----------	0-25	Silty clay loam	ML	A-6, A-7	0	0	84-100	83-100	79-100	69-91	39-53	19-25
	25-30	Silty clay loam	CL	A-6, A-7	0	0	84-100	83-100	79-100	69-91	38-47	19-25
	30-40	Weathered bedrock			0	0	---	---	---	---	---	---
Los Osos--------	0-9	Clay loam	CL	A-6	0	0	92-100	91-100	79-95	61-75	39-53	19-25
	9-35	Clay loam, clay	CH, CL	A-7-6	0	0	91-100	91-100	78-100	63-84	45-61	25-37
	35-45	Weathered bedrock			0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
330:												
Haploxerepts----	0-4	Loam	CL	A-6	0	0	77-92	76-91	65-86	48-65	30-40	12-19
	4-19	Channery silty clay loam	CL	A-7	0	0	53-77	51-76	49-76	43-70	38-47	19-25
	19-47	Channery silty clay loam	CL	A-7	0	0	53-77	51-76	49-76	43-70	38-47	19-25
	47-57	Weathered bedrock			0	0	---	---	---	---	---	---
331:												
Linne----------	0-25	Silty clay loam	ML	A-6, A-7	0	0	84-100	83-100	79-100	69-91	39-53	19-25
	25-30	Silty clay loam	CL	A-6, A-7	0	0	84-100	83-100	79-100	69-91	38-47	19-25
	30-40	Weathered bedrock			0	0	---	---	---	---	---	---
332:												
Linne----------	0-25	Silty clay loam	ML	A-6, A-7	0	0	84-100	83-100	79-100	69-91	39-53	19-25
	25-30	Silty clay loam	CL	A-6, A-7	0	0	84-100	83-100	79-100	69-91	38-47	19-25
	30-40	Weathered bedrock			0	0	---	---	---	---	---	---
350:												
Los Osos--------	0-9	Clay loam	CL	A-6	0	0	92-100	91-100	79-95	61-75	39-53	19-25
	9-35	Clay loam, clay	CH, CL	A-7-6	0	0	91-100	91-100	78-100	63-84	45-61	25-37
	35-45	Weathered bedrock			0	0	---	---	---	---	---	---
390:												
Danville, coastal--------	0-4	Clay loam	CL	A-6	0	0	97-100	96-100	84-95	64-75	39-49	19-25
	4-31	Clay, clay loam, silty clay loam	CH, CL	A-7	0	0	96-100	96-100	84-98	67-80	45-57	25-33
	31-60	Clay, silty clay	CL	A-7	0	0	96-100	96-100	88-96	71-79	49-57	29-33
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
391:												
Danville, coastal--------	0-4	Clay loam	CL	A-6	0	0	97-100	96-100	84-95	64-75	39-49	19-25
	4-31	Clay, silty clay	CH, CL	A-7	0	0	96-100	96-100	84-98	67-80	45-57	25-33
	31-60	Clay, silty clay	CL	A-7	0	0	96-100	96-100	88-96	71-79	49-57	29-33

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				*Pct*	*Pct*					*Pct*	
400:												
Pachic Argixerolls, coastal--------	0-9	Gravelly loam	CL	A-6	0	0	58-76	56-76	45-73	32-54	26-45	7-19
	9-24	Gravelly clay loam	CL	A-6	0	0	68-82	45-82	39-79	30-63	36-47	17-25
	24-33	Unweathered bedrock			0	0	---	---	---	---	---	---
410:												
Lockwood, coastal--------	0-4	Gravelly loam	SM	A-7-6	0	0	68-87	45-71	38-67	28-51	33-49	12-19
	4-13	Gravelly clay loam	SC	A-7-6	0	0	68-87	45-71	39-68	30-53	37-46	19-25
	13-82	Gravelly sandy clay loam	SC	A-2-7	0	0	68-86	44-70	35-64	20-39	35-46	17-25
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
411:												
Lockwood, coastal--------	0-4	Gravelly loam	SC	A-7-6	0	0	68-87	45-71	38-67	28-51	33-49	12-19
	4-13	Gravelly clay loam	CL, GC	A-7-6	0	0	68-87	45-71	39-68	30-53	37-46	19-25
	13-82	Gravelly sandy clay loam	SC	A-2-7	0	0	68-86	44-70	35-64	20-39	35-46	17-25
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
430:												
Cropley, coastal	0-2	Clay	CH	A-7	0	0	91-100	91-100	75-100	64-91	51-74	29-44
	2-22	Silty clay loam, clay loam, clay	CH, CL	A-7	0	0	91-100	91-100	78-100	75-100	45-70	25-44
	22-60	Silt loam, silty clay loam	CL	A-7-6	0	0	100	94-100	89-100	79-94	41-52	21-29
431:												
Cropley, coastal	0-2	Clay	CH	A-7	0	0	91-100	91-100	75-100	64-91	51-74	29-44
	2-22	Silty clay loam, clay loam, clay	CH, CL	A-7	0	0	91-100	91-100	78-100	75-100	45-70	25-44
	22-60	Silt loam, silty clay loam	CL	A-7-6	0	0	100	94-100	89-100	79-94	41-52	21-29

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
431:												
Cropley---------	0-2	Clay	CH	A-7	0	0	91-100	91-100	75-100	64-91	51-74	29-44
	2-22	Silty clay loam, clay loam, clay	CH, CL	A-7	0	0	91-100	91-100	78-100	75-100	45-70	25-44
	22-60	Silt loam, silty clay loam	CL	A-7-6	0	0	100	94-100	89-100	79-94	41-52	21-29
432:												
Cropley, coastal	0-2	Clay	CH	A-7	0	0	91-100	91-100	75-100	64-91	51-74	29-44
	2-22	Silty clay loam, clay loam, clay	CH, CL	A-7	0	0	91-100	91-100	78-100	75-100	45-70	25-44
	22-60	Silt loam, silty clay loam	CL	A-7-6	0	0	100	94-100	89-100	79-94	41-52	21-29
433:												
Cropley, coastal	0-2	Clay	CH	A-7	0	0	91-100	91-100	75-100	64-91	51-74	29-44
	2-22	Silty clay loam, clay loam, clay	CH, CL	A-7	0	0	91-100	91-100	78-100	75-100	45-70	25-44
	22-60	Silt loam, silty clay loam	CL	A-7-6	0	0	100	94-100	89-100	79-94	41-52	21-29
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
Haploxererts----	0-30	Clay	CH	A-7	0	0	91-100	91-100	75-100	64-91	51-74	29-44
	30-50	Clay loam, clay	CH, CL	A-7	0	0	91-100	91-100	78-100	75-100	45-70	25-44
	50-60	Weathered bedrock			0	0	---	---	---	---	---	---
434:												
Cropley, coastal	0-2	Clay	CH	A-7	0	0	91-100	91-100	75-100	64-91	51-74	29-44
	2-22	Silty clay loam, clay loam, clay	CH, CL	A-7	0	0	91-100	91-100	78-100	75-100	45-70	25-44
	22-60	Silt loam, silty clay loam	CL	A-7-6	0	0	100	94-100	89-100	79-94	41-52	21-29

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				*Pct*	*Pct*					*Pct*	
434:												
Xerorthents, landscaped-----	0-4	Loam	CL	A-6	0	0	84-100	84-100	70-93	49-67	28-38	12-19
	4-52	Loam	CL	A-6	0	0	84-100	84-100	70-93	49-67	28-38	12-19
	52-62	Weathered bedrock			0	0	0	0	0	0	0-0	NP
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
450:												
Sapwi----------	0-1	Slightly decomposed plant material	PT		0	0	---	---	---	---	---	---
	1-4	Loam	CL	A-6	0	0	77-100	76-100	62-96	43-72	28-47	7-19
	4-24	Stony clay loam	SC	A-7-6	8-23	8-23	69-91	67-91	59-86	45-68	41-53	19-25
	24-38	Very stony clay loam	GC	A-7-6	16-30	16-30	39-72	36-71	31-67	24-53	41-51	19-25
	38-48	Unweathered bedrock			0	0	---	---	---	---	---	---
451:												
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
Sapwi----------	0-1	Slightly decomposed plant material	PT		0	0	---	---	---	---	---	---
	1-4	Loam	CL	A-6	0	0	77-100	76-100	62-96	43-72	28-47	7-19
	4-24	Stony clay loam	SC	A-7-6	8-23	8-23	69-91	67-91	59-86	45-68	41-53	19-25
	24-38	Very stony clay loam	GC	A-7-6	16-30	16-30	39-72	36-71	31-67	24-53	41-51	19-25
	38-48	Unweathered bedrock			0	0	---	---	---	---	---	---
460:												
Typic Haploxerepts---	0-10	Silty clay loam	CL	A-7-6	0	0	76-84	76-83	72-83	69-82	37-46	19-25
	10-22	Silty clay loam	CL	A-7-6	0	0	76-84	76-83	72-83	69-82	37-46	19-25
	22-38	Channery clay loam	CL	A-7-6	0	0	52-76	50-76	48-76	40-66	37-46	19-25
	38-47	Weathered bedrock			0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
461:												
Typic Haploxerepts---	0-10	Silty clay loam	CL	A-7-6	0	0	76-84	76-83	72-83	69-82	37-46	19-25
	10-22	Silty clay loam	CL	A-7-6	0	0	76-84	76-83	72-83	69-82	37-46	19-25
	22-38	Channery clay loam	CL	A-7-6	0	0	52-76	50-76	48-76	40-66	37-46	19-25
	38-47	Weathered bedrock			0	0	---	---	---	---	---	---
470:												
Sumiwawa--------	0-9	Gravelly loamy sand	SM	A-2-4	0	0	62-79	53-77	40-64	14-25	0-22	NP-4
	9-13	Loamy sand	SM	A-2-4	0	0	79-92	77-92	59-75	21-30	0-22	NP-4
	13-22	Weathered bedrock			0	0	---	---	---	---	---	---
	22-31	Unweathered bedrock			0	0	---	---	---	---	---	---
Hipuk----------	0-1	Gravelly sandy loam	SC-SM	A-2	0	0	54-78	52-77	38-63	18-34	20-31	4-12
	1-4	Sandy loam	SC	A-2-4	0	0	78-92	77-92	54-74	26-40	20-31	4-12
	4-8	Gravelly sandy clay loam	SC	A-2-6	0	8-16	55-76	53-75	43-68	23-40	32-43	13-21
	8-18	Sandy clay loam	SC	A-6	0	0-8	76-100	75-100	61-91	32-53	32-43	13-21
	18-24	Weathered bedrock			0	0	---	---	---	---	---	---
	24-33	Unweathered bedrock			0	0	---	---	---	---	---	---
Rock outcrop----	---	---	---	---	---	---	---	---	---	---	---	---
472:												
Rock outcrop----	---	---	---	---	---	---	---	---	---	---	---	---
Sumiwawa--------	0-9	Gravelly loamy sand	SM	A-2-4	0	0	62-79	53-77	40-64	14-26	0-22	NP-4
	9-13	Loamy sand	SM	A-2-4	0	0	79-92	77-92	59-76	21-30	0-22	NP-4
	13-22	Weathered bedrock			0	0	---	---	---	---	---	---
	22-31	Unweathered bedrock			0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				*Pct*	*Pct*					*Pct*	
472:												
Hipuk----------	0-1	Gravelly sandy loam	SC-SM	A-2-4	0	0	54-78	52-77	38-63	18-34	20-31	4-12
	1-4	Sandy loam	SC	A-2-4	0	0	78-92	77-92	54-74	26-40	20-31	4-12
	4-8	Gravelly sandy clay loam	SC	A-2-6	0	8-16	55-76	53-75	43-68	23-40	32-43	13-21
	8-18	Sandy clay loam	SC	A-6	0	0-8	76-100	75-100	61-91	32-53	32-43	13-21
	18-24	Weathered bedrock			0	0	---	---	---	---	---	---
	24-33	Unweathered bedrock			0	0	---	---	---	---	---	---
500:												
Balcom----------	0-16	Silty clay loam	CL	A-6, A-7	0	0	88-95	88-95	82-95	71-86	35-49	17-25
	16-37	Silty clay loam	CL	A-6, A-7	0	0	100	100	93-100	81-91	35-49	17-25
	37-46	Weathered bedrock			0	0	---	---	---	---	---	---
503:												
Balcom----------	0-16	Silty clay loam	CL	A-6, A-7	0	0	88-95	88-95	82-95	71-86	35-49	17-25
	16-37	Silty clay loam	CL	A-6, A-7	0	0	88-95	88-95	82-95	71-86	35-49	17-25
	37-46	Weathered bedrock			0	0	---	---	---	---	---	---
Balcom, dark surface--------	0-30	Silty clay loam	CL	A-6, A-7	0	0	88-95	88-95	82-95	71-86	35-49	17-25
	30-39	Silty clay loam	CL	A-6, A-7	0	0	88-95	88-95	82-95	71-86	35-49	17-25
	39-46	Weathered bedrock			0	0	---	---	---	---	---	---
530:												
Xerorthents, landscaped-----	0-4	Loam	CL	A-6	0	0	84-100	84-100	70-93	49-67	28-38	12-19
	4-52	Loam	CL	A-6	0	0	84-100	84-100	70-93	49-67	28-38	12-19
	52-62	Weathered bedrock			0	0	0	0	0	0	0-0	NP
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
Balcom----------	0-16	Silty clay loam	CL	A-6, A-7	0	0	88-95	88-95	82-95	71-86	35-49	17-25
	16-37	Silty clay loam	CL	A-6, A-7	0	0	88-95	88-95	82-95	71-86	35-49	17-25
	37-46	Weathered bedrock			0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
531:												
Xerorthents, landscaped-----	0-4	Loam	CL	A-6	0	0	84-100	84-100	70-93	49-67	28-38	12-19
	4-52	Loam	CL	A-6	0	0	84-100	84-100	70-93	49-67	28-38	12-19
	52-62	Weathered bedrock			0	0	0	0	0	0	0-0	NP
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
Balcom----------	0-16	Silty clay loam	CL	A-6, A-7	0	0	88-95	88-95	82-95	71-86	35-49	17-25
	16-37	Silty clay loam	CL	A-6, A-7	0	0	88-95	88-95	82-95	71-86	35-49	17-25
	37-46	Weathered bedrock			0	0	---	---	---	---	---	---
532:												
Xerorthents, landscaped-----	0-4	Loam	CL	A-6	0	0	84-100	84-100	70-93	49-67	28-38	12-19
	4-52	Loam	CL	A-6	0	0	84-100	84-100	70-93	49-67	28-38	12-19
	52-62	Weathered bedrock			0	0	0	0	0	0	0-0	NP
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
Pachic Argixerolls, gullied--------	0-9	Gravelly loam	CL	A-6	0	0	58-76	56-76	45-73	32-54	26-45	7-19
	9-24	Gravelly clay loam	CL	A-6	0	0	68-82	45-82	39-79	30-63	36-47	17-25
	24-33	Unweathered bedrock			0	0	---	---	---	---	---	---
540:												
Calcic Argixerolls----	0-1	Silt loam	CL	A-6	0	0	77-100	76-100	73-100	68-98	33-47	12-19
	1-15	Silty clay loam	ML	A-7-6	0	0	77-100	76-100	72-100	69-100	41-53	19-25
	15-37	Silt loam	CL	A-6	0	0	77-100	76-100	72-100	67-97	31-43	12-19
	37-47	Weathered bedrock			---	---	---	---	---	---	---	---
550:												
Dam----------	---	---	---	---	---	---	---	---	---	---	---	---
W:												
Water----------	---	---	---	---	---	---	---	---	---	---	---	---

Table 15.--Physical Properties of the Soils

(Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter
	In	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*
100:							
Chumash	0-7	12-27	1.45-1.55	4.00-14.00	0.10-0.13	3.0-6.0	0.5-1.0
	7-17	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
Boades	0-2	18-27	1.45-1.55	4.00-14.00	0.10-0.14	3.0-6.0	2.0-3.0
	2-14	18-35	1.45-1.55	1.40-14.00	0.09-0.13	3.0-6.0	1.0-3.0
	14-24	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
Malibu	0-19	18-27	1.45-1.55	4.00-14.00	0.10-0.14	3.0-6.0	2.0-3.0
	19-27	40-55	1.25-1.45	0.03-0.42	0.13-0.15	6.0-9.0	0.5-1.0
	27-37	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
101:							
Chumash	0-9	12-27	1.45-1.55	4.00-14.00	0.10-0.13	3.0-6.0	0.5-1.0
	9-19	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
Boades	0-2	18-27	1.45-1.55	4.00-14.00	0.10-0.14	3.0-6.0	2.0-3.0
	2-14	18-35	1.45-1.55	1.40-4.00	0.09-0.13	3.0-6.0	1.0-3.0
	14-24	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
Malibu	0-20	18-27	1.45-1.55	4.00-14.00	0.10-0.14	3.0-6.0	2.0-3.0
	20-27	40-55	1.25-1.45	0.03-0.42	0.13-0.15	6.0-9.0	0.5-1.0
	27-37	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
110:							
Malibu	0-19	18-27	1.45-1.55	4.00-14.00	0.10-0.14	3.0-6.0	2.0-3.0
	19-27	40-55	1.25-1.45	0.03-0.42	0.13-0.15	6.0-9.0	0.5-1.0
	27-37	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
Chumash	0-7	12-27	1.45-1.55	4.00-14.00	0.10-0.13	3.0-6.0	0.5-1.0
	7-17	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
Boades	0-2	18-27	1.45-1.55	4.00-14.00	0.10-0.14	3.0-6.0	2.0-3.0
	2-14	18-35	1.45-1.55	1.40-4.00	0.09-0.13	3.0-6.0	1.0-3.0
	14-24	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
120:							
Mipolomol	0-12	18-27	1.45-1.55	4.00-14.00	0.10-0.13	3.0-6.0	2.0-3.0
	12-22	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
Topanga	0-2	12-27	1.45-1.55	4.00-14.00	0.10-0.13	1.0-3.0	2.0-3.0
	2-15	12-27	1.45-1.55	4.00-14.00	0.10-0.13	1.0-3.0	2.0-3.0
	15-18	18-35	1.45-1.55	1.40-4.00	0.09-0.13	3.0-6.0	1.0-3.0
	18-27	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
121:							
Mipolomol	0-12	18-27	1.45-1.55	4.00-14.00	0.10-0.13	3.0-6.0	2.0-3.0
	12-22	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
Topanga	0-2	12-27	1.45-1.55	4.00-14.00	0.10-0.13	1.0-3.0	2.0-3.0
	2-15	12-27	1.45-1.55	4.00-14.00	0.10-0.13	1.0-3.0	2.0-3.0
	15-18	18-35	1.45-1.55	1.40-4.00	0.09-0.13	3.0-6.0	1.0-3.0
	18-28	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
Rock outcrop	---	---	---	---	---	---	---

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter
	In	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*
122:							
Calcic Haploxerepts----------	0-4	18-27	1.45-1.55	4.00-14.00	0.13-0.18	3.0-6.0	1.0-2.0
	4-12	18-27	1.45-1.55	4.00-14.00	0.13-0.18	3.0-6.0	1.0-2.0
	12-31	18-27	1.45-1.55	4.00-14.00	0.13-0.18	3.0-6.0	1.0-2.0
	31-41	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
Mollic Haploxeralfs----------	0-5	18-27	1.45-1.55	4.00-14.00	0.14-0.18	3.0-6.0	0.5-1.0
	5-35	27-35	1.40-1.50	1.40-4.00	0.17-0.21	3.0-6.0	0.5-1.0
	35-45	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
130:							
Camarillo, coastal----------	0-24	10-27	1.45-1.55	4.00-14.00	0.13-0.15	3.0-6.0	1.0-4.0
	24-50	18-30	1.45-1.55	4.00-14.00	0.13-0.17	3.0-6.0	0.5-1.0
	50-80	0-5	1.60-1.70	14.00-42.00	0.05-0.07	0.0-2.9	0.5-1.0
140:							
Sulfic Fluvaquents----------	0-41	40-55	1.25-1.45	0.42-1.40	0.06-0.14	6.0-9.0	2.0-10
	41-60	35-55	1.25-1.45	0.42-1.40	0.03-0.05	6.0-9.0	0.0-0.5
150:							
Abaft----------	0-4	0-5	1.55-1.70	42.00-141.00	0.06-0.10	0.0-2.9	0.5-1.0
	4-60	0-5	1.55-1.65	42.00-141.00	0.06-0.10	0.0-2.9	0.0-0.5
Beaches----------	---	---	---	---	---	---	---
151:							
Abaft----------	0-4	0-5	1.55-1.65	42.00-141.00	0.06-0.10	0.0-2.9	0.5-1.0
	4-60	0-5	1.55-1.70	42.00-141.00	0.06-0.10	0.0-2.9	0.0-0.5
Beaches----------	---	---	---	---	---	---	---
Urban land----------	---	---	---	---	---	---	---
160:							
Xerorthents, landscaped------	0-4	18-27	1.45-1.55	0.60-2.00	0.14-0.18	1.0-3.8	0.5-1.0
	4-52	18-27	1.45-1.55	0.60-2.00	0.14-0.18	1.0-3.8	0.5-1.0
	52-62	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
170:							
Cotharin----------	0-1	---	1.45-1.55	141.00-705.00	---	---	2.0-4.0
	1-9	18-27	1.40-1.50	4.00-14.00	0.10-0.14	3.0-6.0	2.0-3.0
	9-11	18-27	1.45-1.55	4.00-14.00	0.10-0.14	3.0-6.0	2.0-3.0
	11-21	---	1.45-1.55	0.00-0.06	0.01-0.02	---	0.0-0.0
171:							
Cotharin----------	0-1	---	1.45-1.55	141.00-705.00	---	---	2.0-4.0
	1-9	18-27	1.40-1.50	4.00-14.00	0.10-0.14	3.0-6.0	2.0-3.0
	9-11	18-27	1.45-1.55	4.00-14.00	0.10-0.14	3.0-6.0	2.0-3.0
	11-21	---	1.45-1.55	0.00-0.06	0.01-0.02	---	0.0-0.0
Rock outcrop----------	---	---	---	---	---	---	---
175:							
Cotharin----------	0-1	---	1.45-1.55	141.00-705.00	---	---	2.0-4.0
	1-9	18-27	1.40-1.50	4.00-14.00	0.10-0.14	3.0-6.0	2.0-3.0
	9-11	18-27	1.45-1.55	4.00-14.00	0.10-0.14	3.0-6.0	2.0-3.0
	11-21	---	1.45-1.55	0.00-0.06	0.01-0.02	---	0.0-0.0
Talepop----------	0-1	12-27	1.45-1.55	4.00-14.00	0.10-0.13	3.0-6.0	2.0-3.0
	1-5	18-35	1.45-1.55	1.40-4.00	0.09-0.13	3.0-6.0	1.0-3.0
	5-15	---	---	0.00-0.06	0.01-0.03	---	0.0-0.0

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter
	In	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*
176:							
Cotharin----------	0-1	---	1.45-1.55	141.00-705.00	---	---	2.0-4.0
	1-9	18-27	1.40-1.50	4.00-14.00	0.10-0.14	3.0-6.0	2.0-3.0
	9-11	18-27	1.45-1.55	4.00-14.00	0.10-0.14	3.0-6.0	2.0-3.0
	11-21	---	1.45-1.55	0.00-0.06	0.01-0.02	---	0.0-0.0
Talepop----------	0-1	12-27	1.45-1.55	4.00-14.00	0.10-0.13	3.0-6.0	2.0-3.0
	1-5	18-35	1.45-1.55	1.40-4.00	0.09-0.13	3.0-6.0	1.0-3.0
	5-15	---	---	0.00-0.06	0.01-0.03	---	0.0-0.0
178:							
Cotharin----------	0-1	---	1.45-1.55	141.00-705.00	---	---	2.0-4.0
	1-9	18-27	1.40-1.50	4.00-14.00	0.10-0.14	3.0-6.0	2.0-3.0
	9-11	18-27	1.45-1.55	4.00-14.00	0.10-0.14	3.0-6.0	2.0-3.0
	11-21	---	1.45-1.55	0.00-0.06	0.01-0.02	---	0.0-0.0
Talepop----------	0-1	12-27	1.45-1.55	4.00-14.00	0.10-0.13	3.0-6.0	2.0-3.0
	1-5	18-35	1.45-1.55	1.40-4.00	0.09-0.13	3.0-6.0	1.0-3.0
	5-15	---	---	0.00-0.06	0.01-0.03	---	0.0-0.0
Urban land----------	---	---	---	---	---	---	---
179:							
Cotharin, dry----------	0-1	---	1.45-1.55	141.00-705.00	---	---	2.0-4.0
	1-9	18-27	1.40-1.50	4.00-14.00	0.10-0.14	3.0-6.0	2.0-3.0
	9-11	18-27	1.45-1.55	4.00-14.00	0.10-0.14	3.0-6.0	2.0-3.0
	11-21	---	1.45-1.55	0.00-0.06	0.01-0.02	---	0.0-0.0
180:							
Pits and dumps----------	---	---	---	---	---	---	---
190:							
Kayiwish, gently sloping-----	0-4	40-55	1.25-1.45	0.02-0.42	0.13-0.15	6.0-9.0	2.0-3.0
	4-21	40-55	1.25-1.45	0.02-0.42	0.13-0.15	6.0-9.0	1.5-2.5
	21-24	40-55	1.25-1.45	0.02-0.42	0.13-0.15	6.0-9.0	0.5-1.0
	24-33	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
Kayiwish, nearly level-------	0-2	40-55	1.25-1.45	0.02-0.42	0.13-0.15	6.0-9.0	2.0-3.0
	2-19	40-55	1.25-1.45	0.02-0.42	0.13-0.15	6.0-9.0	2.0-3.0
	19-21	40-55	1.25-1.45	0.02-0.42	0.13-0.15	6.0-9.0	1.0-2.0
	21-31	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
191:							
Kayiwish, gently sloping-----	0-4	40-55	1.25-1.45	0.02-0.42	0.13-0.15	6.0-9.0	2.0-3.0
	4-21	40-55	1.25-1.45	0.02-0.42	0.13-0.15	6.0-9.0	1.5-2.5
	21-24	40-55	1.25-1.45	0.02-0.42	0.13-0.15	6.0-9.0	0.5-1.0
	24-33	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
Kayiwish, steeply sloping----	0-2	40-55	1.25-1.45	0.02-0.42	0.13-0.15	6.0-9.0	2.0-3.0
	2-24	40-55	1.25-1.45	0.02-0.42	0.13-0.15	6.0-9.0	2.0-3.0
	24-33	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
200:							
Cumulic Haploxerolls---------	0-16	5-15	1.45-1.55	1.42-14.17	0.08-0.12	0.0-2.9	2.0-4.0
	16-69	27-35	1.50-1.60	4.00-14.00	0.14-0.18	3.0-6.0	2.0-4.0
	69-83	2-4	1.60-1.70	141.00-423.00	0.03-0.05	0.0-1.0	0.0-1.0

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter
	In	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*
202:							
Fluvaquents	0-5	18-27	1.45-1.55	4.00-14.00	0.14-0.18	3.0-6.0	1.0-3.0
	5-10	10-18	1.50-1.60	14.00-42.00	0.13-0.15	0.5-2.5	0.5-1.0
	10-14	10-18	1.50-1.60	14.00-42.00	0.10-0.13	0.5-2.5	1.0-3.0
	14-19	5-15	1.55-1.65	42.00-141.00	0.06-0.08	0.0-2.9	0.0-0.5
	19-48	2-8	1.55-1.65	42.00-141.00	0.03-0.06	0.0-2.9	0.0-0.5
	48-55	2-8	1.55-1.65	141.00-705.00	0.02-0.06	0.0-2.9	0.0-0.5
Riverwash	---	---	---	---	---	---	---
220:							
Elder, coastal	0-8	8-18	1.50-1.60	14.00-42.00	0.13-0.15	0.0-2.9	1.0-4.0
	8-43	8-18	1.45-1.55	14.00-42.00	0.13-0.15	0.5-2.6	0.5-1.0
	43-43	4-8	1.45-1.55	42.00-141.00	0.06-0.08	0.0-2.9	0.5-1.0
	43-51	8-18	1.45-1.55	14.00-42.00	0.13-0.15	0.5-2.6	0.5-1.0
	51-52	4-8	1.45-1.55	42.00-141.00	0.06-0.08	0.0-2.9	0.5-1.0
	52-60	8-18	1.45-1.55	14.00-42.00	0.13-0.15	0.0-2.9	0.5-1.0
230:							
Cotharin	0-1	---	1.45-1.55	141.00-705.00	---	---	2.0-4.0
	1-9	18-27	1.40-1.50	4.00-14.00	0.10-0.14	3.0-6.0	2.0-3.0
	9-11	18-27	1.45-1.55	4.00-14.00	0.10-0.14	3.0-6.0	2.0-3.0
	11-21	---	1.45-1.55	0.00-0.06	0.01-0.02	---	0.0-0.0
Talepop	0-1	12-27	1.45-1.55	4.00-14.00	0.10-0.13	3.0-6.0	2.0-3.0
	1-5	18-35	1.45-1.55	1.40-4.00	0.09-0.13	3.0-6.0	1.0-3.0
	5-15	---	---	0.00-0.06	0.01-0.03	---	0.0-0.0
231:							
Talepop	0-1	12-27	1.45-1.55	4.00-14.00	0.10-0.13	3.0-6.0	2.0-3.0
	1-5	18-35	1.45-1.55	1.40-4.00	0.09-0.13	3.0-6.0	1.0-3.0
	5-15	---	---	0.00-0.06	0.01-0.03	---	0.0-0.0
Rock outcrop	---	---	---	---	---	---	---
240:							
Tongva	0-2	---	1.45-1.55	141.00-705.00	---	---	2.0-4.0
	2-4	12-27	1.45-1.55	1.42-14.17	0.10-0.14	3.0-6.0	2.0-4.0
	4-30	18-27	1.45-1.55	1.42-14.17	0.10-0.14	3.0-6.0	2.0-4.0
	30-39	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
Cotharin	0-1	---	1.45-1.55	141.00-705.00	---	---	2.0-4.0
	1-9	18-27	1.40-1.50	4.00-14.00	0.10-0.14	3.0-6.0	2.0-3.0
	9-11	18-27	1.45-1.55	4.00-14.00	0.10-0.14	3.0-6.0	2.0-3.0
	11-21	---	1.45-1.55	0.00-0.06	0.01-0.02	---	0.0-0.0
Rock outcrop	---	---	---	---	---	---	---
241:							
Cotharin	0-1	---	1.45-1.55	141.00-705.00	---	---	2.0-4.0
	1-9	18-27	1.40-1.50	4.00-14.00	0.10-0.14	3.0-6.0	2.0-3.0
	9-11	18-27	1.45-1.55	4.00-14.00	0.10-0.14	3.0-6.0	2.0-3.0
	11-21	---	1.45-1.55	0.00-0.06	0.01-0.02	---	0.0-0.0
Rock outcrop	---	---	---	---	---	---	---
Tongva	0-2	---	1.45-1.55	141.00-705.00	---	---	2.0-4.0
	2-4	12-27	1.45-1.55	1.42-14.17	0.10-0.14	3.0-6.0	2.0-4.0
	4-30	18-27	1.45-1.55	1.42-14.17	0.10-0.14	3.0-6.0	2.0-4.0
	30-39	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter
	In	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*
250:							
Urban land	---	---	---	---	---	---	---
Xerorthents, landscaped	0-4	18-27	1.45-1.55	0.60-2.00	0.14-0.18	1.5-3.5	0.5-1.0
	4-52	18-27	1.45-1.55	0.60-2.00	0.14-0.18	1.5-3.5	0.5-1.0
	52-62	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
251:							
Urban land	---	---	---	---	---	---	---
Tongva	0-2	---	1.45-1.55	141.00-705.00	---	---	2.0-4.0
	2-4	12-27	1.45-1.55	1.42-14.17	0.10-0.14	3.0-6.0	2.0-4.0
	4-30	18-27	1.45-1.55	1.42-14.17	0.10-0.14	3.0-6.0	2.0-4.0
	30-39	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
252:							
Urban land	---	---	---	---	---	---	---
Xerorthents, landscaped	0-4	18-27	1.45-1.55	0.60-2.00	0.14-0.18	1.5-3.5	0.5-1.0
	4-52	18-27	1.45-1.55	0.60-2.00	0.14-0.18	1.5-3.5	0.5-1.0
	52-62	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
270:							
Pacheco, coastal	0-17	27-35	1.40-1.50	1.40-4.00	0.17-0.19	3.0-6.0	2.0-4.0
	17-46	25-35	1.40-1.50	1.40-4.00	0.15-0.19	3.0-5.9	0.5-1.0
	46-60	5-35	1.46-1.60	1.40-4.00	0.15-0.19	3.0-5.9	0.0-0.5
290:							
Topanga	0-2	12-27	1.45-1.55	4.00-14.00	0.10-0.13	1.0-2.5	2.0-3.0
	2-15	12-27	1.45-1.55	4.00-14.00	0.10-0.13	1.0-2.5	2.0-3.0
	15-18	18-35	1.45-1.55	1.40-4.00	0.09-0.13	3.0-6.0	1.0-3.0
	18-27	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
Mipolomol	0-12	18-27	1.45-1.55	4.00-14.00	0.10-0.13	3.0-6.0	2.0-3.0
	12-22	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
Sapwi	0-1	---	1.45-1.55	141.00-705.00	---	---	2.0-4.0
	1-4	12-27	1.45-1.55	4.00-14.00	0.12-0.16	3.0-6.0	2.0-4.0
	4-24	27-35	1.45-1.55	1.40-4.00	0.14-0.18	3.0-6.0	2.0-4.0
	24-38	27-35	1.45-1.55	1.40-4.00	0.10-0.14	3.0-6.0	2.0-3.0
	38-48	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
300:							
Zumaridge	0-2	---	1.45-1.55	141.00-705.00	---	---	2.0-4.0
	2-10	8-18	1.45-1.55	4.00-14.00	0.14-0.18	0.0-2.0	2.0-4.0
	10-13	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
	13-23	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
Kawenga	0-2	---	1.45-1.55	141.00-705.00	---	---	2.0-4.0
	2-27	12-27	1.45-1.55	4.00-14.00	0.10-0.14	3.0-6.0	2.0-4.0
	27-37	18-35	1.45-1.55	1.40-14.00	0.09-0.13	3.0-6.0	2.0-4.0
	37-55	18-35	1.45-1.55	1.40-14.00	0.09-0.13	3.0-6.0	2.0-4.0
	55-65	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
301:							
Zumaridge	0-2	---	1.45-1.55	141.00-705.00	---	---	2.0-4.0
	2-10	8-18	1.45-1.55	4.00-14.00	0.14-0.18	0.0-2.0	2.0-4.0
	10-13	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
	13-23	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter
	In	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*
301:							
Kawenga	0-2	---	1.45-1.55	141.00-705.00	---	---	2.0-4.0
	2-27	12-27	1.45-1.55	4.00-14.00	0.10-0.14	3.0-6.0	2.0-4.0
	27-37	18-35	1.45-1.55	1.40-14.00	0.09-0.13	3.0-6.0	2.0-4.0
	37-55	18-35	1.45-1.55	1.40-14.00	0.09-0.13	3.0-6.0	2.0-4.0
	55-65	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
302:							
Zumaridge	0-2	---	1.45-1.55	141.00-705.00	---	---	2.0-4.0
	2-10	8-18	1.45-1.55	4.00-14.00	0.14-0.18	0.0-2.0	2.0-4.0
	10-13	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
	13-23	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
Rock outcrop	---	---	---	---	---	---	---
Sumiwawa	0-9	2-8	1.55-1.65	42.00-141.00	0.04-0.06	0.0-2.9	0.5-1.0
	9-13	2-8	1.55-1.65	42.00-141.00	0.04-0.06	0.0-2.9	0.5-1.0
	13-22	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
	22-31	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
303:							
Zumaridge	0-2	---	1.45-1.55	141.00-705.00	---	---	2.0-4.0
	2-10	8-18	1.45-1.55	4.00-14.00	0.14-0.18	0.0-2.0	2.0-4.0
	10-13	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
	13-23	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
Rock outcrop	---	---	---	---	---	---	---
Sumiwawa	0-9	2-8	1.55-1.65	42.00-141.00	0.04-0.06	0.0-2.9	0.5-1.0
	9-13	2-8	1.55-1.65	42.00-141.00	0.04-0.06	0.0-2.9	0.5-1.0
	13-22	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
	22-31	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
304:							
Zumaridge	0-2	---	1.45-1.55	141.00-705.00	---	---	2.0-4.0
	2-10	8-18	1.45-1.55	4.00-14.00	0.14-0.18	0.0-2.0	2.0-4.0
	10-13	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
	13-23	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
Sapwi	0-1	---	1.45-1.55	141.00-705.00	---	---	2.0-4.0
	1-4	12-27	1.45-1.55	4.00-14.00	0.12-0.16	3.0-6.0	2.0-4.0
	4-24	27-35	1.45-1.55	1.40-4.00	0.14-0.18	3.0-6.0	2.0-4.0
	24-38	27-35	1.45-1.55	1.40-4.00	0.10-0.14	3.0-6.0	2.0-3.0
	38-48	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
Kawenga	0-2	---	1.45-1.55	141.00-705.00	---	---	2.0-4.0
	2-27	12-27	1.45-1.55	4.00-14.00	0.10-0.14	3.0-6.0	2.0-4.0
	27-37	18-35	1.45-1.55	1.40-14.00	0.09-0.13	3.0-6.0	2.0-4.0
	37-55	18-35	1.45-1.55	1.40-14.00	0.09-0.13	3.0-6.0	2.0-4.0
	55-65	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
305:							
Zumaridge	0-2	---	1.45-1.55	141.00-705.00	---	---	2.0-4.0
	2-10	8-18	1.45-1.55	4.00-14.00	0.14-0.18	0.0-2.0	2.0-4.0
	10-13	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
	13-23	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
Rock outcrop	---	---	---	---	---	---	---
310:							
Gaviota	0-8	8-16	1.45-1.55	14.00-42.00	0.12-0.15	0.0-2.9	0.0-0.5
	8-18	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter
	In	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*
311:							
Gaviota, northerly aspect----	0-8	8-16	1.45-1.55	14.00-42.00	0.12-0.15	0.0-2.9	0.0-0.5
	8-18	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
Rock outcrop----------	---	---	---	---	---	---	---
320:							
Botella----------	0-8	15-27	1.45-1.55	4.00-14.00	0.14-0.16	3.0-6.0	2.0-6.0
	8-60	30-35	1.40-1.50	1.40-4.00	0.16-0.19	3.0-6.0	0.7-2.0
330:							
Linne----------	0-25	27-35	1.40-1.50	1.40-4.00	0.17-0.19	3.0-6.0	1.0-4.0
	25-30	27-35	1.40-1.50	1.40-4.00	0.17-0.19	3.0-6.0	0.5-1.0
	30-40	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
Los Osos----------	0-9	27-35	1.40-1.50	1.40-4.00	0.17-0.19	3.0-6.0	1.0-4.0
	9-35	35-50	1.25-1.45	0.42-1.40	0.14-0.16	6.0-9.0	0.0-0.7
	35-45	---	---	0.00-0.00	0.01-0.03	---	0.0-0.0
Haploxerepts----------	0-4	18-27	1.45-1.55	4.00-14.00	0.14-0.18	3.0-6.0	0.5-1.0
	4-19	27-35	1.45-1.55	1.40-4.00	0.17-0.21	3.0-6.0	0.5-1.0
	19-47	27-35	1.45-1.55	1.40-4.00	0.17-0.21	3.0-6.0	0.5-1.0
	47-57	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
331:							
Linne----------	0-25	27-35	1.40-1.50	1.40-4.00	0.17-0.19	3.0-6.0	1.0-4.0
	25-30	27-35	1.40-1.50	1.40-4.00	0.17-0.19	3.0-6.0	0.5-1.0
	30-40	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
332:							
Linne----------	0-25	27-35	1.40-1.50	1.40-4.00	0.17-0.19	3.0-6.0	1.0-4.0
	25-30	27-35	1.40-1.50	1.40-4.00	0.17-0.19	3.0-6.0	0.5-1.0
	30-40	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
350:							
Los Osos----------	0-9	27-35	1.40-1.50	1.40-4.00	0.17-0.19	3.0-6.0	1.0-4.0
	9-35	35-50	1.25-1.45	0.42-1.40	0.14-0.16	6.0-9.0	0.0-0.7
	35-45	---	---	0.00-0.00	---	---	0.0-0.0
390:							
Danville, coastal----------	0-4	27-35	1.40-1.50	1.40-4.00	0.17-0.19	3.0-6.0	1.0-2.0
	4-31	35-45	1.25-1.45	0.42-1.40	0.15-0.17	6.0-9.0	0.0-0.5
	31-60	40-45	1.25-1.45	0.42-1.40	0.15-0.17	6.0-9.0	0.0-0.5
Urban land----------	---	---	---	---	---	---	---
391:							
Danville, coastal----------	0-4	27-35	1.40-1.50	1.40-4.00	0.17-0.19	3.0-6.0	1.0-2.0
	4-31	35-45	1.25-1.45	0.42-1.40	0.15-0.17	6.0-9.0	0.0-0.5
	31-60	40-45	1.25-1.45	0.42-1.40	0.15-0.17	6.0-9.0	0.0-0.5
400:							
Pachic Argixerolls, coastal--	0-9	12-27	1.40-1.50	4.00-14.00	0.10-0.13	3.0-6.0	1.0-3.0
	9-24	25-35	1.40-1.50	1.40-4.00	0.12-0.15	3.0-6.0	0.5-1.0
	24-33	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
410:							
Lockwood, coastal----------	0-4	18-27	1.10-1.20	4.00-14.00	0.11-0.16	3.0-6.0	2.0-5.0
	4-13	27-35	1.10-1.20	1.40-4.00	0.07-0.14	3.0-6.0	0.0-0.5
	13-82	25-35	1.00-1.20	1.40-4.00	0.06-0.12	3.0-6.0	0.0-0.5
Urban land----------	---	---	---	---	---	---	---

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter
	In	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*
411:							
Lockwood, coastal----------	0-4	18-27	1.10-1.20	4.00-14.00	0.11-0.16	3.0-6.0	2.0-5.0
	4-13	27-35	1.10-1.20	1.40-4.00	0.07-0.14	3.0-6.0	0.0-0.5
	13-82	25-35	1.00-1.20	1.40-4.00	0.06-0.12	3.0-6.0	0.0-0.5
Urban land----------	---	---	---	---	---	---	---
430:							
Cropley, coastal----------	0-2	40-60	1.25-1.45	0.42-1.40	0.14-0.16	6.0-9.0	1.0-3.0
	2-22	35-60	1.25-1.45	0.42-1.40	0.14-0.16	6.0-9.0	0.0-1.0
	22-60	30-40	1.35-1.45	1.40-4.00	0.17-0.19	6.0-8.9	0.0-0.5
431:							
Cropley, coastal----------	0-2	40-60	1.25-1.45	0.42-1.40	0.14-0.16	6.0-9.0	1.0-3.0
	2-22	35-60	1.25-1.45	0.42-1.40	0.14-0.16	6.0-9.0	0.0-1.0
	22-60	30-40	1.35-1.45	1.40-4.00	0.17-0.19	6.0-8.9	0.0-0.5
Cropley----------	0-2	40-60	1.25-1.45	0.42-1.40	0.14-0.16	6.0-9.0	1.0-3.0
	2-22	35-60	1.25-1.45	0.42-1.40	0.14-0.16	6.0-9.0	0.0-1.0
	22-60	30-40	1.35-1.45	1.40-4.00	0.17-0.19	6.0-8.9	0.0-0.5
432:							
Cropley, coastal----------	0-2	40-60	1.25-1.45	0.42-1.40	0.14-0.16	6.0-9.0	1.0-3.0
	2-22	35-60	1.25-1.45	0.42-1.40	0.14-0.16	6.0-9.0	0.0-1.0
	22-60	30-40	1.35-1.45	1.40-4.00	0.17-0.19	6.0-8.9	0.0-0.5
433:							
Cropley, coastal----------	0-2	40-60	1.25-1.45	0.42-1.40	0.14-0.16	6.0-9.0	1.0-3.0
	2-22	35-60	1.25-1.45	0.42-1.40	0.14-0.16	6.0-9.0	0.0-1.0
	22-60	30-40	1.35-1.45	1.40-4.00	0.17-0.19	6.0-8.9	0.0-0.5
Urban land----------	---	---	---	---	---	---	---
Haploxererts----------	0-30	40-60	1.25-1.45	0.42-1.40	0.14-0.16	6.0-9.0	1.0-3.0
	30-50	35-60	1.25-1.45	0.42-1.40	0.14-0.16	6.0-9.0	0.0-1.0
	50-60	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
434:							
Cropley, coastal----------	0-2	40-60	1.25-1.45	0.42-1.40	0.14-0.16	6.0-9.0	1.0-3.0
	2-22	35-60	1.25-1.45	0.42-1.40	0.14-0.16	6.0-9.0	0.0-1.0
	22-60	30-40	1.35-1.45	1.40-4.00	0.17-0.19	6.0-8.9	0.0-0.5
Xerorthents, landscaped------	0-4	18-27	1.45-1.55	0.60-2.00	0.14-0.18	0.5-2.5	0.5-1.0
	4-52	18-27	1.45-1.55	0.60-2.00	0.14-0.18	0.5-2.5	0.5-1.0
	52-62	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
Urban land----------	---	---	---	---	---	---	---
450:							
Sapwi----------	0-1	---	1.45-1.55	141.00-705.00	---	---	2.0-4.0
	1-4	12-27	1.45-1.55	4.00-14.00	0.12-0.16	3.0-6.0	2.0-4.0
	4-24	27-35	1.45-1.55	1.40-4.00	0.14-0.18	3.0-6.0	2.0-4.0
	24-38	27-35	1.45-1.55	1.40-4.00	0.10-0.14	3.0-6.0	2.0-3.0
	38-48	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
451:							
Urban land----------	---	---	---	---	---	---	---
Sapwi----------	0-1	---	1.45-1.55	141.00-705.00	---	---	2.0-4.0
	1-4	12-27	1.45-1.55	4.00-14.00	0.12-0.16	3.0-6.0	2.0-4.0
	4-24	27-35	1.45-1.55	1.40-4.00	0.14-0.18	3.0-6.0	2.0-4.0
	24-38	27-35	1.45-1.55	1.40-4.00	0.10-0.14	3.0-6.0	2.0-3.0
	38-48	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter
	In	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*
460:							
Typic Haploxerepts----------	0-10	27-35	1.40-1.50	1.40-4.00	0.17-0.20	3.0-6.0	0.0-0.5
	10-22	27-35	1.40-1.50	1.40-4.00	0.17-0.20	3.0-6.0	0.0-0.5
	22-38	27-35	1.40-1.50	1.40-4.00	0.15-0.18	3.0-6.0	0.0-0.5
	38-47	---	---	0.00-0.06	0.00-0.02	---	---
461:							
Typic Haploxerepts----------	0-10	27-35	1.40-1.50	1.40-4.00	0.17-0.20	3.0-6.0	0.0-0.5
	10-22	27-35	1.40-1.50	1.40-4.00	0.17-0.20	3.0-6.0	0.0-0.5
	22-38	27-35	1.40-1.50	1.40-4.00	0.15-0.18	3.0-6.0	0.0-0.5
	38-47	---	---	0.00-0.06	0.00-0.02	---	---
470:							
Sumiwawa----------	0-9	2-8	1.55-1.65	42.00-141.00	0.04-0.06	0.0-2.9	0.5-1.0
	9-13	2-8	1.55-1.65	42.00-141.00	0.04-0.06	0.0-2.9	0.5-1.0
	13-22	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
	22-31	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
Hipuk----------	0-1	8-18	1.50-1.60	14.00-42.00	0.08-0.10	0.0-2.9	0.5-1.0
	1-4	8-18	1.50-1.60	14.00-42.00	0.10-0.14	0.0-2.9	0.5-1.0
	4-8	20-30	1.45-1.55	1.40-4.00	0.10-0.14	3.0-6.0	0.5-1.0
	8-18	20-30	1.45-1.55	1.40-4.00	0.10-0.14	3.0-6.0	0.5-1.0
	18-24	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
	24-33	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
Rock outcrop----------	---	---	---	---	---	---	---
472:							
Rock outcrop----------	---	---	---	---	---	---	---
Sumiwawa----------	0-9	2-8	1.55-1.65	42.00-141.00	0.04-0.06	0.0-2.9	0.5-1.0
	9-13	2-8	1.55-1.65	42.00-141.00	0.04-0.06	0.0-2.9	0.5-1.0
	13-22	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
	22-31	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
Hipuk----------	0-1	8-18	1.50-1.60	14.00-42.00	0.08-0.10	0.0-2.9	0.5-1.0
	1-4	8-18	1.50-1.60	14.00-42.00	0.10-0.14	0.0-2.9	0.5-1.0
	4-8	20-30	1.45-1.55	1.40-4.00	0.10-0.14	3.0-6.0	0.5-1.0
	8-18	20-30	1.45-1.55	1.40-4.00	0.10-0.14	3.0-6.0	0.5-1.0
	18-24	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
	24-33	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
500:							
Balcom----------	0-16	25-35	1.40-1.50	1.40-4.00	0.18-0.19	3.0-6.0	0.0-2.0
	16-37	25-35	1.40-1.50	1.40-4.00	0.18-0.19	3.0-6.0	0.0-2.0
	37-46	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
503:							
Balcom----------	0-16	25-35	1.40-1.50	1.40-4.00	0.18-0.19	3.0-6.0	0.0-2.0
	16-37	25-35	1.40-1.50	1.40-4.00	0.18-0.19	3.0-6.0	0.0-2.0
	37-46	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
Balcom, dark surface---------	0-30	25-35	1.40-1.50	1.40-4.00	0.18-0.19	3.0-6.0	0.0-2.0
	30-39	25-35	1.40-1.50	1.40-4.00	0.18-0.19	3.0-6.0	0.0-2.0
	39-46	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
530:							
Xerorthents, landscaped------	0-4	18-27	1.45-1.55	0.60-2.00	0.14-0.18	0.5-2.5	0.5-1.0
	4-52	18-27	1.45-1.55	0.60-2.00	0.14-0.18	0.5-2.5	0.5-1.0
	52-62	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
Urban land----------	---	---	---	---	---	---	---

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter
	In	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*
530:							
Balcom	0-16	25-35	1.40-1.50	1.40-4.00	0.18-0.19	3.0-6.0	0.0-2.0
	16-37	25-35	1.40-1.50	1.40-4.00	0.18-0.19	3.0-6.0	0.0-2.0
	37-46	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
531:							
Xerorthents, landscaped	0-4	18-27	1.45-1.55	0.60-2.00	0.14-0.18	0.5-2.5	0.5-1.0
	4-52	18-27	1.45-1.55	0.60-2.00	0.14-0.18	0.5-2.5	0.5-1.0
	52-62	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
Urban land	---	---	---	---	---	---	---
Balcom	0-16	25-35	1.40-1.50	1.40-4.00	0.18-0.19	3.0-6.0	0.0-2.0
	16-37	25-35	1.40-1.50	1.40-4.00	0.18-0.19	3.0-6.0	0.0-2.0
	37-46	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
532:							
Xerorthents, landscaped	0-4	18-27	1.45-1.55	0.60-2.00	0.14-0.18	0.5-2.5	0.5-1.0
	4-52	18-27	1.45-1.55	0.60-2.00	0.14-0.18	0.5-2.5	0.5-1.0
	52-62	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
Urban land	---	---	---	---	---	---	---
Pachic Argixerolls, gullied	0-9	12-27	1.40-1.50	4.00-14.00	0.10-0.13	3.0-6.0	1.0-3.0
	9-24	25-35	1.40-1.50	1.40-4.00	0.12-0.15	3.0-6.0	0.5-1.0
	24-33	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
540:							
Calcic Argixerolls	0-1	18-27	1.45-1.55	4.00-14.00	0.14-0.19	3.0-6.0	2.0-4.0
	1-15	27-35	1.40-1.50	1.40-4.00	0.16-0.20	3.0-6.0	2.0-4.0
	15-37	18-27	1.45-1.55	4.00-14.00	0.14-0.19	3.0-6.0	1.0-2.0
	37-47	---	---	0.00-0.06	0.01-0.02	---	0.0-0.0
550:							
Dam	---	---	---	---	---	---	---
W:							
Water	---	---	---	---	---	---	---

Table 16.--Chemical Properties of the Soils

(Soil properties are measured or inferred from direct observations in the field or laboratory. Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	*Pct*	*meq/100g*	*pH*	*Pct*	*Pct*	*dS/m*	
100:								
Chumash	0-7	12-27	10-22	6.6-7.3	0	0	0	0
	7-17	---	---	---	0	0	0	0
Boades	0-2	18-27	16-23	5.6-6.5	0	0	0	0
	2-14	18-35	15-29	5.6-6.5	0	0	0	0
	14-24	---	---	---	0	0	0	0
Malibu	0-19	18-27	26-41	6.1-7.3	0	0	0	0
	19-27	40-55	34-51	6.1-7.3	0	0	0	0
	27-37	---	---	---	0	0	0	0
101:								
Chumash	0-9	12-27	10-22	6.6-7.3	0	0	0	0
	9-19	---	---	---	0	0	0	0
Boades	0-2	18-27	16-23	5.6-6.5	0	0	0	0
	2-14	18-35	15-29	5.6-6.5	0	0	0	0
	14-24	---	---	---	0	0	0	0
Malibu	0-20	18-27	26-41	6.1-7.3	0	0	0	0
	20-27	40-55	34-51	6.1-7.3	0	0	0	0
	27-37	---	---	---	0	0	0	0
110:								
Malibu	0-19	18-27	26-41	6.1-7.3	0	0	0	0
	19-27	40-55	34-51	6.1-7.3	0	0	0	0
	27-37	---	---	---	0	0	0	0
Chumash	0-7	12-27	10-22	6.6-7.3	0	0	0	0
	7-17	---	---	---	0	0	0	0
Boades	0-2	18-27	16-23	5.6-6.5	0	0	0	0
	2-14	18-35	15-29	5.6-6.5	0	0	0	0
	14-24	---	---	---	0	0	0	0
120:								
Mipolomol	0-12	18-27	16-23	6.1-7.3	0	0	0	0
	12-22	---	---	---	0	0	0	0
Topanga	0-2	12-27	11-23	6.1-7.3	0	0	0	0
	2-15	12-27	11-23	6.1-7.3	0	0	0	0
	15-18	18-35	15-29	6.1-7.3	0	0	0	0
	18-27	---	---	---	0	0	0	0
121:								
Mipolomol	0-12	18-27	16-23	6.1-7.3	0	0	0	0
	12-22	---	---	---	0	0	0	0
Topanga	0-2	12-27	11-23	6.1-7.3	0	0	0	0
	2-15	12-27	11-23	6.1-7.3	0	0	0	0
	15-18	18-35	15-29	6.1-7.3	0	0	0	0
	18-28	---	---	---	0	0	0	0
Rock outcrop	---	---	---	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	*Pct*	*meq/100g*	*pH*	*Pct*	*Pct*	*dS/m*	
122:								
Calcic Haploxerepts----------	0-4	18-27	15-22	7.3-7.8	0-1	0	0	0
	4-12	18-27	15-22	7.3-7.8	0-1	0	0	0
	12-31	18-27	15-22	7.3-7.8	0-1	0	0	0
	31-41	---	---	---	0	0	0	0
Mollic Haploxeralfs----------	0-5	18-27	15-22	6.1-7.3	0	0	0	0
	5-35	27-35	21-27	6.1-7.3	0	0	0	0
	35-45	---	---	---	---	---	---	---
130:								
Camarillo, coastal----------	0-24	10-27	8.9-23	7.9-8.4	0-5	0-5	0.0-8.0	0-6
	24-50	18-30	15-24	7.9-8.4	1-5	0-5	0.0-8.0	0-6
	50-80	0-5	0.0-4.8	7.9-8.4	0-1	0-5	0.0-8.0	0-6
140:								
Sulfic Fluvaquents----------	0-41	40-55	---	4.5-5.5	0	0	0	0
	41-60	35-55	---	4.5-6.0	0	0	0	0
150:								
Abaft----------	0-4	0-5	0.0-4.2	6.1-7.8	0	0	0	0
	4-60	0-5	0.0-4.0	6.1-7.8	0	0	0	0
Beaches----------	---	---	---	---	---	---	---	---
151:								
Abaft----------	0-4	0-5	0.0-4.2	6.1-7.8	0	0	0	0
	4-60	0-5	0.0-4.0	6.1-7.8	0	0	0	0
Beaches----------	---	---	---	---	---	---	---	---
Urban land----------	---	---	---	---	---	---	---	---
160:								
Xerorthents, landscaped-------	0-4	18-27	15-22	6.6-8.4	1-3	0	0	0
	4-52	18-27	15-22	6.6-8.4	1-3	0	0	0
	52-62	---	---	---	1-3	---	---	---
170:								
Cotharin----------	0-1	---	---	6.0-6.0	0	0	0	0
	1-9	18-27	16-26	6.6-7.3	0	0	0	0
	9-11	18-27	16-26	6.6-7.3	0	0	0	0
	11-21	---	---	---	0	0	0	0
171:								
Cotharin----------	0-1	---	---	6.0-6.0	0	0	0	0
	1-9	18-27	16-26	6.6-7.3	0	0	0	0
	9-11	18-27	16-26	6.6-7.3	0	0	0	0
	11-21	---	---	---	0	0	0	0
Rock outcrop----------	---	---	---	---	---	---	---	---
175:								
Cotharin----------	0-1	---	---	6.0-6.0	0	0	0	0
	1-9	18-27	16-26	6.6-7.3	0	0	0	0
	9-11	18-27	16-26	6.6-7.3	0	0	0	0
	11-21	---	---	---	0	0	0	0
Talepop----------	0-1	12-27	11-23	6.1-7.3	0	0	0	0
	1-5	18-35	15-29	6.1-7.3	0	0	0	0
	5-15	---	---	---	0	0	0	0

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	*Pct*	*meq/100g*	*pH*	*Pct*	*Pct*	*dS/m*	
176:								
Cotharin----------	0-1	---	---	6.0-6.0	0	0	0	0
	1-9	18-27	16-26	6.6-7.3	0	0	0	0
	9-11	18-27	16-26	6.6-7.3	0	0	0	0
	11-21	---	---	---	0	0	0	0
Talepop----------	0-1	12-27	11-23	6.1-7.3	0	0	0	0
	1-5	18-35	15-29	6.1-7.3	0	0	0	0
	5-15	---	---	---	0	0	0	0
178:								
Cotharin----------	0-1	---	---	6.0-6.0	0	0	0	0
	1-9	18-27	16-26	6.6-7.3	0	0	0	0
	9-11	18-27	16-26	6.6-7.3	0	0	0	0
	11-21	---	---	---	0	0	0	0
Talepop----------	0-1	12-27	11-23	6.1-7.3	0	0	0	0
	1-5	18-35	15-29	6.1-7.3	0	0	0	0
	5-15	---	---	---	0	0	0	0
Urban land----------	---	---	---	---	---	---	---	---
179:								
Cotharin, dry----------	0-1	---	---	6.0-6.0	0	0	0	0
	1-9	18-27	16-26	6.6-7.3	0	0	0	0
	9-11	18-27	16-26	6.6-7.3	0	0	0	0
	11-21	---	---	---	0	0	0	0
180:								
Pits and dumps----------	---	---	---	---	---	---	---	---
190:								
Kayiwish, gently sloping------	0-4	40-55	32-43	6.6-7.3	0	0	0	0
	4-21	40-55	31-43	6.6-7.3	0	0	0	0
	21-24	40-55	30-41	6.6-7.3	0	0	0	0
	24-33	---	---	---	0	0	0	0
Kayiwish, nearly level--------	0-2	40-55	32-43	6.6-7.3	0	0	0	0
	2-19	40-55	32-43	6.6-7.3	0	0	0	0
	19-21	40-55	31-42	6.6-7.3	0	0	0	0
	21-31	---	---	---	0	0	0	0
191:								
Kayiwish, gently sloping------	0-4	40-55	32-43	6.6-7.3	0	0	0	0
	4-21	40-55	31-43	6.6-7.3	0	0	0	0
	21-24	40-55	30-41	6.6-7.3	0	0	0	0
	24-33	---	---	---	0	0	0	0
Kayiwish, steeply sloping-----	0-2	40-55	32-43	6.6-7.3	0	0	0	0
	2-24	40-55	32-43	6.6-7.3	0	0	0	0
	24-33	---	---	---	0	0	0	0
200:								
Cumulic Haploxerolls----------	0-16	5-15	4.9-14	6.6-7.3	1-2	0	1.0-2.0	0
	16-69	27-35	22-29	6.6-7.8	2-3	0	1.0-2.0	0
	69-83	2-4	1.8-3.9	6.6-7.3	0	0	0	0

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	*Pct*	*meq/100g*	*pH*	*Pct*	*Pct*	*dS/m*	
202:								
Fluvaquents	0-5	18-27	15-23	7.9-8.4	1-3	0	0	0
	5-10	10-18	8.6-15	7.9-8.4	1-3	0	0	0
	10-14	10-18	8.9-16	7.9-8.4	1-3	0	0	0
	14-19	5-15	4.1-12	7.9-8.4	1-3	0	0	0
	19-48	2-8	1.8-7.1	7.9-8.4	1-3	0	0	0
	48-55	2-8	1.8-7.1	7.9-8.4	1-3	0	0	0
Riverwash	---	---	---	---	---	---	---	---
220:								
Elder, coastal	0-8	8-18	7.3-16	6.6-7.8	0	0	0	0
	8-43	8-18	7.1-15	6.6-7.8	0	0	0	0
	43-43	4-8	3.8-7.3	6.6-7.8	0	0	0	0
	43-51	8-18	7.1-15	6.6-7.8	0	0	0	0
	51-52	4-8	3.8-7.3	6.6-7.8	0	0	0	0
	52-60	8-18	7.1-15	6.6-7.8	0	0	0	0
230:								
Cotharin	0-1	---	---	6.0-6.0	0	0	0	0
	1-9	18-27	16-26	6.6-7.3	0	0	0	0
	9-11	18-27	16-26	6.6-7.3	0	0	0	0
	11-21	---	---	---	0	0	0	0
Talepop	0-1	12-27	11-23	6.1-7.3	0	0	0	0
	1-5	18-35	15-29	6.1-7.3	0	0	0	0
	5-15	---	---	---	0	0	0	0
231:								
Talepop	0-1	12-27	11-23	6.1-7.3	0	0	0	0
	1-5	18-35	15-29	6.1-7.3	0	0	0	0
	5-15	---	---	---	0	0	0	0
Rock outcrop	---	---	---	---	---	---	---	---
240:								
Tongva	0-2	---	---	6.0-6.0	0	0	0	0
	2-4	12-27	11-23	6.6-7.3	0	0	0	0
	4-30	18-27	16-23	6.6-7.3	0	0	0	0
	30-39	---	---	---	---	---	---	---
Cotharin	0-1	---	---	6.0-6.0	0	0	0	0
	1-9	18-27	16-26	6.6-7.3	0	0	0	0
	9-11	18-27	16-26	6.6-7.3	0	0	0	0
	11-21	---	---	---	0	0	0	0
Rock outcrop	---	---	---	---	---	---	---	---
241:								
Cotharin	0-1	---	---	6.0-6.0	0	0	0	0
	1-9	18-27	16-26	6.6-7.3	0	0	0	0
	9-11	18-27	16-26	6.6-7.3	0	0	0	0
	11-21	---	---	---	0	0	0	0
Rock outcrop	---	---	---	---	---	---	---	---
Tongva	0-2	---	---	6.0-6.0	0	0	0	0
	2-4	12-27	11-23	6.6-7.3	0	0	0	0
	4-30	18-27	16-23	6.6-7.3	0	0	0	0
	30-39	---	---	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	*Pct*	*meq/100g*	*pH*	*Pct*	*Pct*	*dS/m*	
250:								
Urban land	---	---	---	---	---	---	---	---
Xerorthents, landscaped	0-4	18-27	15-22	6.6-8.4	1-3	0	0	0
	4-52	18-27	15-22	6.6-8.4	1-3	0	0	0
	52-62	---	---	---	1-3	---	---	---
251:								
Urban land	---	---	---	---	---	---	---	---
Tongva	0-2	---	---	6.0-6.0	0	0	0	0
	2-4	12-27	11-23	6.6-7.3	0	0	0	0
	4-30	18-27	16-23	6.6-7.3	0	0	0	0
	30-39	---	---	---	---	---	---	---
252:								
Urban land	---	---	---	---	---	---	---	---
Xerorthents, landscaped	0-4	18-27	15-22	6.6-8.4	1-3	0	0	0
	4-52	18-27	15-22	6.6-8.4	1-3	0	0	0
	52-62	---	---	---	1-3	---	---	---
270:								
Pacheco, coastal	0-17	27-35	22-29	7.4-8.4	0-5	0	0	0
	17-46	25-35	20-27	7.9-9.0	5-10	0-5	2.0-8.0	0-5
	46-60	5-35	10-20	7.9-9.0	5-10	0-5	2.0-8.0	0-5
290:								
Topanga	0-2	12-27	11-23	6.1-7.3	0	0	0	0
	2-15	12-27	11-23	6.1-7.3	0	0	0	0
	15-18	18-35	15-29	6.1-7.3	0	0	0	0
	18-27	---	---	---	0	0	0	0
Mipolomol	0-12	18-27	16-23	6.1-7.3	0	0	0	0
	12-22	---	---	---	0	0	0	0
Sapwi	0-1	---	---	6.0-6.0	0	0	0	0
	1-4	12-27	11-23	6.6-7.3	0	0	0	0
	4-24	27-35	22-29	6.6-7.3	0	0	0	0
	24-38	27-35	22-29	6.6-7.3	0	0	0	0
	38-48	---	---	---	---	---	---	---
300:								
Zumaridge	0-2	---	---	6.0-6.0	0	0	0	0
	2-10	8-18	7.5-16	6.6-7.3	0	0	0	0
	10-13	---	---	---	0	0	0	0
	13-23	---	---	---	0	0	0	0
Kawenga	0-2	---	---	6.0-6.0	0	0	0	0
	2-27	12-27	11-23	6.6-7.3	0	0	0	0
	27-37	18-35	16-29	6.6-7.3	0	0	0	0
	37-55	18-35	16-29	6.6-7.3	0	0	0	0
	55-65	---	---	---	0	0	0	0
301:								
Zumaridge	0-2	---	---	6.0-6.0	0	0	0	0
	2-10	8-18	7.5-16	6.6-7.3	0	0	0	0
	10-13	---	---	---	0	0	0	0
	13-23	---	---	---	0	0	0	0

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	*Pct*	*meq/100g*	*pH*	*Pct*	*Pct*	*dS/m*	
301:								
Kawenga	0-2	---	---	6.0-6.0	0	0	0	0
	2-27	12-27	11-23	6.6-7.3	0	0	0	0
	27-37	18-35	16-29	6.6-7.3	0	0	0	0
	37-55	18-35	16-29	6.6-7.3	0	0	0	0
	55-65	---	---	---	0	0	0	0
302:								
Zumaridge	0-2	---	---	6.0-6.0	0	0	0	0
	2-10	8-18	7.5-16	6.6-7.3	0	0	0	0
	10-13	---	---	---	0	0	0	0
	13-23	---	---	---	0	0	0	0
Rock outcrop	---	---	---	---	---	---	---	---
Sumiwawa	0-9	2-8	1.8-6.4	6.1-6.5	0	0	0	0
	9-13	2-8	1.8-6.4	6.1-6.5	0	0	0	0
	13-22	---	---	---	0	0	0	0
	22-31	---	---	---	0	0	0	0
303:								
Zumaridge	0-2	---	---	6.0-6.0	0	0	0	0
	2-10	8-18	7.5-16	6.6-7.3	0	0	0	0
	10-13	---	---	---	0	0	0	0
	13-23	---	---	---	0	0	0	0
Rock outcrop	---	---	---	---	---	---	---	---
Sumiwawa	0-9	2-8	1.8-6.4	6.1-6.5	0	0	0	0
	9-13	2-8	1.8-6.4	6.1-6.5	0	0	0	0
	13-22	---	---	---	0	0	0	0
	22-31	---	---	---	0	0	0	0
304:								
Zumaridge	0-2	---	---	6.0-6.0	0	0	0	0
	2-10	8-18	7.5-16	6.6-7.3	0	0	0	0
	10-13	---	---	---	0	0	0	0
	13-23	---	---	---	0	0	0	0
Sapwi	0-1	---	---	6.0-6.0	0	0	0	0
	1-4	12-27	11-23	6.6-7.3	0	0	0	0
	4-24	27-35	22-29	6.6-7.3	0	0	0	0
	24-38	27-35	22-29	6.6-7.3	0	0	0	0
	38-48	---	---	---	---	---	---	---
Kawenga	0-2	---	---	6.0-6.0	0	0	0	0
	2-27	12-27	11-23	6.6-7.3	0	0	0	0
	27-37	18-35	16-29	6.6-7.3	0	0	0	0
	37-55	18-35	16-29	6.6-7.3	0	0	0	0
	55-65	---	---	---	0	0	0	0
305:								
Zumaridge	0-2	---	---	6.0-6.0	0	0	0	0
	2-10	8-18	7.5-16	6.6-7.3	0	0	0	0
	10-13	---	---	---	0	0	0	0
	13-23	---	---	---	0	0	0	0
Rock outcrop	---	---	---	---	---	---	---	---
310:								
Gaviota	0-8	8-16	6.2-13	6.6-7.3	0	0	0	0
	8-18	---	---	---	0	0	0	0

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	*Pct*	*meq/100g*	*pH*	*Pct*	*Pct*	*dS/m*	
311:								
Gaviota, northerly aspect-----	0-8	8-16	6.2-13	6.6-7.3	0	0	0	0
	8-18	---	---	---	0	0	0	0
Rock outcrop----------	---	---	---	---	---	---	---	---
320:								
Botella----------	0-8	15-27	13-23	5.6-7.3	0	0	0	0
	8-60	30-35	24-28	5.6-7.3	0	0	0	0
330:								
Linne----------	0-25	27-35	22-29	7.9-8.4	0-5	0	0	0
	25-30	27-35	21-27	7.9-8.4	5-15	0	0	0
	30-40	---	---	---	---	0	0	0
Los Osos----------	0-9	27-35	18-36	5.6-6.5	0	0	0	0
	9-35	35-50	6.0-28	6.1-7.3	0	0	0	0
	35-45	---	---	---	0	0	0	0
Haploxerepts----------	0-4	18-27	11-16	7.9-8.4	1-3	0	0	0
	4-19	27-35	15-20	7.9-8.4	1-3	0	0	0
	19-47	27-35	15-20	7.9-8.4	1-3	0	0	0
	47-57	---	---	---	0	0	0	0
331:								
Linne----------	0-25	27-35	22-29	7.9-8.4	0-5	0	0	0
	25-30	27-35	21-27	7.9-8.4	5-15	0	0	0
	30-40	---	---	---	---	0	0	0
332:								
Linne----------	0-25	27-35	22-29	7.9-8.4	0-5	0	0	0
	25-30	27-35	21-27	7.9-8.4	5-15	0	0	0
	30-40	---	---	---	---	0	0	0
350:								
Los Osos----------	0-9	27-35	18-36	5.6-6.5	0	0	0	0
	9-35	35-50	6.0-28	6.1-7.3	0	0	0	0
	35-45	---	---	---	---	0	0	0
390:								
Danville, coastal----------	0-4	27-35	18-29	6.1-7.3	0	0	0	0
	4-31	35-45	6.0-23	6.6-8.4	0	0	0	0
	31-60	40-45	6.7-23	7.4-8.4	2-6	0	0	0
Urban land----------	---	---	---	---	---	---	---	---
391:								
Danville, coastal----------	0-4	27-35	18-29	6.1-7.3	0	0	0	0
	4-31	35-45	6.0-23	6.6-8.4	0	0	0	0
	31-60	40-45	6.7-23	7.4-8.4	2-6	0	0	0
400:								
Pachic Argixerolls, coastal---	0-9	12-27	10-23	5.6-7.3	0	0	0	0
	9-24	25-35	20-27	5.6-7.3	0	0	0	0
	24-33	---	---	---	---	0	0	0
410:								
Lockwood, coastal----------	0-4	18-27	16-23	5.1-7.8	0	0	0	0
	4-13	27-35	19-27	5.6-8.4	0	0	0	0
	13-82	25-35	17-27	6.6-8.4	1-5	0	0	0
Urban land----------	---	---	---	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	*Pct*	*meq/100g*	*pH*	*Pct*	*Pct*	*dS/m*	
411:								
Lockwood, coastal----------	0-4	18-27	16-23	5.1-7.8	0	0	0	0
	4-13	27-35	19-27	5.6-8.4	0	0	0	0
	13-82	25-35	17-27	6.6-8.4	1-5	0	0	0
Urban land----------	---	---	---	---	---	---	---	---
430:								
Cropley, coastal----------	0-2	40-60	26-52	6.6-8.4	0	0	0	0
	2-22	35-60	6.0-36	7.4-8.4	0-5	0	0	0
	22-60	30-40	5.2-20	7.9-8.4	3-10	0	0.0-2.0	0
431:								
Cropley, coastal----------	0-2	40-60	26-52	6.6-8.4	0	0	0	0
	2-22	35-60	6.0-36	7.4-8.4	0-5	0	0	0
	22-60	30-40	5.2-20	7.9-8.4	3-10	0	0.0-2.0	0
Cropley----------	0-2	40-60	26-52	6.6-8.4	0	0	0	0
	2-22	35-60	6.0-36	7.4-8.4	0-5	0	0	0
	22-60	30-40	5.2-20	7.9-8.4	3-10	0	0.0-2.0	0
432:								
Cropley, coastal----------	0-2	40-60	26-52	6.6-8.4	0	0	0	0
	2-22	35-60	6.0-36	7.4-8.4	0-5	0	0	0
	22-60	30-40	5.2-20	7.9-8.4	3-10	0	0.0-2.0	0
433:								
Cropley, coastal----------	0-2	40-60	26-52	6.6-8.4	0	0	0	0
	2-22	35-60	6.0-36	7.4-8.4	0-5	0	0	0
	22-60	30-40	5.2-20	7.9-8.4	3-10	0	0.0-2.0	0
Urban land----------	---	---	---	---	---	---	---	---
Haploxererts----------	0-30	40-60	26-52	6.6-8.4	0	0	0	0
	30-50	35-60	6.0-36	7.4-8.4	0-5	0	0	0
	50-60	---	---	---	0-5	---	---	---
434:								
Cropley, coastal----------	0-2	40-60	26-52	6.6-8.4	0	0	0	0
	2-22	35-60	6.0-36	7.4-8.4	0-5	0	0	0
	22-60	30-40	5.2-20	7.9-8.4	3-10	0	0.0-2.0	0
Xerorthents, landscaped-------	0-4	18-27	15-22	6.6-8.4	1-3	0	0	0
	4-52	18-27	15-22	6.6-8.4	1-3	0	0	0
	52-62	---	---	---	1-3	---	---	---
Urban land----------	---	---	---	---	---	---	---	---
450:								
Sapwi----------	0-1	---	---	6.0-6.0	0	0	0	0
	1-4	12-27	11-23	6.6-7.3	0	0	0	0
	4-24	27-35	22-29	6.6-7.3	0	0	0	0
	24-38	27-35	22-29	6.6-7.3	0	0	0	0
	38-48	---	---	---	---	---	---	---
451:								
Urban land----------	---	---	---	---	---	---	---	---
Sapwi----------	0-1	---	---	6.0-6.0	0	0	0	0
	1-4	12-27	11-23	6.6-7.3	0	0	0	0
	4-24	27-35	22-29	6.6-7.3	0	0	0	0
	24-38	27-35	22-29	6.6-7.3	0	0	0	0
	38-48	---	---	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	*Pct*	*meq/100g*	*pH*	*Pct*	*Pct*	*dS/m*	
460:								
Typic Haploxerepts----------	0-10	27-35	19-27	6.1-7.3	0	0	0	0
	10-22	27-35	19-27	6.1-7.3	0	0	0	0
	22-38	27-35	19-27	6.1-7.3	0	0	0	0
	38-47	---	---	---	0	0	0	0
461:								
Typic Haploxerepts----------	0-10	27-35	19-27	6.1-7.3	0	0	0	0
	10-22	27-35	19-27	6.1-7.3	0	0	0	0
	22-38	27-35	19-27	6.1-7.3	0	0	0	0
	38-47	---	---	---	0	0	0	0
470:								
Sumiwawa----------	0-9	2-8	1.8-6.4	6.1-6.5	0	0	0	0
	9-13	2-8	1.8-6.4	6.1-6.5	0	0	0	0
	13-22	---	---	---	0	0	0	0
	22-31	---	---	---	0	0	0	0
Hipuk----------	0-1	8-18	7.1-15	5.6-6.0	0	0	0	0
	1-4	8-18	7.1-15	5.6-6.0	0	0	0	0
	4-8	20-30	16-24	5.1-5.5	0	0	0	0
	8-18	20-30	16-24	5.1-5.5	0	0	0	0
	18-24	---	---	---	0	0	0	0
	24-33	---	---	---	0	0	0	0
Rock outcrop----------	---	---	---	---	---	---	---	---
472:								
Rock outcrop----------	---	---	---	---	---	---	---	---
Sumiwawa----------	0-9	2-8	1.8-6.4	6.1-6.5	0	0	0	0
	9-13	2-8	1.8-6.4	6.1-6.5	0	0	0	0
	13-22	---	---	---	0	0	0	0
	22-31	---	---	---	0	0	0	0
Hipuk----------	0-1	8-18	7.1-15	5.6-6.0	0	0	0	0
	1-4	8-18	7.1-15	5.6-6.0	0	0	0	0
	4-8	20-30	16-24	5.1-5.5	0	0	0	0
	8-18	20-30	16-24	5.1-5.5	0	0	0	0
	18-24	---	---	---	0	0	0	0
	24-33	---	---	---	0	0	0	0
500:								
Balcom----------	0-16	25-35	17-28	7.9-8.4	1-5	0	0	0
	16-37	25-35	17-28	7.9-8.4	1-5	0	0	0
	37-46	---	---	---	1-5	0	0	0
503:								
Balcom----------	0-16	25-35	17-28	7.9-8.4	1-5	0	0	0
	16-37	25-35	17-28	7.9-8.4	1-5	0	0	0
	37-46	---	---	---	1-5	0	0	0
Balcom, dark surface----------	0-30	25-35	17-28	7.9-8.4	1-5	0	0	0
	30-39	25-35	17-28	7.9-8.4	1-5	0	0	0
	39-46	---	---	---	1-5	0	0	0
530:								
Xerorthents, landscaped-------	0-4	18-27	15-22	6.6-8.4	1-3	0	0	0
	4-52	18-27	15-22	6.6-8.4	1-3	0	0	0
	52-62	---	---	---	1-3	---	---	---
Urban land----------	---	---	---	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	*Pct*	*meq/100g*	*pH*	*Pct*	*Pct*	*dS/m*	
530:								
Balcom	0-16	25-35	17-28	7.9-8.4	1-5	0	0	0
	16-37	25-35	17-28	7.9-8.4	1-5	0	0	0
	37-46	---	---	---	1-5	0	0	0
531:								
Xerorthents, landscaped	0-4	18-27	15-22	6.6-8.4	1-3	0	0	0
	4-52	18-27	15-22	6.6-8.4	1-3	0	0	0
	52-62	---	---	---	1-3	---	---	---
Urban land	---	---	---	---	---	---	---	---
Balcom	0-16	25-35	17-28	7.9-8.4	1-5	0	0	0
	16-37	25-35	17-28	7.9-8.4	1-5	0	0	0
	37-46	---	---	---	1-5	0	0	0
532:								
Xerorthents, landscaped	0-4	18-27	15-22	6.6-8.4	1-3	0	0	0
	4-52	18-27	15-22	6.6-8.4	1-3	0	0	0
	52-62	---	---	---	1-3	---	---	---
Urban land	---	---	---	---	---	---	---	---
Pachic Argixerolls, gullied	0-9	12-27	10-23	5.6-7.3	0	0	0	0
	9-24	25-35	20-27	5.6-7.3	0	0	0	0
	24-33	---	---	---	---	0	0	0
540:								
Calcic Argixerolls	0-1	18-27	16-23	6.6-7.8	0	0	0	0
	1-15	27-35	22-29	6.6-7.8	0-2	0	0	0
	15-37	18-27	15-22	6.6-7.8	1-3	0	0	0
	37-47	---	---	---	1-3	0	0	0
550:								
Dam	---	---	---	---	---	---	---	---
W:								
Water	---	---	---	---	---	---	---	---

Table 17.--Erosion Properties of the Soils

(Entries under "Erosion factors" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer)

Map symbol and soil name	Depth	Erosion factors			Wind erodibility group	Wind erodibility index
		Kw	Kf	T		
	In					
100:						
Chumash	0-7	.20	.32	1	7	38
	7-17	---	---			
Boades	0-2	.20	.32	1	6	48
	2-14	.20	.32			
	14-24	---	---			
Malibu	0-19	.20	.32	1	6	48
	19-27	.10	.15			
	27-37	---	---			
101:						
Chumash	0-9	.20	.32	1	7	38
	9-19	---	---			
Boades	0-2	.20	.32	1	6	48
	2-14	.20	.32			
	14-24	---	---			
Malibu	0-20	.20	.32	1	6	48
	20-27	.10	.15			
	27-37	---	---			
110:						
Malibu	0-19	.20	.32	1	6	48
	19-27	.10	.15			
	27-37	---	---			
Chumash	0-7	.20	.32	1	7	38
	7-17	---	---			
Boades	0-2	.20	.32	1	6	48
	2-14	.20	.32			
	14-24	---	---			
120:						
Mipolomol	0-12	.20	.32	1	7	38
	12-22	---	---			
Topanga	0-2	.20	.32	1	7	38
	2-15	.20	.32			
	15-18	.15	.20			
	18-27	---	---			
121:						
Mipolomol	0-12	.20	.32	1	7	38
	12-22	---	---			
Topanga	0-2	.20	.32	1	7	38
	2-15	.20	.32			
	15-18	.15	.20			
	18-28	---	---			
Rock outcrop	---	---	---	---	---	---

Table 17.--Erosion Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In					
122:						
Calcic Haploxerepts	0-4	.20	.32	5	5	56
	4-12	.20	.32			
	12-31	.20	.32			
	31-41	---	---			
Mollic Haploxeralfs	0-5	.20	.32	3	7	38
	5-35	.20	.28			
	35-45	---	---			
130:						
Camarillo, coastal	0-24	.28	.28	5	4L	86
	24-50	.32	.32			
	50-80	.24	.32			
140:						
Sulfic Fluvaquents	0-41	.17	.17	5	4	86
	41-60	.43	.43			
150:						
Abaft	0-4	.24	.24	5	2	134
	4-60	.24	.24			
Beaches	---	---	---	---	1	180
151:						
Abaft	0-4	.20	.20	5	2	134
	4-60	.20	.20			
Beaches	---	---	---	---	1	180
Urban land	---	---	---	---	---	---
160:						
Xerorthents, landscaped	0-4	.20	.20	5	5	56
	4-52	.20	.20			
	52-62	---	---			
170:						
Cotharin	0-1	---	---	1	6	48
	1-9	.20	.32			
	9-11	.20	.32			
	11-21	---	---			
171:						
Cotharin	0-1	---	---	1	6	48
	1-9	.20	.32			
	9-11	.20	.32			
	11-21	---	---			
Rock outcrop	---	---	---	---	---	---
175:						
Cotharin	0-1	---	---	1	6	48
	1-9	.20	.32			
	9-11	.20	.32			
	11-21	---	---			
Talepop	0-1	.20	.32	1	7	38
	1-5	.20	.32			
	5-15	---	---			

Table 17.--Erosion Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In					
176:						
Cotharin	0-1	---	---	1	6	48
	1-9	.20	.32			
	9-11	.20	.32			
	11-21	---	---			
Talepop	0-1	.20	.32	1	7	38
	1-5	.20	.32			
	5-15	---	---			
178:						
Cotharin	0-1	---	---	1	6	48
	1-9	.20	.32			
	9-11	.20	.32			
	11-21	---	---			
Talepop	0-1	.20	.32	1	7	38
	1-5	.20	.32			
	5-15	---	---			
Urban land	---	---	---	---	---	---
179:						
Cotharin, dry	0-1	---	---	1	4	48
	1-9	.20	.32			
	9-11	.20	.32			
	11-21	---	---			
180:						
Pits and Dumps	---	---	---	---	---	---
190:						
Kayiwish, gently sloping	0-4	.10	.15	1	4	38
	4-21	.10	.15			
	21-24	.10	.15			
	24-33	---	---			
Kayiwish, nearly level	0-2	.10	.15	1	4	38
	2-19	.10	.15			
	19-21	.10	.15			
	21-31	---	---			
191:						
Kayiwish, gently sloping	0-4	.10	.15	1	4	38
	4-21	.10	.15			
	21-24	.10	.15			
	24-33	---	---			
Kayiwish, steeply sloping	0-2	.10	.15	1	4	38
	2-24	.10	.15			
	24-33	---	---			
200:						
Cumulic Haploxerolls	0-16	.20	.20	5	3	86
	16-69	.28	.28			
	69-83	.02	.10			

Table 17.--Erosion Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In					
202:						
Fluvaquents	0-5	.20	.20	5	5	56
	5-10	.32	.32			
	10-14	.24	.24			
	14-19	.10	.10			
	19-48	.02	.05			
	48-55	.02	.05			
Riverwash	---	---	---	---	---	---
220:						
Elder, coastal	0-8	.24	.24	5	3	86
	8-43	.24	.24			
	43-43	.15	.15			
	43-51	.24	.24			
	51-52	.15	.15			
	52-60	.24	.24			
230:						
Cotharin	0-1	---	---	1	6	48
	1-9	.20	.32			
	9-11	.20	.32			
	11-21	---	---			
Talepop	0-1	.20	.32	1	7	38
	1-5	.20	.32			
	5-15	---	---			
231:						
Talepop	0-1	.20	.32	1	7	38
	1-5	.20	.32			
	5-15	---	---			
Rock outcrop	---	---	---	---	---	---
240:						
Tongva	0-2	---	---	2	5	56
	2-4	.20	.32			
	4-30	.20	.32			
	30-39	---	---			
Cotharin	0-1	---	---	1	6	48
	1-9	.20	.32			
	9-11	.20	.32			
	11-21	---	---			
Rock outcrop	---	---	---	---	---	---
241:						
Cotharin	0-1	---	---	1	6	48
	1-9	.20	.32			
	9-11	.20	.32			
	11-21	---	---			
Rock outcrop	---	---	---	---	---	---
Tongva	0-2	---	---	2	5	56
	2-4	.20	.32			
	4-30	.20	.32			
	30-39	---	---			

Table 17.--Erosion Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In					
250:						
Urban land	---	---	---	---	---	---
Xerorthents, landscaped	0-4	.20	.20	5	5	56
	4-52	.20	.20			
	52-62	---	---			
251:						
Urban land	---	---	---	---	---	---
Tongva	0-2	---	---	2	5	56
	2-4	.20	.32			
	4-30	.20	.32			
	30-39	---	---			
252:						
Urban land	---	---	---	---	---	---
Xerorthents, landscaped	0-4	.20	.20	5	5	56
	4-52	.20	.20			
	52-62	---	---			
270:						
Pacheco, coastal	0-17	.28	.32	5	7	38
	17-46	.49	.55			
	46-60	.32	.37			
290:						
Topanga	0-2	.20	.32	1	7	38
	2-15	.20	.32			
	15-18	.15	.20			
	18-27	---	---			
Mipolomol	0-12	.20	.32	1	7	38
	12-22	---	---			
Sapwi	0-1	---	---	2	5	56
	1-4	.20	.32			
	4-24	.20	.28			
	24-38	.20	.28			
	38-48	---	---			
300:						
Zumaridge	0-2	---	---	1	5	56
	2-10	.28	.32			
	10-13	---	---			
	13-23	---	---			
Kawenga	0-2	---	---	5	5	56
	2-27	.20	.32			
	27-37	.20	.32			
	37-55	.20	.32			
	55-65	---	---			
301:						
Zumaridge	0-2	---	---	1	5	56
	2-10	.28	.32			
	10-13	---	---			
	13-23	---	---			

Table 17.--Erosion Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In					
301:						
Kawenga	0-2	---	---	5	5	56
	2-27	.20	.32			
	27-37	.20	.32			
	37-55	.20	.32			
	55-65	---	---			
302:						
Zumaridge	0-2	---	---	1	5	56
	2-10	.28	.32			
	10-13	---	---			
	13-23	---	---			
Rock outcrop	---	---	---	---	---	---
Sumiwawa	0-9	.10	.15	1	3	86
	9-13	.10	.15			
	13-22	---	---			
	22-31	---	---			
303:						
Zumaridge	0-2	---	---	1	5	56
	2-10	.28	.32			
	10-13	---	---			
	13-23	---	---			
Rock outcrop	---	---	---	---	---	---
Sumiwawa	0-9	.10	.15	1	3	86
	9-13	.10	.15			
	13-22	---	---			
	22-31	---	---			
304:						
Zumaridge	0-2	---	---	1	5	56
	2-10	.28	.32			
	10-13	---	---			
	13-23	---	---			
Sapwi	0-1	---	---	2	5	56
	1-4	.20	.32			
	4-24	.20	.28			
	24-38	.20	.28			
	38-48	---	---			
Kawenga	0-2	---	---	5	5	56
	2-27	.20	.32			
	27-37	.20	.32			
	37-55	.20	.32			
	55-65	---	---			
305:						
Zumaridge	0-2	---	---	1	5	56
	2-10	.28	.32			
	10-13	---	---			
	13-23	---	---			
Rock outcrop	---	---	---	---	---	---
310:						
Gaviota	0-8	.20	.32	1	4	86
	8-18	---	---			

Table 17.--Erosion Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In					
311:						
Gaviota, northerly aspect	0-8	.20	.32	1	4	86
	8-18	---	---			
Rock outcrop	---	---	---	---	---	---
320:						
Botella	0-8	.24	.28	5	6	48
	8-60	.20	.24			
330:						
Linne	0-25	.28	.32	3	4L	86
	25-30	.32	.37			
	30-40	---	---			
Los Osos	0-9	.20	.20	3	6	48
	9-35	.28	.28			
	35-45	---	---			
Haploxerepts	0-4	.28	.32	4	4L	86
	4-19	.28	.32			
	19-47	.28	.32			
	47-57	---	---			
331:						
Linne	0-25	.28	.32	3	4L	86
	25-30	.32	.37			
	30-40	---	---			
332:						
Linne	0-25	.28	.32	3	4L	86
	25-30	.32	.37			
	30-40	---	---			
350:						
Los Osos	0-9	.20	.20	3	6	48
	9-35	.28	.28			
	35-45	---	---			
390:						
Danville, coastal	0-4	.37	.37	5	7	38
	4-31	.28	.28			
	31-60	.28	.28			
Urban land	---	---	---	---	---	---
391:						
Danville, coastal	0-4	.37	.37	5	7	38
	4-31	.28	.28			
	31-60	.28	.28			
400:						
Pachic Argixerolls, coastal	0-9	.20	.32	2	7	38
	9-24	.20	.37			
	24-33	---	---			
410:						
Lockwood, coastal	0-4	.28	.49	5	7	38
	4-13	.15	.32			
	13-82	.15	.32			
Urban land	---	---	---	---	---	---

Table 17.--Erosion Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In					
411:						
Lockwood, coastal	0-4	.28	.49	5	7	38
	4-13	.15	.32			
	13-82	.15	.32			
Urban land	---	---	---	---	---	---
430:						
Cropley, coastal	0-2	.17	.17	5	4	38
	2-22	.43	.43			
	22-60	.43	.43			
431:						
Cropley, coastal	0-2	.17	.17	5	4	38
	2-22	.43	.43			
	22-60	.43	.43			
Cropley	0-2	.17	.17	5	4	38
	2-22	.43	.43			
	22-60	.43	.43			
432:						
Cropley, coastal	0-2	.17	.17	5	4	38
	2-22	.43	.43			
	22-60	.43	.43			
433:						
Cropley, coastal	0-2	.17	.17	5	4	38
	2-22	.43	.43			
	22-60	.43	.43			
Urban land	---	---	---	---	---	---
Haploxererts	0-30	.17	.17	5	4	38
	30-50	.43	.43			
	50-60	---	---			
434:						
Cropley, coastal	0-2	.17	.17	5	4	38
	2-22	.43	.43			
	22-60	.43	.43			
Xerorthents, landscaped	0-4	.20	.20	5	5	56
	4-52	.20	.20			
	52-62	---	---			
Urban land	---	---	---	---	---	---
450:						
Sapwi	0-1	---	---	2	5	56
	1-4	.20	.32			
	4-24	.20	.28			
	24-38	.20	.28			
	38-48	---	---			
451:						
Urban land	---	---	---	---	---	---

Table 17.--Erosion Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In					
451:						
Sapwi	0-1	---	---	2	5	56
	1-4	.20	.32			
	4-24	.20	.28			
	24-38	.20	.28			
	38-48	---	---			
460:						
Typic Haploxerepts	0-10	.28	.37	3	7	38
	10-22	.28	.37			
	22-38	.28	.37			
	38-47	---	---			
461:						
Typic Haploxerepts	0-10	.28	.37	3	7	38
	10-22	.28	.37			
	22-38	.28	.37			
	38-47	---	---			
470:						
Sumiwawa	0-9	.10	.15	1	3	86
	9-13	.10	.15			
	13-22	---	---			
	22-31	---	---			
Hipuk	0-1	.20	.32	1	4	86
	1-4	.20	.20			
	4-8	.24	.32			
	8-18	.32	.32			
	18-24	---	---			
	24-33	---	---			
Rock outcrop	---	---	---	---	---	---
472:						
Rock outcrop	---	---	---	---	---	---
Sumiwawa	0-9	.10	.15	1	3	86
	9-13	.10	.15			
	13-22	---	---			
	22-31	---	---			
Hipuk	0-1	.20	.32	1	4	86
	1-4	.20	.20			
	4-8	.24	.32			
	8-18	.32	.32			
	18-24	---	---			
	24-33	---	---			
500:						
Balcom	0-16	.37	.37	3	7	38
	16-37	.37	.37			
	37-46	---	---			
503:						
Balcom	0-16	.37	.37	3	7	38
	16-37	.37	.37			
	37-46	---	---			
Balcom, dark surface	0-30	.37	.37	3	7	38
	30-39	.37	.37			
	39-46	---	---			

Table 17.--Erosion Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In					
530:						
Xerorthents, landscaped	0-4	.20	.20	5	5	56
	4-52	.20	.20			
	52-62	---	---			
Urban land	---	---	---	---	---	---
Balcom	0-16	.37	.37	3	4	86
	16-37	.37	.37			
	37-46	---	---			
531:						
Xerorthents, landscaped	0-4	.20	.20	5	5	56
	4-52	.20	.20			
	52-62	---	---			
Urban land	---	---	---	---	---	---
Balcom	0-16	.37	.37	3	4	86
	16-37	.37	.37			
	37-46	---	---			
532:						
Xerorthents, landscaped	0-4	.20	.20	5	5	56
	4-52	.20	.20			
	52-62	---	---			
Urban land	---	---	---	---	---	---
Pachic Argixerolls, gullied	0-9	.20	.32	2	7	38
	9-24	.20	.37			
	24-33	---	---			
540:						
Calcic Argixerolls	0-1	.43	.43	2	5	56
	1-15	.37	.37			
	15-37	.43	.43			
	37-47	---	---			
550:						
Dam	---	---	---	---	---	---
W:						
Water	---	---	---	---	---	---

Table 18.--Water Features

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Hydro-logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
100:									
Chumash	D								
		Jan-Dec	---	---	---	---	None	---	None
Boades	D								
		Jan-Dec	---	---	---	---	None	---	None
Malibu	D								
		Jan-Dec	---	---	---	---	None	---	None
101:									
Chumash	D								
		Jan-Dec	---	---	---	---	None	---	None
Boades	D								
		Jan-Dec	---	---	---	---	None	---	None
Malibu	D								
		Jan-Dec	---	---	---	---	None	---	None
110:									
Malibu	D								
		Jan-Dec	---	---	---	---	None	---	None
Chumash	D								
		Jan-Dec	---	---	---	---	None	---	None
Boades	D								
		Jan-Dec	---	---	---	---	None	---	None
120:									
Mipolomol	D								
		Jan-Dec	---	---	---	---	None	---	None
Topanga	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	*Ft*	*Ft*				
121:									
Mipolomol	D								
		Jan-Dec	---	---	---	---	None	---	None
Topanga	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
122:									
Calcic Haploxerepts	C								
		Jan-Dec	---	---	---	---	None	---	None
Mollic Haploxeralfs	C								
		Jan-Dec	---	---	---	---	None	---	None
130:									
Camarillo, coastal	C								
		January	---	---	0.0-2.0	Brief	Occasional	Brief	Frequent
		February	---	---	0.0-2.0	Brief	Occasional	Brief	Frequent
		March	---	---	0.0-2.0	Brief	Occasional	Brief	Frequent
		April	---	---	0.0-2.0	Brief	Occasional	Brief	Frequent
		November	---	---	0.0-2.0	Brief	Occasional	Brief	Frequent
		December	---	---	0.0-2.0	Brief	Occasional	Brief	Frequent
140:									
Sulfic Fluvaquents	D								
		January	---	---	0.5-2.0	Long	Frequent	Long	Frequent
		February	---	---	0.5-2.0	Long	Frequent	Long	Frequent
		March	---	---	0.5-2.0	Long	Frequent	Long	Frequent
		April	---	---	0.5-2.0	Long	Frequent	Long	Frequent
		May	---	---	0.5-2.0	Long	Frequent	Long	Frequent
		June	---	---	0.5-2.0	Long	Frequent	Long	Frequent
		July	---	---	0.5-2.0	Long	Frequent	Long	Frequent
		August	---	---	0.5-2.0	Long	Frequent	Long	Frequent
		September	---	---	0.5-2.0	Long	Frequent	Long	Frequent
		October	---	---	0.5-2.0	Long	Frequent	Long	Frequent
		November	---	---	0.5-2.0	Long	Frequent	Long	Frequent
		December	---	---	0.5-2.0	Long	Frequent	Long	Frequent

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	*Ft*	*Ft*				
150:									
Abaft	A								
		Jan-Dec	---	---	---	---	None	---	None
Beaches	A								
		Jan-Dec	---	---	---	---	None	---	None
151:									
Abaft	A								
		Jan-Dec	---	---	---	---	None	---	None
Beaches	A								
		Jan-Dec	---	---	---	---	None	---	None
Urban land	---								
		Jan-Dec	---	---	---	---	None	---	None
160:									
Xerorthents, landscaped	D								
		Jan-Dec	---	---	---	---	None	---	None
170:									
Cotharin	D								
		Jan-Dec	---	---	---	---	None	---	None
171:									
Cotharin	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
175:									
Cotharin	D								
		Jan-Dec	---	---	---	---	None	---	None
Talepop	D								
		Jan-Dec	---	---	---	---	None	---	None
176:									
Cotharin	D								
		Jan-Dec	---	---	---	---	None	---	None
Talepop	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	*Ft*	*Ft*				
178:									
Cotharin----------	D								
		Jan-Dec	---	---	---	---	None	---	None
Talepop----------	D								
		Jan-Dec	---	---	---	---	None	---	None
Urban land----------	---								
		Jan-Dec	---	---	---	---	None	---	None
179:									
Cotharin, dry----------	D								
		Jan-Dec	---	---	---	---	None	---	None
180:									
Pits and Dumps----------	---								
		Jan-Dec	---	---	---	---	None	---	None
190:									
Kayiwish, gently sloping-------	C								
		Jan-Dec	---	---	---	---	None	---	None
Kayiwish, nearly level---------	C								
		January	---	---	0.0-0.1	Very brief	Rare	Very brief	Very rare
		February	---	---	0.0-0.1	Very brief	Rare	Very brief	Very rare
		March	---	---	0.0-0.1	Very brief	Rare	Very brief	Very rare
		November	---	---	0.0-0.1	Very brief	Rare	Very brief	Very rare
		December	---	---	0.0-0.1	Very brief	Rare	Very brief	Very rare
191:									
Kayiwish, gently sloping-------	C								
		Jan-Dec	---	---	---	---	None	---	None
Kayiwish, steeply sloping------	C								
		Jan-Dec	---	---	---	---	None	---	None
200:									
Cumulic Haploxerolls----------	B								
		January	---	---	---	---	None	Brief	Frequent
		February	---	---	---	---	None	Brief	Frequent
		March	---	---	---	---	None	Brief	Frequent
		April	---	---	---	---	None	Brief	Frequent
		November	---	---	---	---	None	Brief	Frequent
		December	---	---	---	---	None	Brief	Frequent

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	*Ft*	*Ft*				
202:									
Fluvaquents	D								
		January	0.5-1.5	---	---	---	None	Very long	Frequent
		February	0.5-1.5	---	---	---	None	Very long	Frequent
		March	0.5-1.5	---	---	---	None	Very long	Frequent
		April	0.5-1.5	---	---	---	None	Very long	Frequent
		May	0.5-1.5	---	---	---	None	Very long	Frequent
		June	0.5-1.5	---	---	---	None	Very long	Frequent
		July	0.5-1.5	---	---	---	None	Very long	Frequent
		August	0.5-1.5	---	---	---	None	Very long	Frequent
		September	0.5-1.5	---	---	---	None	Very long	Frequent
		October	0.5-1.5	---	---	---	None	Very long	Frequent
		November	0.5-1.5	---	---	---	None	Very long	Frequent
		December	0.5-1.5	---	---	---	None	Very long	Frequent
Riverwash	D								
		January	---	---	---	Brief	Occasional	Brief	Frequent
		February	---	---	---	Brief	Occasional	Brief	Frequent
		March	---	---	---	Brief	Occasional	Brief	Frequent
		April	---	---	---	Brief	Occasional	Brief	Frequent
		November	---	---	---	Brief	Occasional	Brief	Frequent
		December	---	---	---	Brief	Occasional	Brief	Frequent
220:									
Elder, coastal	B								
		January	---	---	---	---	None	Very brief	Rare
		February	---	---	---	---	None	Very brief	Rare
		March	---	---	---	---	None	Very brief	Rare
		April	---	---	---	---	None	Very brief	Rare
		November	---	---	---	---	None	Very brief	Rare
		December	---	---	---	---	None	Very brief	Rare
230:									
Cotharin	D								
		Jan-Dec	---	---	---	---	None	---	None
Talepop	D								
		Jan-Dec	---	---	---	---	None	---	None
231:									
Talepop	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: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	*Ft*	*Ft*				
240:									
Tongva	C								
		Jan-Dec	---	---	---	---	None	---	None
Cotharin	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
241:									
Cotharin	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
Tongva	C								
		Jan-Dec	---	---	---	---	None	---	None
250:									
Urban land	---								
		Jan-Dec	---	---	---	---	None	---	None
Xerorthents, landscaped	D								
		Jan-Dec	---	---	---	---	None	---	None
251:									
Urban land	---								
		Jan-Dec	---	---	---	---	None	---	None
Tongva	C								
		Jan-Dec	---	---	---	---	None	---	None
252:									
Urban land	---								
		Jan-Dec	---	---	---	---	None	---	None
Xerorthents, landscaped	D								
		January	---	---	---	---	None	Very brief	Rare
		February	---	---	---	---	None	Very brief	Rare
		March	---	---	---	---	None	Very brief	Rare
		April	---	---	---	---	None	Very brief	Rare
		November	---	---	---	---	None	Very brief	Rare
		December	---	---	---	---	None	Very brief	Rare

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	*Ft*	*Ft*				
270:									
Pacheco, coastal	C								
		January	---	---	---	---	None	Very brief	Rare
		February	---	---	---	---	None	Very brief	Rare
		March	---	---	---	---	None	Very brief	Rare
		October	---	---	---	---	None	Very brief	Rare
		November	---	---	---	---	None	Very brief	Rare
		December	---	---	---	---	None	Very brief	Rare
290:									
Topanga	D								
		Jan-Dec	---	---	---	---	None	---	None
Mipolomol	D								
		Jan-Dec	---	---	---	---	None	---	None
Sapwi	C								
		Jan-Dec	---	---	---	---	None	---	None
300:									
Zumaridge	D								
		Jan-Dec	---	---	---	---	None	---	None
Kawenga	B								
		Jan-Dec	---	---	---	---	None	---	None
301:									
Zumaridge	D								
		Jan-Dec	---	---	---	---	None	---	None
Kawenga	B								
		Jan-Dec	---	---	---	---	None	---	None
302:									
Zumaridge	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
Sumiwawa	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
303:									
Zumaridge----------	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop----------	---								
		Jan-Dec	---	---	---	---	None	---	None
Sumiwawa----------	D								
		Jan-Dec	---	---	---	---	None	---	None
304:									
Zumaridge----------	D								
		Jan-Dec	---	---	---	---	None	---	None
Sapwi----------	C								
		Jan-Dec	---	---	---	---	None	---	None
Kawenga----------	B								
		Jan-Dec	---	---	---	---	None	---	None
305:									
Zumaridge----------	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop----------	---								
		Jan-Dec	---	---	---	---	None	---	None
310:									
Gaviota----------	D								
		Jan-Dec	---	---	---	---	None	---	None
311:									
Gaviota, northerly aspect------	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop----------	---								
		Jan-Dec	---	---	---	---	None	---	None
320:									
Botella----------	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	*Ft*	*Ft*				
330:									
Linne	C								
		Jan-Dec	---	---	---	---	None	---	None
Los Osos	C								
		Jan-Dec	---	---	---	---	None	---	None
Haploxerepts	B								
		Jan-Dec	---	---	---	---	None	---	None
331:									
Linne	C								
		Jan-Dec	---	---	---	---	None	---	None
332:									
Linne	C								
		Jan-Dec	---	---	---	---	None	---	None
350:									
Los Osos	C								
		Jan-Dec	---	---	---	---	None	---	None
390:									
Danville, coastal	C								
		Jan-Dec	---	---	---	---	None	---	None
Urban land	---								
		Jan-Dec	---	---	---	---	None	---	None
391:									
Danville, coastal	C								
		Jan-Dec	---	---	---	---	None	---	None
400:									
Pachic Argixerolls, coastal	C								
		Jan-Dec	---	---	---	---	None	---	None
410:									
Lockwood, coastal	B								
		Jan-Dec	---	---	---	---	None	---	None
Urban land	---								
		Jan-Dec	---	---	---	---	None	---	None

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
411:									
Lockwood, coastal	B								
		Jan-Dec	---	---	---	---	None	---	None
Urban land	---								
		Jan-Dec	---	---	---	---	None	---	None
430:									
Cropley, coastal	C								
		Jan-Dec	---	---	---	---	None	---	None
431:									
Cropley, coastal	C								
		Jan-Dec	---	---	---	---	None	---	None
Cropley	C								
		Jan-Dec	---	---	---	---	None	---	None
432:									
Cropley, coastal	C								
		Jan-Dec	---	---	---	---	None	---	None
433:									
Cropley, coastal	C								
		Jan-Dec	---	---	---	---	None	---	None
Urban land	---								
		Jan-Dec	---	---	---	---	None	---	None
Haploxererts	C								
		Jan-Dec	---	---	---	---	None	---	None
434:									
Cropley, coastal	C								
		Jan-Dec	---	---	---	---	None	---	None
Xerorthents, landscaped	D								
		Jan-Dec	---	---	---	---	None	---	None
Urban land	---								
		Jan-Dec	---	---	---	---	None	---	None
450:									
Sapwi	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	*Ft*	*Ft*				
451:									
Urban land	---								
		Jan-Dec	---	---	---	---	None	---	None
Sapwi	C								
		Jan-Dec	---	---	---	---	None	---	None
460:									
Typic Haploxerepts	C								
		Jan-Dec	---	---	---	---	None	---	None
461:									
Typic Haploxerepts	C								
		Jan-Dec	---	---	---	---	None	---	None
470:									
Sumiwawa	D								
		Jan-Dec	---	---	---	---	None	---	None
Hipuk	C								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
472:									
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
Sumiwawa	D								
		Jan-Dec	---	---	---	---	None	---	None
Hipuk	C								
		Jan-Dec	---	---	---	---	None	---	None
500:									
Balcom	C								
		Jan-Dec	---	---	---	---	None	---	None
503:									
Balcom	C								
		Jan-Dec	---	---	---	---	None	---	None
Balcom, dark surface	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	*Ft*	*Ft*				
530:									
Xerorthents, landscaped--------	D								
		Jan-Dec	---	---	---	---	None	---	None
Urban land----------	---								
		Jan-Dec	---	---	---	---	None	---	None
Balcom----------	C								
		Jan-Dec	---	---	---	---	None	---	None
531:									
Xerorthents, landscaped--------	D								
		Jan-Dec	---	---	---	---	None	---	None
Urban land----------	---								
		Jan-Dec	---	---	---	---	None	---	None
Balcom----------	C								
		Jan-Dec	---	---	---	---	None	---	None
532:									
Xerorthents, landscaped--------	D								
		Jan-Dec	---	---	---	---	None	---	None
Urban land----------	---								
		Jan-Dec	---	---	---	---	None	---	None
Pachic Argixerolls, gullied----	C								
		Jan-Dec	---	---	---	---	None	---	None
540:									
Calcic Argixerolls----------	C								
		Jan-Dec	---	---	---	---	None	---	None
550:									
Dam----------	---								
		Jan-Dec	---	---	---	---	None	---	None
W:									
Water----------	---								
		Jan-Dec	---	---	---	---	None	---	None

Table 19.--Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Restrictive layer				Soil slippage potential	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	*In*				
100:							
Chumash	Bedrock (paralithic)	4-22	---	Weakly cemented	High	---	Moderate
Boades	Bedrock (paralithic)	10-20	---	Weakly cemented	High	Moderate	High
Malibu	Bedrock (paralithic)	20-40	---	Weakly cemented	High	Moderate	Moderate
101:							
Chumash	Bedrock (paralithic)	4-22	---	Weakly cemented	High	Moderate	Moderate
Boades	Bedrock (paralithic)	10-20	---	Weakly cemented	High	Moderate	High
Malibu	Bedrock (paralithic)	20-40	---	Weakly cemented	High	Moderate	Moderate
110:							
Malibu	Bedrock (paralithic)	20-40	---	Weakly cemented	High	Moderate	Moderate
Chumash	Bedrock (paralithic)	4-22	---	Weakly cemented	High	Moderate	Moderate
Boades	Bedrock (paralithic)	10-20	---	Weakly cemented	High	Moderate	High
120:							
Mipolomol	Bedrock (paralithic)	4-14	---	Weakly cemented	High	Moderate	Moderate
Topanga	Bedrock (paralithic)	10-20	---	Weakly cemented	High	Moderate	Moderate
121:							
Mipolomol	Bedrock (paralithic)	4-14	---	Weakly cemented	High	Moderate	Moderate

Table 19.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Soil slippage potential	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	*In*				
121:							
Topanga	Bedrock (paralithic)	10-20	---	Weakly cemented	High	Moderate	Moderate
Rock outcrop	---	---	---	---	High		---
122:							
Calcic Haploxerepts	Bedrock (paralithic)	20-39	---	Moderately cemented	High	---	Low
Mollic Haploxeralfs	Bedrock (paralithic)	20-40	---	Weakly cemented	High	High	Low
130:							
Camarillo, coastal	---	---	---	---	Low	High	Moderate
140:							
Sulfic Fluvaquents	---	---	---	---	Low	High	High
150:							
Abaft	---	---	---	---	Low	Moderate	Low
Beaches	---	---	---	---	Low		---
151:							
Abaft	---	---	---	---	Low	---	Low
Beaches	---	---	---	---	Low		---
Urban land	---	---	---	---	---	---	---
160:							
Xerorthents, landscaped	Bedrock (paralithic)	10-60	---	Strongly cemented	Low	Moderate	Moderate
170:							
Cotharin	Bedrock (paralithic)	4-14	---	Weakly cemented	High	Moderate	Moderate
171:							
Cotharin	Bedrock (paralithic)	4-14	---	Weakly cemented	High	Moderate	Moderate
Rock outcrop	---	---	---	---	High		---

Table 19.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Soil slippage potential	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	*In*				
175:							
Cotharin	Bedrock (paralithic)	4-14	---	Weakly cemented	High	---	Moderate
Talepop	Bedrock (paralithic)	4-14	---	Weakly cemented	High	Moderate	Moderate
176:							
Cotharin	Bedrock (paralithic)	4-14	---	Weakly cemented	High	Moderate	Moderate
Talepop	Bedrock (paralithic)	4-14	---	Weakly cemented	High	Moderate	Moderate
178:							
Cotharin	Bedrock (paralithic)	4-14	---	Weakly cemented	High	Moderate	Moderate
Talepop	Bedrock (paralithic)	4-14	---	Weakly cemented	High	Moderate	Moderate
Urban land	---	---	---	---	---		---
179:							
Cotharin, dry	Bedrock (paralithic)	4-14	---	Weakly cemented	High	---	Moderate
180:							
Pits and Dumps	---	---	---	---	High		---
190:							
Kayiwish, gently sloping	Bedrock (paralithic)	20-40	---	Weakly cemented	Low	---	Moderate
Kayiwish, nearly level	Bedrock (paralithic)	20-40	---	Weakly cemented	Low	Moderate	Moderate
191:							
Kayiwish, gently sloping	Bedrock (paralithic)	20-40	---	Weakly cemented	Low	Moderate	Moderate
Kayiwish, steeply sloping	Bedrock (paralithic)	20-40	---	Weakly cemented	Low	Moderate	Moderate

Table 19.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Soil slippage potential	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	*In*				
200:							
Cumulic Haploxerolls	Abrupt textural change	59-79	---	---	Low	Low	Low
202:							
Fluvaquents	---	---	---	---	High	Moderate	Moderate
Riverwash	---	---	---	---	High		---
220:							
Elder, coastal	---	---	---	---	Low	---	Moderate
230:							
Cotharin	Bedrock (paralithic)	4-14	---	Weakly cemented	High	Moderate	Moderate
Talepop	Bedrock (paralithic)	4-14	---	Weakly cemented	High	Moderate	Moderate
231:							
Talepop	Bedrock (paralithic)	4-14	---	Weakly cemented	High	Moderate	Moderate
Rock outcrop	---	---	---	---	High		---
240:							
Tongva	Bedrock (paralithic)	20-40	---	Moderately cemented	High	---	Low
Cotharin	Bedrock (paralithic)	4-14	---	Weakly cemented	High	Moderate	Moderate
Rock outcrop	---	---	---	---	High		---
241:							
Cotharin	Bedrock (paralithic)	4-14	---	Weakly cemented	High	---	Moderate
Rock outcrop	---	---	---	---	High		---
Tongva	Bedrock (paralithic)	20-40	---	Moderately cemented	High	---	Low

Table 19.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Soil slippage potential	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	*In*				
250:							
Urban land	---	---	---	---	---		---
Xerorthents, landscaped	Bedrock (paralithic)	10-60	---	Strongly cemented	---	---	Moderate
251:							
Urban land	---	---	---	---	---		---
Tongva	Bedrock (paralithic)	20-40	---	Moderately cemented	High	---	Low
252:							
Urban land	---	---	---	---	---		---
Xerorthents, landscaped	Bedrock (paralithic)	10-60	---	Strongly cemented	---	---	Moderate
270:							
Pacheco, coastal	---	---	---	---	Low	High	Moderate
290:							
Topanga	Bedrock (paralithic)	10-20	---	Weakly cemented	High	Moderate	Moderate
Mipolomol	Bedrock (paralithic)	4-14	---	Weakly cemented	High	Moderate	Moderate
Sapwi	Bedrock (lithic)	20-39	---	Indurated	High	Moderate	Moderate
300:							
Zumaridge	Bedrock (paralithic)	7-16	---	Strongly cemented	High	Low	Moderate
	Bedrock (lithic)	10-20		Indurated			
Kawenga	Bedrock (paralithic)	40-60	---	Extremely weakly cemented	High	Moderate	Moderate
301:							
Zumaridge	Bedrock (paralithic)	7-16	---	Strongly cemented	High	Low	Moderate
	Bedrock (lithic)	10-20		Indurated			
Kawenga	Bedrock (paralithic)	40-60	---	Extremely weakly cemented	High	Moderate	Moderate

Table 19.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Soil slippage potential	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	*In*				
302:							
Zumaridge	Bedrock (paralithic)	7-16	---	Strongly cemented	High	Low	Moderate
	Bedrock (lithic)	10-20		Indurated			
Rock outcrop	---	---	---	---	---		---
Sumiwawa	Bedrock (paralithic)	10-20	---	Weakly cemented	---	---	Moderate
	Bedrock (lithic)	20-39		Indurated			
303:							
Zumaridge	Bedrock (paralithic)	7-16	---	Strongly cemented	High	Low	Moderate
	Bedrock (lithic)	10-20		Indurated			
Rock outcrop	---	---	---	---	---		---
Sumiwawa	Bedrock (paralithic)	10-20	---	Weakly cemented	---	---	Moderate
	Bedrock (lithic)	20-39		Indurated			
304:							
Zumaridge	Bedrock (paralithic)	7-16	---	Strongly cemented	High	Low	Moderate
	Bedrock (lithic)	10-20		Indurated			
Sapwi	Bedrock (lithic)	20-39	---	Indurated	High	Moderate	Moderate
Kawenga	Bedrock (paralithic)	40-60	---	Extremely weakly cemented	High	Moderate	Moderate
305:							
Zumaridge	Bedrock (paralithic)	7-16	---	Strongly cemented	High	Low	Moderate
	Bedrock (lithic)	10-20		Indurated			
Rock outcrop	---	---	---	---	---		---
310:							
Gaviota	Bedrock (lithic)	8-14	---	Indurated	High	---	Moderate
311:							
Gaviota, northerly aspect	Bedrock (lithic)	8-14	---	Indurated	High	Moderate	Moderate
Rock outcrop	---	---	---	---	---		---

Table 19.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Soil slippage potential	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	*In*				
320:							
Botella	---	---	---	---	Low	---	Moderate
330:							
Linne	Bedrock (paralithic)	20-40	---	Weakly cemented	High	High	Low
Los Osos	Bedrock (paralithic)	20-40	---	Moderately cemented	High	Moderate	Moderate
Haploxerepts	Bedrock (paralithic)	40-59	---	Extremely weakly cemented	High	Moderate	Moderate
331:							
Linne	Bedrock (paralithic)	20-40	---	Weakly cemented	High	High	Low
332:							
Linne	Bedrock (paralithic)	20-40	---	Weakly cemented	Low	High	Low
350:							
Los Osos	Bedrock (paralithic)	20-40	---	Moderately cemented	High	Moderate	Moderate
390:							
Danville, coastal	---	---	---	---	Low	High	Low
Urban land	---	---	---	---	---		---
391:							
Danville, coastal	---	---	---	---	Low	---	Low
400:							
Pachic Argixerolls, coastal	Bedrock (paralithic)	20-40	---	Moderately cemented	Low	Moderate	Moderate
410:							
Lockwood, coastal	---	---	---	---	Low	High	Low
Urban land	---	---	---	---	---		---
411:							
Lockwood, coastal	---	---	---	---	Low	---	Low
Urban land	---	---	---	---	---		---

Table 19.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Soil slippage potential	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	*In*				
430:							
Cropley, coastal	---	---	---	---	High	---	Low
431:							
Cropley, coastal	---	---	---	---	High	Low	Low
Cropley	---	---	---	---	High	Low	Low
432:							
Cropley, coastal	---	---	---	---	High	Low	Low
433:							
Cropley, coastal	---	---	---	---	High	Low	Low
Urban land	---	---	---	---	---		---
Haploxererts	Bedrock (paralithic)	40-60	---	Extremely weakly cemented	High	---	Low
434:							
Cropley, coastal	---	---	---	---	High	Low	Low
Xerorthents, landscaped	Bedrock (paralithic)	10-60	---	Strongly cemented	---	Moderate	Moderate
Urban land	---	---	---	---	---		---
450:							
Sapwi	Bedrock (lithic)	20-39	---	Indurated	High	---	Moderate
451:							
Urban land	---	---	---	---	---		---
Sapwi	Bedrock (lithic)	20-39	---	Indurated	High	---	Moderate
460:							
Typic Haploxerepts	Bedrock (paralithic)	22-40	---	Moderately cemented	High	High	Low
461:							
Typic Haploxerepts	Bedrock (paralithic)	22-40	---	Moderately cemented	High	High	Low

Table 19.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Soil slippage potential	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	*In*				
470:							
Sumiwawa	Bedrock (paralithic)	10-20	---	Weakly cemented	High	Moderate	Moderate
	Bedrock (lithic)	20-39		Indurated			
Hipuk	Bedrock (paralithic)	14-20	---	Very strongly cemented	High	Moderate	Moderate
	Bedrock (lithic)	20-40		Indurated			
Rock outcrop	---	---	---	---	High		---
472:							
Rock outcrop	---	---	---	---	High	---	---
Sumiwawa	Bedrock (paralithic)	10-20	---	Weakly cemented	High	Moderate	Moderate
	Bedrock (lithic)	20-39		Indurated			
Hipuk	Bedrock (paralithic)	14-20	---	Very strongly cemented	High	Moderate	Moderate
	Bedrock (lithic)	20-40		Indurated			
500:							
Balcom	Bedrock (paralithic)	20-40	---	Weakly cemented	High	Moderate	Low
503:							
Balcom	Bedrock (paralithic)	20-40	---	Weakly cemented	High	Moderate	Low
Balcom, dark surface	Bedrock (paralithic)	20-40	---	Weakly cemented	High	Moderate	Low
530:							
Xerorthents, landscaped	Bedrock (paralithic)	10-60	---	Strongly cemented	High	Moderate	Moderate
Urban land	---	---	---	---	---		---
Balcom	Bedrock (paralithic)	20-40	---	Weakly cemented	High	---	Low
531:							
Xerorthents, landscaped	Bedrock (paralithic)	10-60	---	Strongly cemented	Low	Moderate	Moderate

Table 19.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Soil slippage potential	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	*In*				
531:							
Urban land	---	---	---	---	---		---
Balcom	Bedrock (paralithic)	20-40	---	Weakly cemented	High	---	Low
532:							
Xerorthents, landscaped	Bedrock (paralithic)	10-60	---	Strongly cemented	High	Moderate	Moderate
Urban land	---	---	---	---	---		---
Pachic Argixerolls, gullied	Bedrock (paralithic)	20-40	---	Moderately cemented	Medium	---	Moderate
540:							
Calcic Argixerolls	Bedrock (paralithic)	20-40	---	Moderately cemented	High	High	High
550:							
Dam	---	---	---	---	---		---
W:							
Water	---	---	---	---	High	---	---

Table 20.--Taxonomic Classification of the Soils

(Only the soils that are major components of the map units in the survey area are listed)

Soil name	Family or higher taxonomic class
Abaft	Mixed, thermic Typic Xeropsamments
Balcom	Fine-loamy, mixed, superactive, thermic Typic Calcixerepts
Boades	Loamy, mixed, superactive, thermic, shallow Entic Haploxerolls
Botella	Fine-loamy, mixed, superactive, thermic Pachic Argixerolls
Calcic Argixerolls	Fine-silty, mixed, superactive, thermic Calcic Argixerolls
Calcic Haploxerepts	Fine-loamy, mixed, superactive, thermic Calcic Haploxerepts
Camarillo	Fine-loamy, mixed, superactive, calcareous, thermic Aquic Xerofluvents
Chumash	Loamy, mixed, superactive, nonacid, thermic, shallow Typic Xerorthents
Cotharin	Loamy, smectitic, thermic, shallow Entic Haploxerolls
Cropley	Fine, smectitic, thermic Aridic Haploxererts
Cumulic Haploxerolls	Fine-loamy, mixed, superactive, thermic Cumulic Haploxerolls
Danville	Fine, smectitic, thermic Pachic Argixerolls
Elder	Coarse-loamy, mixed, superactive, thermic Cumulic Haploxerolls
Fluvaquents	Fine-loamy, mixed, superactive, nonacid, thermic Aeric Fluvaquents
Gaviota	Loamy, mixed, superactive, nonacid, thermic Lithic Xerorthents
Haploxerepts	Fine-loamy, mixed, thermic Typic Haploxerepts
Haploxererts	Fine, smectitic, thermic Typic Haploxererts
Hipuk	Loamy, mixed, superactive, thermic, shallow Typic Haploxeralfs
Kawenga	Fine-loamy, mixed, superactive, thermic Pachic Argixerolls
Kayiwish	Fine, mixed, superactive, thermic Leptic Haploxererts
Linne	Fine-loamy, mixed, superactive, thermic Calcic Pachic Haploxerolls
Lockwood	Fine-loamy, mixed, superactive, thermic Pachic Argixerolls
Los Osos	Fine, smectitic, thermic Typic Argixerolls
Malibu	Fine, vermiculitic, thermic Typic Palexerolls
Mipolomol	Loamy, mixed, superactive, thermic, shallow Entic Haploxerolls
Mollic Haploxeralfs	Fine-loamy, mixed, superactive, thermic Mollic Haploxeralfs
Pacheco	Fine-loamy, mixed, superactive, thermic Fluvaquentic Haploxerolls
Pachic Argixerolls	Fine-loamy, mixed, superactive, thermic Pachic Argixerolls
Sapwi	Fine-loamy, mixed, superactive, thermic Pachic Argixerolls
Sulfic Fluvaquents	Fine, mixed, active, acid, thermic Sulfic Fluvaquents
Sumiwawa	Mixed, thermic, shallow Typic Xeropsamments
Talepop	Loamy, mixed, superactive, thermic, shallow Typic Argixerolls
Tongva	Fine-loamy, mixed, superactive, thermic Pachic Argixerolls
Topanga	Loamy, mixed, superactive, thermic, shallow Typic Argixerolls
Typic Haploxerepts	Fine-silty, mixed, superactive, thermic Typic Haploxerepts
Xerorthents	Fine-loamy, mixed, superactive, thermic Typic Xerorthents
Zumaridge	Loamy, mixed, superactive, thermic Lithic Haploxerolls

Appendix

Appendix.--Index of Common and Scientific Plant Names and Plant Symbols

Local common name	Scientific name	Plant symbol
American deervetch	Vicia americana	VIAM
annual timothy	Phleum ssp.	PHLEU
Arizona cypress	Cupressus arizonica	CUAR
arroyo willow	Salix lasiolepis	SALA6
baccharis	Baccharis spp.	BACCH
beach suncup	Camissonia cheiranthifolia ssp. suffruticosa	CACHS
beach-bur	Ambrosia chamissonis	AMCH4
bigpod ceanothus	Ceanothus megacarpus	CEME
black sage	Salvia mellifera	SAME3
bluegum eucalyptus	Eucalyptus globulus	EUGL
bush mallow	Malacothamnus ssp.	MALAC2
bushmallow	Malacothamnus fasciculatus	MAFA
California bay	Umbellularia californica	UMCA
California buckwheat	Eriogonum fasciculatum	ERFA2
California encelia	Encelia californica	ENCA
California laurel	Umbellularia californica	UMCA
California live oak	Quercus agrifolia	QUAG
California sagebrush	Artemisia californica	ARCA11
California scrub oak	Quercus dumosa	QUDU
California sycamore	Platanus racemosa	PLRA
California walnut	Juglans californica	JUCA
California wildrose	Rosa californica	ROCA2
ceanothus	Ceanothus spp.	CEANO
chamise	Adenostoma fasciculatum	ADFA
cliffaster	Malacothrix saxatilis	MASA2
coast buckwheat	Eriogonum parvifolium	ERPA8
coast live oak	Quercus agrifolia	QUAG
coastal lotus	Lotus saluginosus	LOSA
coastal prickly pear	Opuntia littoralis	OPLI3
common deerweed	Lotus scoparius	LOSC2
common hazardia	Hazardia squarrosa var. grindelioides	HASQG2
creeping snowberry	Symphoricarpos mollis	SYMO
deervetch	Lotus spp.	LOTUS
Douglas sagewort	Artemisia douglasiana	ARDO3
elderberry	Sambucus spp.	SAMBU
European searocket	Cakile maritima	CAMA
false brome	Brachypodium ssp.	BRACH3
fountaingrass	Pennisetum setaceum	PESE3
giant coreopsis	Coreopsis gigantea	COGI
giant wildrye	Leymus condensatus	LECO12
greenbark ceanothus	Ceanothus spinosus	CESP
grey coast eriogonum	Eriogonum cinereum	ERCI5
hairy ceanothus	Ceanothus oliganthus	CEOL
hoaryleaf ceanothus	Ceanothus crassifolius	CECR
hollyleaf cherry	Prunus ilicifolia	PRIL
laurel sumac	Malosma laurina	MALA6
lemonade sumac	Rhus integrifolia	RHIN2
lettuce	Lactuca ssp.	LACTU
lotus	Lotus wrangelianus	LOWR2
needlegrass	Stipa spp.	STIPA
other annual forbs	unknown	AAFF
other annual grasses	unknown	AAGG
other perennial forbs	unknown	PPFF
other perennial grasses	unknown	PPGG
other perennial grasslikes	unknown	PPGL
other shrubs	unknown	SSSS
our Lord's candle	Yucca whipplei ssp. intermedia	YUWHI
oxalis	Oxalis ssp.	OXALI
pickleweed	Salicornia ssp.	SALIC
pink sand verbena	Abronia umbellata	ABUM
pitchersage	Lepechinia fragrans	LEFR
poison oak	Toxicodendron diversilobum	TODI
prickly sowthistle	Sonchus asper	SOAS
pricklypear	Opuntia ssp.	OPUNT
purple needlegrass	Nassella pulchra	NAPU4

Appendix.--Index of Common and Scientific Plant Names and Plant Symbols--Continued

Local common name	Scientific name	Plant symbol
purple sage	Salvia leucophylla	SALE3
quailbush	Atriplex lentiformis	ATLEB
rattlesnake weed	Chamaesyce albomarginata	CHAL11
red brome	Bromus rubens	BRRU2
red shank	Adenostoma sparsifolium	ADSP
ripgut brome	Bromus rigidus	BRRI8
saltgrass	Distichlis ssp.	DISTI
sawtooth goldenbush	Hazardia squarrosa	HASQ2
seepwillow baccharis	Baccharis glutinosa	BAGL2
spiny ceanothus	Ceanothus spinosus	CESP
sugar sumac	Rhus ovata	RHOV
sweetclover	Melilotus ssp.	MELIL
toyon	Heteromeles arbutifolia	HEAR5
valley oak	Quercus lobata	QULO
white sage	Salvia apiana	SAAP2
wild oat	Avena fatua	AVFA
yellow sweetclover	Melilotus officinalis	MEOF
yerba santa	Eriodictyon angustifolium	ERAN2
yucca	Yucca ssp.	YUCCA

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