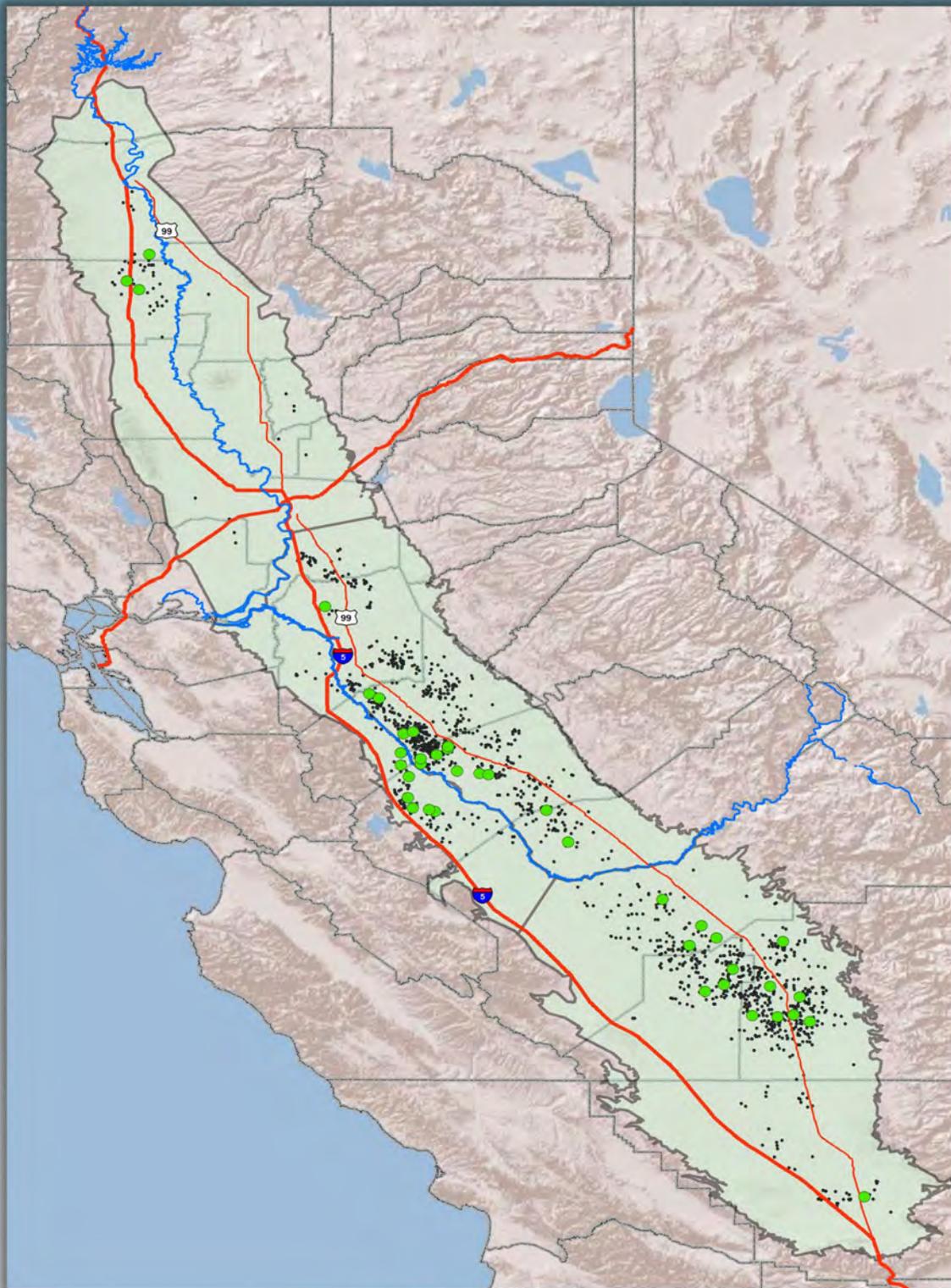


CENTRAL VALLEY DAIRY
REPRESENTATIVE MONITORING PROGRAM
EVALUATION OF REPRESENTATIVENESS

Part II of II

May 15, 2013



Attachment A

USDA NRCS SSURGO Soil Data Reports (incl. data descriptions)

Tehama County | CA645

Glenn County | CA021

San Joaquin County | CA077

Eastern Stanislaus Area | CA644

Madera Area | CA651

Eastern Fresno Area | CA654

Kings County | CA031

Tulare County, Western Part | CA659

Kern County, Southwest Part | CA691

Map Unit Description

Detailed Soil Map Units

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

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

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. 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 indicates the composition of the map unit and selected properties of the components of the unit.

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

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

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

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

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

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

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

Additional information about the map units described in this report is available in other Soil Data Mart reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the Soil Data Mart reports define some of the properties included in the map unit descriptions.

Taxonomic Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff, 1999 and 2003). 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. This table 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 Alfisols.

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 Udalfs ("Ud," meaning humid, plus "alfs," from Alfisols).

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 Hapludalfs ("Hapl," meaning minimal horizonation, plus "udalfs," the suborder of the Alfisols that has a udic 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 Typic Hapludalfs.

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, active, mesic Typic Hapludalfs.

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.

References:

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

Soil Survey Staff. 2003. Keys to soil taxonomy. 9th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. (The soils in a given survey area may have been classified according to earlier editions of this publication.)

Engineering Properties

This table gives the engineering classifications and the range of engineering 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."

"Classification" of the soils is determined according to the Unified soil classification system (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

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 oven-dry 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.

References:

- American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.
- American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Physical Soil Properties

This table shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

"Depth" to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

"Sand" as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In this table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

"Silt" as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In this table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

"Clay" as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, 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, saturated hydraulic conductivity (Ksat), 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 (oven-dry) 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 linear extensibility, 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 (Ksat)" refers to the ease with which pores in a saturated soil transmit water. The estimates in the table are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity (Ksat) 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. The amount and type of clay minerals in the soil influence volume change.

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 this table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

"Erosion factors" are shown in the table 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 six 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 Ksat. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

"Erosion factor Kw" indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

"Erosion factor Kf" indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

"Erosion factor T" is an estimate of the maximum average annual rate of soil erosion by wind and/or water that can occur without affecting crop

Physical Soil Properties

productivity over a sustained period. The rate is in tons per acre per year.

"Wind erodibility groups" are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are described in the "National Soil Survey 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.

Reference:

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI.
(<http://www.soils.usda.gov>)

Soil Features

This table 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.

"Subsidence" is the settlement of organic soils or of saturated mineral soils of very low density. Subsidence generally results from either desiccation and shrinkage, or oxidation of organic material, or both, following drainage. Subsidence takes place gradually, usually over a period of several years. The table shows the expected initial subsidence, which usually is a result of drainage, and total subsidence, which results from a combination of factors.

"Potential for frost action" is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, saturated hydraulic conductivity (Ksat), content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

"Risk of corrosion" pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as "low," "moderate," or "high," is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as "low," "moderate," or "high." It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Chemical Soil Properties

This table shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

"Depth" to the upper and lower boundaries of each layer is indicated.

"Cation-exchange capacity" is the total amount of extractable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

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

"Soil reaction" is a measure of acidity or alkalinity. It is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

"Calcium carbonate" equivalent is the percent of carbonates, by weight, in the fraction of the soil less than 2 millimeters in size. The availability of plant nutrients is influenced by the amount of carbonates in the soil.

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

"Salinity" is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The salinity of irrigated soils is affected by the quality of the irrigation water and by the frequency of water application. Hence, the salinity of soils in individual fields can differ greatly from the value given in the table. Salinity affects the suitability of a soil for crop production, the stability of soil if used as construction material, and the potential of the soil to corrode metal and concrete.

"Sodium adsorption ratio" (SAR) is a measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration. Soils that have SAR values of 13 or more may be characterized by an increased dispersion of organic matter and clay particles, reduced saturated hydraulic conductivity and aeration, and a general degradation of soil structure.

Water Features

This table gives estimates of various soil water features. The estimates are used in land use planning that involves engineering considerations.

"Hydrologic soil groups" are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

"Surface runoff" refers to the loss of water from an area by flow over the land surface. Surface runoff classes are based on slope, climate, and vegetative cover. The concept indicates relative runoff for very specific conditions. It is assumed that the surface of the soil is bare and that the retention of surface water resulting from irregularities in the ground surface is minimal. The classes are negligible, very low, low, medium, high, and very high.

The "months" in the table indicate the portion of the year in which a water table, ponding, and/or flooding is most likely to be a concern.

"Water table" refers to a saturated zone in the soil. The water features table 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. The table 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.

Tehama County | CA645

Map Unit Description

Tehama County, California

AcA Altamont clay, terrace, 0 to 3 percent slopes

Setting

Landscape: Uplands
Elevation: 50 to 1500 feet
Mean annual precipitation: 12 to 25 inches
Mean annual air temperature: 57 to 61 degrees F
Frost-free period: 200 to 360 days

Composition

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

Description of Altamont

Setting

Landform: Hills
Landform position (two-dimensional): Summit
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum weathered from sedimentary rock

Properties and Qualities

Slope: 0 to 3 percent
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low or moderately high (0.06 to 0.20 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 10 percent
Gypsum maximum: 0 percent
Available water capacity: Moderate (about 7.9 inches)

Interpretive Groups

Land capability classification (irrigated): 2s
Land capability (non irrigated): 3s
Ecological site: CLAYEY (R015XD001CA)

Typical Profile

0 to 28 inches: clay
28 to 36 inches: clay
36 to 50 inches: clay loam

Minor Components

Nacimiento

Percent of map unit: 5 percent

Hillgate

Percent of map unit: 5 percent

Newville

Percent of map unit: 4 percent

Unnamed

Percent of map unit: 1 percent
Landform: Swales

Taxonomic Classification of the Soils

Tehama County, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Altamont	CHROMIC PELLOXERERTS, FINE, MONTMORILLONITIC, THERMIC

Engineering Properties

Tehama County, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
AcA:												
Altamont	0-28	Clay	CH, CL	A-7	0	0	100	95-100	90-100	80-95	40-60	20-35
	28-36	Clay	CH, CL	A-7	0	0	100	95-100	80-100	70-95	40-60	20-35
	36-50	Clay loam	CL	A-7	0	0	100	95-100	80-100	70-80	40-50	20-30
Hillgate	---	---	---	---	---	---	---	---	---	---	---	---
Nacimiento	---	---	---	---	---	---	---	---	---	---	---	---
Newville	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Tehama County, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
AcA:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Altamont	0-28	---	---	40-60	1.30-1.40	0.42-1.40	0.14-0.16	6.0-8.9	1.0-3.0	.24	.24	5	7	38
	28-36	---	---	40-60	1.30-1.40	0.42-1.40	0.14-0.17	6.0-8.9	0.5-1.0	.24	.24			
	36-50	---	---	35-40	1.30-1.40	0.42-1.40	0.15-0.18	6.0-8.9	0.5-0.7	.28	.28			
Hillgate	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Nacimiento	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Newville	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Tehama County, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
AcA:		In	In		In	In			
Altamont	---	---	---	---	---	---	None	High	Low
Hillgate	---	---	---	---	---	---	---	---	---
Nacimiento	---	---	---	---	---	---	---	---	---
Newville	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Tehama County, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
AcA:								
Altamont	0-28	35-50	---	6.1-7.3	0	0	0.0	0
	28-36	35-50	---	6.6-8.4	0	0	0.0-2.0	0
	36-50	25-35	---	7.4-8.4	5-10	0	0.0-2.0	0
Hillgate	---	---	---	---	---	---	---	---
Nacimiento	---	---	---	---	---	---	---	---
Newville	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---

Water Features

Tehama County, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
AcA:										
Altamont	D	High	Jan-Dec			---	---	None	---	None
Hillgate	---	---	Jan-Dec			---	---	None	---	None
Nacimiento	---	---	Jan-Dec			---	---	None	---	None
Newville	---	---	Jan-Dec			---	---	None	---	None
Unnamed	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Tehama County, California

AvA Arbutuckle gravelly loam, 0 to 3 percent slopes

Setting

Landscape: River valleys
Elevation: 100 to 1600 feet
Mean annual precipitation: 12 to 35 inches
Mean annual air temperature: 57 to 64 degrees F
Frost-free period: 200 to 280 days

Composition

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

Description of Arbutuckle

Setting

Landform: Terraces
Landform position (two-dimensional): Summit
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from metamorphic and sedimentary rock

Properties and Qualities

Slope: 0 to 3 percent
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Available water capacity: Moderate (about 7.6 inches)

Interpretive Groups

Land capability classification (irrigated): 2s
Land capability (non irrigated): 3s
Ecological site: GRAVELLY LOAM (R015XD090CA)

Typical Profile

0 to 14 inches: gravelly loam
14 to 59 inches: gravelly loam
59 to 72 inches: very gravelly loam

Minor Components

Maywood

Percent of map unit: 5 percent

Hillgate

Percent of map unit: 5 percent

Cortina

Percent of map unit: 5 percent

Taxonomic Classification of the Soils

Tehama County, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Arbuckle	TYPIC HAPLOXERALS, FINE-LOAMY, MIXED, THERMIC

Engineering Properties

Tehama County, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
AvA:												
Arbuckle	0-14	Gravelly loam	GC-GM, GM, SC-SM, SM	A-4	0	0-5	55-80	50-75	45-65	35-50	25-35	5-10
	14-59	Gravelly loam, Gravelly sandy clay loam	GC, SC	A-6	0	0-5	55-80	50-75	45-65	35-50	25-40	10-20
	59-72	Very gravelly loam	GC, GC-GM	A-2	---	0-10	35-55	30-50	15-30	10-20	20-35	5-15
Cortina	---	---	---	---	---	---	---	---	---	---	---	---
Hillgate	---	---	---	---	---	---	---	---	---	---	---	---
Maywood	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Tehama County, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
AvA:														
Arbuckle	0-14	---	---	12-25	1.45-1.55	4.00-14.00	0.10-0.14	0.0-2.9	0.5-1.0	.20	.37	5	6	48
	14-59	---	---	18-30	1.35-1.50	1.40-4.00	0.11-0.15	3.0-5.9	0.0-0.5	.20	.43			
	59-72	---	---	15-25	1.50-1.60	1.40-4.00	0.04-0.08	0.0-2.9	0.0-0.5	.10	.32			
Cortina	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hillgate	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Maywood	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Tehama County, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
AvA:		In	In		In	In			
Arbuckle	---	---	---	---	---	---	None	Moderate	Moderate
Cortina	---	---	---	---	---	---	---	---	---
Hillgate	---	---	---	---	---	---	---	---	---
Maywood	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Tehama County, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
AvA:								
Arbuckle	0-14	5.0-15	---	5.6-7.3	0	0	0.0	0
	14-59	10-20	---	5.6-7.3	0	0	0.0	0
	59-72	10-15	---	5.6-7.3	0	0	0.0	0
Cortina	---	---	---	---	---	---	---	---
Hillgate	---	---	---	---	---	---	---	---
Maywood	---	---	---	---	---	---	---	---

Water Features

Tehama County, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
AvA: Arbuckle	B	Medium	Jan-Dec			---	---	None	---	None
Cortina	---	---	Jan-Dec			---	---	None	---	None
Hillgate	---	---	Jan-Dec			---	---	None	---	None
Maywood	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Tehama County, California

Ay Arbuckle gravelly loam, clayey substratum, channeled

Setting

Landscape: River valleys
Elevation: 100 to 2900 feet
Mean annual precipitation: 8 to 20 inches
Mean annual air temperature: 46 to 61 degrees F
Frost-free period: 110 to 280 days

Composition

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

Description of Arbuckle

Setting

Landform: Terraces
Landform position (two-dimensional): Summit
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from metamorphic and sedimentary rock

Properties and Qualities

Slope: 0 to 3 percent
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low or moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 60 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Available water capacity: Moderate (about 7.9 inches)

Interpretive Groups

Land capability classification (irrigated): 3s
Land capability (non irrigated): 3s
Ecological site: GRAVELLY LOAM (R015XD090CA)

Typical Profile

0 to 14 inches: gravelly loam
14 to 48 inches: gravelly loam
48 to 72 inches: clay

Minor Components

Riverwash

Percent of map unit: 5 percent

Tehama

Percent of map unit: 5 percent

Maywood

Percent of map unit: 2 percent

Cortina

Percent of map unit: 2 percent

Unnamed

Percent of map unit: 1 percent
Landform: Depressions

Taxonomic Classification of the Soils

Tehama County, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Arbuckle	TYPIC HAPLOXERALS, FINE-LOAMY, MIXED, THERMIC

Engineering Properties

Tehama County, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
Ay:												
Arbuckle	0-14	Gravelly loam	GC-GM, GM, SC-SM, SM	A-4	0	0-5	55-80	50-75	45-65	35-50	25-35	5-10
	14-48	Gravelly loam, Gravelly sandy clay loam	GC, SC	A-6	0	0-5	55-80	50-75	45-65	35-50	25-40	10-20
	48-72	Clay	CH, CL	A-7	0	0	90-100	85-100	80-95	60-90	40-60	20-35
Riverwash	0-6	Extremely gravelly sand	GW	A-1	0	0-25	10-40	10-35	5-25	0-5	0	NP
	6-60	Sr to gravelly sand to extremely gravelly coarse sand	GW, SW	A-1	0	0-25	25-55	25-50	10-30	0-5	0	NP
Tehama	---	---	---	---	---	---	---	---	---	---	---	---
Cortina	---	---	---	---	---	---	---	---	---	---	---	---
Maywood	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Tehama County, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Ay:														
Arbuckle	0-14	---	---	12-25	1.45-1.55	4.00-14.00	0.10-0.14	0.0-2.9	0.5-1.0	.20	.37	5	6	48
	14-48	---	---	18-30	1.35-1.50	1.40-4.00	0.11-0.15	3.0-5.9	0.0-0.5	.20	.37			
	48-72	---	---	35-60	1.30-1.45	0.42-1.40	0.14-0.16	6.0-8.9	0.0-0.5	.28	.28			
Riverwash	0-6	---	---	0-1	1.60-1.70	42.00-141.00	0.01-0.02	0.0-2.9	0.0-0.1	.05	.05	---	3	86
	6-60	---	---	0-1	1.60-1.70	42.00-141.00	0.02-0.03	0.0-2.9	0.0	.05	.05			
Tehama	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Cortina	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Maywood	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Tehama County, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
Ay:									
Arbuckle	---	---	---	---	---	---	None	Moderate	Moderate
Riverwash	---	---	---	---	---	---	None	---	---
Tehama	---	---	---	---	---	---	---	---	---
Cortina	---	---	---	---	---	---	---	---	---
Maywood	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Tehama County, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
Ay:	0-14	5.0-15	---	5.6-7.3	0	0	0.0	0
	14-48	10-20	---	5.6-7.3	0	0	0.0	0
	48-72	20-30	---	6.5-7.3	0	0	0.0	0
Riverwash	0-6	---	1.0-5.0	---	---	---	---	0
	6-60	---	1.0-5.0	---	---	---	---	0
Tehama	---	---	---	---	---	---	---	---
Cortina	---	---	---	---	---	---	---	---
Maywood	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---

Water Features

Tehama County, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
Ay:										
Arbuckle	B	Medium	January	5.0->6.0	3.0->6.0	---	---	None	---	None
			February	5.0->6.0	3.0->6.0	---	---	None	---	None
			December	5.0->6.0	3.0->6.0	---	---	None	---	None
Riverwash	D	Very low	January	0.0-2.0	>6.0	---	---	None	Very long	Frequent
			February	0.0-2.0	>6.0	---	---	None	Very long	Frequent
			March	0.0-2.0	>6.0	---	---	None	Very long	Frequent
			April	0.0-2.0	>6.0	---	---	None	Very long	Frequent
			May	0.0-2.0	>6.0	---	---	None	Very long	Frequent
			June	0.0-2.0	>6.0	---	---	None	Very long	Frequent
			July	0.0-2.0	>6.0	---	---	None	Very long	Frequent
			August	0.0-2.0	>6.0	---	---	None	---	None
			September	0.0-2.0	>6.0	---	---	None	---	None
			October	0.0-2.0	>6.0	---	---	None	Very long	Frequent
			November	0.0-2.0	>6.0	---	---	None	Very long	Frequent
			December	0.0-2.0	>6.0	---	---	None	Very long	Frequent
Tehama	---	---	Jan-Dec			---	---	None	---	None
Cortina	---	---	Jan-Dec			---	---	None	---	None
Maywood	---	---	Jan-Dec			---	---	None	---	None
Unnamed	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Tehama County, California

CwB Corning gravelly loam, 3 to 8 percent slopes

Setting

Landscape: River valleys
Elevation: 80 to 1000 feet
Mean annual precipitation: 16 to 30 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 250 to 280 days

Composition

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

Description of Corning

Setting

Landform: Terraces
Landform position (two-dimensional): Backslope, shoulder, summit
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from metamorphic and sedimentary rock

Properties and Qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 21 to 36 inches to Abrupt textural change
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low or moderately low (0.00 to 0.06 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Available water capacity: Very low (about 2.5 inches)

Interpretive Groups

Land capability classification (irrigated): 4s
Land capability (non irrigated): 4e
Ecological site: GRAVELLY LOAM (R015XD090CA)

Typical Profile

0 to 21 inches: gravelly loam
21 to 36 inches: gravelly clay loam
36 to 54 inches: gravelly sandy clay loam

Minor Components

Redding

Percent of map unit: 7 percent

Newville

Percent of map unit: 6 percent

Unnamed

Percent of map unit: 2 percent

Landform: Depressions

Taxonomic Classification of the Soils

Tehama County, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Corning	TYPIC PALEXERALFS, FINE, MIXED, THERMIC

Engineering Properties

Tehama County, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
CwB:												
Corning	0-21	Gravelly loam	SC-SM, SM	A-4	0	0-5	75-90	60-75	60-70	40-50	25-35	5-10
	21-36	Gravelly clay, Gravelly clay loam	CH, CL, GC, SC	A-7	0	0-5	70-80	60-75	55-75	40-60	40-60	20-35
	36-54	Gravelly sandy clay loam	SC, SC-SM	A-2, A-4, A-6	0	0-5	60-75	50-75	35-60	25-40	20-35	5-15
Redding	---	---	---	---	---	---	---	---	---	---	---	---
Newville	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Tehama County, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
CwB:														
Corning	0-21	---	---	10-25	1.45-1.55	4.00-14.00	0.10-0.14	0.0-2.9	0.5-1.0	.20	.37	4	6	48
	21-36	---	---	35-55	1.45-1.65	0.01-0.42	0.04-0.06	6.0-8.9	0.0-0.5	.28	.37			
	36-54	---	---	20-30	1.50-1.60	0.42-1.40	0.10-0.12	0.0-2.9	0.0-0.5	.20	.24			
Redding	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Newville	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Tehama County, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
CwB:									
Corning	Abrupt textural change	21-36	---	Noncemented	---	---	None	High	High
Redding	---	---	---	---	---	---	---	---	---
Newville	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Tehama County, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
CwB:								
Corning	0-21	5.0-10	---	5.1-6.5	0	0	0.0	0
	21-36	20-35	---	5.1-6.5	0	0	0.0	0
	36-54	10-15	---	5.1-7.3	0	0	0.0	0
Redding	---	---	---	---	---	---	---	---
Newville	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---

Water Features

Tehama County, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
CwB:										
Corning	D	High	Jan-Dec			---	---	None	---	None
Redding	---	---	Jan-Dec			---	---	None	---	None
Newville	---	---	Jan-Dec			---	---	None	---	None
Unnamed	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Tehama County, California

HgA Hillgate loam, 0 to 3 percent slopes

Setting

Elevation: 2000 to 2000 feet
Mean annual precipitation: 22 to 22 inches
Mean annual air temperature: 64 to 64 degrees F
Frost-free period: 185 to 300 days

Composition

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

Description of Hillgate

Setting

Landform: Terraces
Landform position (two-dimensional): Summit
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock

Properties and Qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 17 to 17 inches to Abrupt textural change
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low or moderately low (0.00 to 0.06 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Available water capacity: Very low (about 2.9 inches)

Interpretive Groups

Land capability classification (irrigated): 3s
Land capability (non irrigated): 3e
Other vegetative classification: LOAMY (015XD047CA_1)

Typical Profile

0 to 17 inches: loam
17 to 39 inches: clay loam
39 to 70 inches: clay loam

Minor Components

Tehama

Percent of map unit: 5 percent

Arbuckle

Percent of map unit: 5 percent

Kimball

Percent of map unit: 5 percent

Taxonomic Classification of the Soils

Tehama County, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Hillgate	TYPIC PALEXERALFS, FINE, MONTMORILLONITIC, THERMIC

Engineering Properties

Tehama County, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
HgA:												
Hillgate	0-17	Loam	CL-ML, ML	A-4	0	0	95-100	90-100	75-100	55-90	25-35	5-10
	17-39	Clay, Clay loam	CH, CL	A-7	0	0	95-100	90-100	80-100	70-95	40-60	20-35
	39-70	Clay loam	CL	A-6	0	0	80-100	75-100	70-95	55-70	30-40	10-20
Arbuckle	---	---	---	---	---	---	---	---	---	---	---	---
Kimball	---	---	---	---	---	---	---	---	---	---	---	---
Tehama	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Tehama County, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
HgA:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Hillgate	0-17	---	---	10-25	1.45-1.55	4.00-14.00	0.15-0.18	0.0-2.9	0.5-1.0	.43	.43	3	5	56
	17-39	---	---	35-45	1.30-1.40	0.01-0.42	0.05-0.07	6.0-8.9	0.0-0.5	.28	.28			
	39-70	---	---	27-35	1.30-1.45	0.42-4.00	0.15-0.17	3.0-5.9	0.0-0.5	.32	.37			
Arbuckle	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Kimball	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Tehama	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Tehama County, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
HgA: Hillgate	Abrupt textural change	17	22	Noncemented	---	---	None	Moderate	Moderate
Arbuckle	---	---	---	---	---	---	---	---	---
Kimball	---	---	---	---	---	---	---	---	---
Tehama	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Tehama County, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
HgA:								
Hillgate	0-17	10-15	---	5.6-6.5	0	0	0.0	0
	17-39	25-35	---	6.6-7.8	0	0	0.0	0
	39-70	15-20	---	6.6-7.8	0	0	0.0	0
Arbuckle	---	---	---	---	---	---	---	---
Kimball	---	---	---	---	---	---	---	---
Tehama	---	---	---	---	---	---	---	---

Water Features

Tehama County, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
HgA:										
Hillgate	D	Very high	Jan-Dec			---	---	None	---	None
Arbuckle	---	---	Jan-Dec			---	---	None	---	None
Kimball	---	---	Jan-Dec			---	---	None	---	None
Tehama	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Tehama County, California

KoA Kimball gravelly loam, 0 to 3 percent slopes

Setting

Landscape: River valleys
Elevation: 100 to 1500 feet
Mean annual precipitation: 18 to 18 inches
Mean annual air temperature: 63 to 63 degrees F
Frost-free period: 230 to 280 days

Composition

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

Description of Kimball

Setting

Landform: Terraces
Landform position (two-dimensional): Summit
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock

Properties and Qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 11 to 11 inches to Abrupt textural change
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low or moderately low (0.00 to 0.06 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Available water capacity: Very low (about 1.7 inches)

Interpretive Groups

Land capability classification (irrigated): 3s
Land capability (non irrigated): 3s
Ecological site: GRAVELLY LOAM (R015XD090CA)

Typical Profile

0 to 6 inches: gravelly loam
6 to 11 inches: gravelly loam
11 to 60 inches: gravelly clay

Minor Components

Perkins

Percent of map unit: 13 percent

Unnamed ponded

Percent of map unit: 2 percent
Landform: Depressions

Taxonomic Classification of the Soils

Tehama County, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Kimball	MOLLIC PALEXERALFS, FINE, MIXED, THERMIC

Engineering Properties

Tehama County, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
KoA:												
Kimball	0-6	Gravelly loam	GM, SM	A-4	0	0	65-80	60-75	50-70	35-50	25-35	NP-10
	6-11	Gravelly clay loam, Gravelly loam	CL, CL-ML, GC, GC-GM	A-4, A-6	0	0	65-80	60-75	50-70	40-55	25-40	5-15
	11-60	Gravelly clay, Gravelly clay loam	CH, CL	A-7	0	0	70-80	65-75	60-70	50-65	45-65	20-35
Perkins	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed ponded	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Tehama County, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
KoA:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Kimball	0-6	---	---	15-25	1.45-1.55	4.00-14.00	0.14-0.16	0.0-2.9	1.0-3.0	.20	.37	3	7	38
	6-11	---	---	20-30	1.40-1.55	4.00-14.00	0.14-0.17	3.0-5.9	0.0-0.5	.20	.37			
	11-60	---	---	35-60	1.35-1.45	0.01-0.42	0.08-0.10	6.0-8.9	0.0-0.5	.20	.37			
Perkins	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed ponded	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Tehama County, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
KoA:		In	In		In	In			
Kimball	Abrupt textural change	11	49	Noncemented	---	---	None	Moderate	Moderate
Perkins	---	---	---	---	---	---	---	---	---
Unnamed ponded	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Tehama County, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
KoA:								
Kimball	0-6	10-20	---	5.6-6.6	0	0	0.0	0
	6-11	10-20	---	5.6-6.6	0	0	0.0	0
	11-60	20-35	---	5.6-6.6	0	0	0.0	0
Perkins	---	---	---	---	---	---	---	---
Unnamed ponded	---	---	---	---	---	---	---	---

Water Features

Tehama County, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
KoA: Kimball	D	Very high	Jan-Dec			---	---	None	---	None
Perkins	---	---	Jan-Dec			---	---	None	---	None
Unnamed ponded	---	---	Jan-Dec			---	---	None	---	None

Glenn County | CA021

Map Unit Description

Glenn County, California

Ar Arbuckle gravelly loam, clayey substratum, 0 to 2 percent slope

Setting

Elevation: 100 to 1600 feet
Mean annual precipitation: 20 to 20 inches
Mean annual air temperature: 61 to 61 degrees F
Frost-free period: 200 to 280 days

Composition

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

Description of Arbuckle

Setting

Landform: Terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from conglomerate

Properties and Qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 60 to 60 inches to Strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low or moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 24 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Available water capacity: Moderate (about 7.6 inches)

Interpretive Groups

Land capability classification (irrigated): 3s
Land capability (non irrigated): 3s

Typical Profile

0 to 13 inches: gravelly loam
13 to 60 inches: gravelly loam
60 to 65 inches: clay

Minor Components

Cortina

Percent of map unit: 11 percent

Riverwash

Percent of map unit: 2 percent
Landform: Drainageways

Unnamed

Percent of map unit: 2 percent
Landform: Depressions

Taxonomic Classification of the Soils

Glenn County, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Arbuckle	Fine-loamy, mixed, thermic Typic Haploxeralfs

Engineering Properties

Glenn County, California

Absence of an entry indicates that the data were not estimated. The asterisk "*" denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
Ar:	In				Pct	Pct					Pct	
Arbuckle	0-13	Gravelly loam	GC-GM, GM, SC-SM, SM	A-4	0	0-5	55-80	50-75	45-65	35-50	25-35	5-10
	13-60	Gravelly loam, Gravelly sandy clay loam	GC, SC	A-6	0	0-5	55-80	50-75	45-65	35-50	25-40	10-20
	60-65	Clay, Clay loam	CH, CL	A-7	0	0	90-100	85-100	80-95	60-90	40-60	20-35
Cortina	---	---	---	---	---	---	---	---	---	---	---	---
Riverwash	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Glenn County, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Ar:														
Arbuckle	0-13	---	---	12-25	1.45-1.55	4.00-14.00	0.10-0.14	0.0-2.9	0.5-2.0	.20	.37	5	6	48
	13-60	---	---	18-30	1.35-1.50	1.40-4.00	0.11-0.15	3.0-5.9	0.0-0.5	.20	.37			
	60-65	---	---	35-60	1.30-1.45	0.42-1.40	0.14-0.16	6.0-8.9	0.0-0.5	.24	.24			
Cortina	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Riverwash	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Glenn County, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
Ar:									
Arbuckle	Strongly contrasting textural stratification	60	---	Noncemented	---	---	None	High	Low
Cortina	---	---	---	---	---	---	---	---	---
Riverwash	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Glenn County, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
Ar:								
Arbuckle	0-13	5.0-15	---	5.6-7.3	0	0	0.0	0
	13-60	10-20	---	5.6-7.3	0	0	0.0	0
	60-65	10-20	---	5.6-7.3	0	0	0.0	0
Cortina	---	---	---	---	---	---	---	---
Riverwash	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---

Water Features

Glenn County, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
Ar:										
Arbuckle	C	Medium	January	2.0->6.0	>6.0	---	---	None	---	None
			February	2.0->6.0	>6.0	---	---	None	---	None
			December	2.0->6.0	>6.0	---	---	None	---	None
Cortina	---	---	Jan-Dec			---	---	None	---	None
Riverwash	---	---	Jan-Dec			---	---	None	---	None
Unnamed	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Glenn County, California

As Arbuckle gravelly sandy loam, 0 to 2 percent slopes

Setting

Elevation: 100 to 1600 feet
Mean annual precipitation: 12 to 35 inches
Mean annual air temperature: 57 to 64 degrees F
Frost-free period: 200 to 280 days

Composition

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

Description of Arbuckle

Setting

Landform: Terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from conglomerate

Properties and Qualities

Slope: 0 to 2 percent
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Available water capacity: Low (about 5.4 inches)

Interpretive Groups

Land capability classification (irrigated): 2s
Land capability (non irrigated): 3s

Typical Profile

0 to 13 inches: gravelly sandy loam
13 to 32 inches: gravelly loam
32 to 60 inches: stratified very gravelly sandy loam to very gravelly sandy clay loam

Minor Components

Artois

Percent of map unit: 11 percent

Hillgate

Percent of map unit: 2 percent
Landform: Depressions

Unnamed

Percent of map unit: 2 percent
Landform: Drainageways

Taxonomic Classification of the Soils

Glenn County, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Arbuckle	Fine-loamy, mixed, thermic Typic Haploxeralfs

Engineering Properties

Glenn County, California

Absence of an entry indicates that the data were not estimated. The asterisk "*" denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
As:	In				Pct	Pct					Pct	
Arbuckle	0-13	Gravelly sandy loam	GM, SM	A-4	0	0-5	55-80	50-75	40-60	35-50	20-30	NP-5
	13-32	Gravelly loam, Gravelly sandy clay loam	GC, SC	A-6	0	0-5	55-80	50-75	45-65	35-50	25-40	10-20
	32-60	Stratified very gravelly sandy loam to very gravelly sandy clay loam	GC, GC-GM	A-2	0	0-10	35-55	30-50	15-30	10-20	20-35	5-15
Artois	---	---	---	---	---	---	---	---	---	---	---	---
Hillgate	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Glenn County, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
As:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Arbuckle	0-13	---	---	10-20	1.50-1.60	4.00-14.00	0.08-0.12	0.0-2.9	0.5-2.0	.10	.24	5	5	56
	13-32	---	---	18-30	1.35-1.50	1.40-4.00	0.11-0.15	3.0-5.9	0.0-0.5	.20	.37			
	32-60	---	---	15-25	1.50-1.60	1.40-4.00	0.04-0.08	0.0-2.9	0.0-0.5	.10	.24			
Artois	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hillgate	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Glenn County, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
As:		In	In		In	In			
Arbuckle	---	---	---	---	---	---	None	High	Low
Artois	---	---	---	---	---	---	---	---	---
Hillgate	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Glenn County, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
As:								
Arbuckle	0-13	5.0-10	---	5.6-7.3	0	0	0.0	0
	13-32	10-20	---	5.6-7.3	0	0	0.0	0
	32-60	10-15	---	5.6-7.3	0	0	0.0	0
Artois	---	---	---	---	---	---	---	---
Hillgate	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---

Water Features

Glenn County, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
As: Arbuckle	C	Medium	Jan-Dec			---	---	None	---	None
Artois	---	---	Jan-Dec			---	---	None	---	None
Hillgate	---	---	Jan-Dec			---	---	None	---	None
Unnamed	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Glenn County, California

Czr Cortina very gravelly sandy loam,

Setting

Elevation: 30 to 2400 feet
Mean annual precipitation: 8 to 20 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 240 to 270 days

Composition

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

Description of Cortina

Setting

Landform: Alluvial fans
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Gravelly alluvium

Properties and Qualities

Slope: 0 to 3 percent
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Frequency of flooding: Occasional
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Available water capacity: Very low (about 2.8 inches)

Interpretive Groups

Land capability classification (irrigated): 4s
Land capability (non irrigated): 4s

Typical Profile

0 to 8 inches: very gravelly sandy loam
8 to 40 inches: stratified very gravelly loamy sand to very gravelly loam
40 to 60 inches: stratified very gravelly sand to very gravelly loamy sand

Minor Components

Unnamed

Percent of map unit: 5 percent
Landform: Fans

Gravel pits

Percent of map unit: 5 percent

Unnamed

Percent of map unit: 5 percent

Taxonomic Classification of the Soils

Glenn County, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Cortina	Loamy-skeletal, mixed, nonacid, thermic Typic Xerofluvents

Engineering Properties

Glenn County, California

Absence of an entry indicates that the data were not estimated. The asterisk "*" denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
Czr:												
Cortina	0-8	Very gravelly sandy loam	GM	A-1, A-2	0	0-10	30-60	25-55	15-50	5-15	20-30	NP-5
	8-40	Stratified very gravelly loamy sand to very gravelly loam	GW	A-1, A-2	0	0-10	30-60	25-55	15-40	0-4	20-30	NP-5
	40-60	Stratified very gravelly sand to very gravelly loamy sand	GW	A-1	0	0-10	30-60	25-55	15-45	0-10	0	NP
Gravel pits	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Glenn County, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Czr:														
Cortina	0-8	---	---	10-20	1.50-1.70	14.00-42.00	0.03-0.11	0.0-2.9	0.5-1.0	.10	.20	4	6	48
	8-40	---	---	5-25	1.50-1.70	14.00-42.00	0.06-0.08	0.0-2.9	0.0-0.5	.15	.43			
	40-60	---	---	0-10	1.60-1.70	42.00-141.00	0.03-0.05	0.0-2.9	0.0	.05	.15			
Gravel pits	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Glenn County, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
Czr: Cortina	Strongly contrasting textural stratification	---	---	Noncemented	---	---	None	High	Moderate
Gravel pits	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Glenn County, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
Czr:								
Cortina	0-8	5.0-10	---	5.6-6.5	0	0	0.0	0
	8-40	5.0-10	---	5.6-6.5	0	0	0.0	0
	40-60	1.0-5.0	---	6.6-7.3	0	0	0.0	0
Gravel pits	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---

Water Features

Glenn County, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
Czr:										
Cortina	A	Very low	January	---	---	---	---	None	Brief	Occasional
			February	---	---	---	---	None	Brief	Occasional
			March	---	---	---	---	None	Brief	Occasional
			April	---	---	---	---	None	Brief	Occasional
			May	---	---	---	---	None	Brief	Rare
			June	---	---	---	---	None	Brief	Rare
			July	---	---	---	---	None	Brief	Rare
			August	---	---	---	---	None	Brief	Rare
			September	---	---	---	---	None	Brief	Rare
			October	---	---	---	---	None	Brief	Rare
			November	---	---	---	---	None	Brief	Rare
			December	---	---	---	---	---	---	None
Gravel pits	---	---	Jan-Dec			---	---	None	---	None
Unnamed	---	---	Jan-Dec			---	---	None	---	None
Unnamed	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Glenn County, California

HI Hillgate clay loam, 0 to 3 percent slopes

Setting

Elevation: 2000 to 2000 feet
Mean annual precipitation: 22 to 22 inches
Mean annual air temperature: 64 to 64 degrees F

Composition

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

Description of Hillgate

Setting

Landform: Terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock

Properties and Qualities

Slope: 0 to 3 percent
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low or moderately low (0.00 to 0.06 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Available water capacity: Very low (about 2.7 inches)

Interpretive Groups

Land capability classification (irrigated): 3s
Land capability (non irrigated): 3s

Typical Profile

0 to 15 inches: clay loam
15 to 60 inches: clay

Minor Components

Corning

Percent of map unit: 5 percent
Landform: Depressions

Arbuckle

Percent of map unit: 5 percent
Landform: Fans

Tehama

Percent of map unit: 3 percent

Kimball

Percent of map unit: 2 percent

Taxonomic Classification of the Soils

Glenn County, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Hillgate	Fine, montmorillonitic, thermic Typic Palexeralfs

Engineering Properties

Glenn County, California

Absence of an entry indicates that the data were not estimated. The asterisk "*" denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
HI:												
Hillgate	0-15	Clay loam	CL	A-6	0	0	95-100	90-100	85-95	60-70	30-40	10-20
	15-60	Clay	CH, CL	A-7	0	0	95-100	90-100	80-100	70-95	40-60	20-35
Arbuckle	---	---	---	---	---	---	---	---	---	---	---	---
Corning	---	---	---	---	---	---	---	---	---	---	---	---
Tehama	---	---	---	---	---	---	---	---	---	---	---	---
Kimball	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Glenn County, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
HI:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Hillgate	0-15	---	---	27-30	1.40-1.50	1.40-4.00	0.17-0.19	3.0-5.9	0.5-1.0	.37	.37	3	6	48
	15-60	---	---	35-45	1.35-1.50	0.01-0.42	0.05-0.07	6.0-8.9	0.0-0.5	.32	.32			
Arbuckle	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Corning	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Tehama	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Kimball	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Glenn County, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
HI:		In	In		In	In			
Hillgate	Abrupt textural change	---	---	Noncemented	---	---	None	High	Moderate
Arbuckle	---	---	---	---	---	---	---	---	---
Corning	---	---	---	---	---	---	---	---	---
Tehama	---	---	---	---	---	---	---	---	---
Kimball	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Glenn County, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
HI:								
Hillgate	0-15	15-20	---	5.1-6.5	0	0	0.0	0
	15-60	25-35	---	5.6-7.3	0	0	0.0	0
Arbuckle	---	---	---	---	---	---	---	---
Corning	---	---	---	---	---	---	---	---
Tehama	---	---	---	---	---	---	---	---
Kimball	---	---	---	---	---	---	---	---

Water Features

Glenn County, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
HI: Hillgate	D	Very high	Jan-Dec			---	---	None	---	None
Arbuckle	---	---	Jan-Dec			---	---	None	---	None
Corning	---	---	Jan-Dec			---	---	None	---	None
Tehama	---	---	Jan-Dec			---	---	None	---	None
Kimball	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Glenn County, California

HgA Hillgate loam, 0 to 2 percent slopes

Setting

Elevation: 2000 to 2000 feet
Mean annual precipitation: 22 to 22 inches
Mean annual air temperature: 64 to 64 degrees F

Composition

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

Description of Hillgate

Setting

Landform: Terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock

Properties and Qualities

Slope: 0 to 2 percent
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low or moderately low (0.00 to 0.06 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Available water capacity: Very low (about 2.5 inches)

Interpretive Groups

Land capability classification (irrigated): 3s
Land capability (non irrigated): 3s

Typical Profile

0 to 15 inches: loam
15 to 28 inches: clay
28 to 60 inches: silty clay loam

Minor Components

Unnamed

Percent of map unit: 5 percent
Landform: Fans

Kimball

Percent of map unit: 5 percent

Tehama

Percent of map unit: 5 percent

Taxonomic Classification of the Soils

Glenn County, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Hillgate	Fine, montmorillonitic, thermic Typic Palexeralfs

Engineering Properties

Glenn County, California

Absence of an entry indicates that the data were not estimated. The asterisk "*" denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
HgA:												
Hillgate	0-15	Loam	CL-ML, ML	A-4	0	0	95-100	90-100	75-100	55-90	25-35	5-10
	15-28	Clay	CH, CL	A-7	0	0	95-100	90-100	80-100	70-95	40-60	20-35
	28-60	Silty clay loam	CL	A-6	0	0	80-100	75-100	70-95	55-70	30-40	10-20
Kimball	---	---	---	---	---	---	---	---	---	---	---	---
Tehama	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Glenn County, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
HgA:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Hillgate	0-15	---	---	10-25	1.45-1.55	4.00-14.00	0.15-0.18	0.0-2.9	0.5-1.0	.49	.49	3	5	56
	15-28	---	---	35-45	1.35-1.50	0.01-0.42	0.05-0.07	6.0-8.9	0.0-0.5	.32	.32			
	28-60	---	---	27-35	1.40-1.50	0.42-4.00	0.15-0.17	3.0-5.9	0.0-0.5	.43	.43			
Kimball	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Tehama	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Glenn County, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
HgA:									
Hillgate	Abrupt textural change	---	---	Noncemented	---	---	None	Moderate	Moderate
Kimball	---	---	---	---	---	---	---	---	---
Tehama	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Glenn County, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
HgA:								
Hillgate	0-15	10-15	---	5.1-6.5	0	0	0.0	0
	15-28	25-35	---	5.6-7.3	0	0	0.0	0
	28-60	15-20	---	5.6-7.3	0	0	0.0	0
Kimball	---	---	---	---	---	---	---	---
Tehama	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---

Water Features

Glenn County, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
HgA:										
Hillgate	D	Very high	Jan-Dec			---	---	None	---	None
Kimball	---	---	Jan-Dec			---	---	None	---	None
Tehama	---	---	Jan-Dec			---	---	None	---	None
Unnamed	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Glenn County, California

MzrA Myers clay, 0 to 3 percent slopes

Setting

Elevation: 30 to 2000 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 225 to 250 days

Composition

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

Description of Myers

Setting

Landform: Alluvial fans
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock

Properties and Qualities

Slope: 0 to 3 percent
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low or moderately high (0.06 to 0.20 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Available water capacity: Moderate (about 9.0 inches)

Interpretive Groups

Land capability classification (irrigated): 2s
Land capability (non irrigated): 3s

Typical Profile

0 to 29 inches: clay
29 to 60 inches: clay

Minor Components

Yolo

Percent of map unit: 5 percent
Landform: Fans

Hillgate

Percent of map unit: 5 percent
Landform: Depressions

Capay

Percent of map unit: 5 percent

Taxonomic Classification of the Soils

Glenn County, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Myers	Fine, montmorillonitic, thermic Entic Chromoxererts

Engineering Properties

Glenn County, California

Absence of an entry indicates that the data were not estimated. The asterisk "*" denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
MzrA:												
Myers	0-29	Clay	CH	A-7	0	0	100	100	90-100	80-95	50-70	25-40
	29-60	Clay, Silty clay	CH	A-7	0	0	100	100	90-100	80-95	50-70	25-40
Capay	---	---	---	---	---	---	---	---	---	---	---	---
Hillgate	---	---	---	---	---	---	---	---	---	---	---	---
Yolo	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Glenn County, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
MzrA:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Myers	0-29	---	---	40-60	1.30-1.40	0.42-1.40	0.14-0.16	6.0-8.9	1.0-2.0	.20	.20	5	4	86
	29-60	---	---	40-60	1.30-1.40	0.42-1.40	0.14-0.16	6.0-8.9	0.5-1.0	.24	.24			
Capay	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hillgate	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Yolo	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Glenn County, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
MzrA:		In	In		In	In			
Myers	---	---	---	---	---	---	None	High	Low
Capay	---	---	---	---	---	---	---	---	---
Hillgate	---	---	---	---	---	---	---	---	---
Yolo	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Glenn County, California

Map symbol and soil name	Depth	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
MzrA:								
Myers	0-29	30-50	---	6.1-7.3	0	0	0.0	0
	29-60	30-50	---	7.4-8.4	0	0	0.0-2.0	0
Capay	---	---	---	---	---	---	---	---
Hillgate	---	---	---	---	---	---	---	---
Yolo	---	---	---	---	---	---	---	---

Water Features

Glenn County, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
MzrA:										
Myers	C	High	Jan-Dec			---	---	None	---	None
Capay	---	---	Jan-Dec			---	---	None	---	None
Hillgate	---	---	Jan-Dec			---	---	None	---	None
Yolo	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Glenn County, California

Tb Tehama loam, deep to gravel, 0 to 3 percent slopes

Setting

Elevation: 80 to 1800 feet
Mean annual precipitation: 12 to 20 inches
Mean annual air temperature: 64 to 66 degrees F
Frost-free period: 200 to 300 days

Composition

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

Description of Tehama

Setting

Landform: Terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from metamorphic and sedimentary rock

Properties and Qualities

Slope: 0 to 3 percent
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 5 percent
Gypsum maximum: 0 percent
Available water capacity: Moderate (about 7.9 inches)

Interpretive Groups

Land capability classification (irrigated): 2s
Land capability (non irrigated): 3s

Typical Profile

0 to 9 inches: loam
9 to 45 inches: silty clay loam
45 to 60 inches: stratified g to sand

Minor Components

Arbuckle

Percent of map unit: 5 percent

Hillgate

Percent of map unit: 5 percent

Plaza

Percent of map unit: 5 percent

Taxonomic Classification of the Soils

Glenn County, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Tehama	Fine-loamy, mixed, thermic Calcic Haploxerolls

Engineering Properties

Glenn County, California

Absence of an entry indicates that the data were not estimated. The asterisk "*" denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
Tb:												
Tehama	0-9	Loam	ML	A-4	0	0	100	95-100	75-95	60-80	30-40	NP-10
	9-45	Clay loam, Silty clay loam	CL	A-6, A-7	0	0	100	95-100	95-100	85-95	30-45	10-20
	45-60	Stratified g to sand	GW	A-1	0	0-5	30-55	25-50	15-30	0-5	0	NP
Arbuckle	---	---	---	---	---	---	---	---	---	---	---	---
Hillgate	---	---	---	---	---	---	---	---	---	---	---	---
Plaza	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Glenn County, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Tb:														
Tehama	0-9	---	---	15-27	1.45-1.55	4.00-14.00	0.15-0.17	0.0-2.9	0.5-2.0	.37	.37	4	6	48
	9-45	---	---	27-35	1.40-1.50	1.40-4.00	0.17-0.19	3.0-5.9	0.0-0.5	.43	.43			
	45-60	---	---	0-5	1.60-1.70	141.00	0.02-0.03	0.0-2.9	0.0-0.5	.02	.02			
Arbuckle	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hillgate	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Plaza	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Glenn County, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
Tb: Tehama	Strongly contrasting textural stratification	---	---	Noncemented	---	---	None	High	Low
Arbuckle	---	---	---	---	---	---	---	---	---
Hillgate	---	---	---	---	---	---	---	---	---
Plaza	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Glenn County, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
Tehama	0-9	10-20	---	5.6-6.5	0	0	0.0	0
	9-45	15-25	---	5.6-6.5	1-5	0	0.0	0
	45-60	1.0-5.0	---	7.4-8.4	1-5	0	0.0-2.0	0
Arbuckle	---	---	---	---	---	---	---	---
Hillgate	---	---	---	---	---	---	---	---
Plaza	---	---	---	---	---	---	---	---

Tb:

Water Features

Glenn County, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
Tb:										
Tehama	C	Medium	Jan-Dec			---	---	None	---	None
Arbuckle	---	---	Jan-Dec			---	---	None	---	None
Hillgate	---	---	Jan-Dec			---	---	None	---	None
Plaza	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Glenn County, California

Tm Tehama silt loam, 0 to 3 percent slopes

Setting

Elevation: 50 to 1000 feet
Mean annual precipitation: 15 to 35 inches
Mean annual air temperature: 63 to 63 degrees F

Composition

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

Description of Tehama

Setting

Landform: Terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from metamorphic and sedimentary rock

Properties and Qualities

Slope: 0 to 3 percent
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low or moderately high (0.06 to 0.20 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 5 percent
Gypsum maximum: 0 percent
Available water capacity: High (about 10.6 inches)

Interpretive Groups

Land capability classification (irrigated): 2s
Land capability (non irrigated): 3s

Typical Profile

0 to 9 inches: silt loam
9 to 27 inches: silty clay loam
27 to 60 inches: silty clay loam

Minor Components

Arbuckle

Percent of map unit: 5 percent

Hillgate

Percent of map unit: 5 percent

Plaza

Percent of map unit: 5 percent

Taxonomic Classification of the Soils

Glenn County, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Tehama	Fine-silty, mixed, thermic Typic Haploxeralfs

Engineering Properties

Glenn County, California

Absence of an entry indicates that the data were not estimated. The asterisk "*" denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
Tm:												
Tehama	0-9	Silt loam	ML	A-4	0	0	90-100	85-100	80-100	60-85	25-35	NP-10
	9-27	Clay loam, Silty clay loam	CL	A-6, A-7	0	0	95-100	95-100	95-100	85-95	30-45	10-20
	27-60	Clay loam, Silty clay loam	CL	A-6, A-7	0	0	95-100	95-100	95-100	85-95	30-45	10-20
Arbuckle	---	---	---	---	---	---	---	---	---	---	---	---
Hillgate	---	---	---	---	---	---	---	---	---	---	---	---
Plaza	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Glenn County, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Tm:														
Tehama	0-9	---	---	15-25	1.45-1.55	4.00-14.00	0.14-0.17	0.0-2.9	0.5-2.0	.55	.55	5	6	48
	9-27	---	---	27-35	1.40-1.50	0.42-1.40	0.17-0.19	3.0-5.9	0.0-0.5	.49	.49			
	27-60	---	---	27-35	1.40-1.50	1.40-4.00	0.17-0.19	3.0-5.9	0.0-0.5	.43	.43			
Arbuckle	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hillgate	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Plaza	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Glenn County, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
Tm:		In	In		In	In			
Tehama	---	---	---	---	---	---	None	Moderate	Low
Arbuckle	---	---	---	---	---	---	---	---	---
Hillgate	---	---	---	---	---	---	---	---	---
Plaza	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Glenn County, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
Tehama	0-9	10-20	---	5.6-6.5	0	0	0.0	0
	9-27	15-25	---	5.6-6.5	0	0	0.0	0
	27-60	15-20	---	7.4-8.4	1-5	0	0.0	0
Arbuckle	---	---	---	---	---	---	---	---
Hillgate	---	---	---	---	---	---	---	---
Plaza	---	---	---	---	---	---	---	---

Water Features

Glenn County, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
Tm:										
Tehama	C	High	Jan-Dec			---	---	None	---	None
Arbuckle	---	---	Jan-Dec			---	---	None	---	None
Hillgate	---	---	Jan-Dec			---	---	None	---	None
Plaza	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Glenn County, California

Tn Tehama silt loam, water table, 0 to 2 percent slopes

Setting

Elevation: 50 to 1000 feet
Mean annual precipitation: 15 to 35 inches
Mean annual air temperature: 63 to 63 degrees F

Composition

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

Description of Tehama

Setting

Landform: Terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from metamorphic and sedimentary rock

Properties and Qualities

Slope: 0 to 2 percent
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low or moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 36 to 48 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 5 percent
Gypsum maximum: 0 percent
Available water capacity: High (about 10.6 inches)

Interpretive Groups

Land capability classification (irrigated): 3w
Land capability (non irrigated): 3w

Typical Profile

0 to 9 inches: silt loam
9 to 27 inches: silty clay loam
27 to 60 inches: silty clay loam

Minor Components

Arbuckle

Percent of map unit: 5 percent

Hillgate

Percent of map unit: 5 percent

Plaza

Percent of map unit: 5 percent

Taxonomic Classification of the Soils

Glenn County, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Tehama	Fine-silty, mixed, thermic Typic Haploxeralfs

Engineering Properties

Glenn County, California

Absence of an entry indicates that the data were not estimated. The asterisk "*" denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
Tn:												
Tehama	0-9	Silt loam	ML	A-4	0	0	90-100	85-100	80-100	60-85	25-35	NP-10
	9-27	Clay loam, Silty clay loam	CL	A-6, A-7	0	0	95-100	95-100	95-100	85-95	30-45	10-20
	27-60	Clay loam, Silty clay loam	CL	A-6, A-7	0	0	95-100	95-100	95-100	85-95	30-45	10-20
Arbuckle	---	---	---	---	---	---	---	---	---	---	---	---
Hillgate	---	---	---	---	---	---	---	---	---	---	---	---
Plaza	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Glenn County, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
Tn:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Tehama	0-9	---	---	15-25	1.45-1.55	4.00-14.00	0.14-0.17	0.0-2.9	0.5-2.0	.55	.55	5	6	48
	9-27	---	---	27-35	1.40-1.50	0.42-1.40	0.17-0.19	3.0-5.9	0.0-0.5	.49	.49			
	27-60	---	---	27-35	1.40-1.50	1.40-4.00	0.17-0.19	3.0-5.9	0.0-0.5	.43	.43			
Arbuckle	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hillgate	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Plaza	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Glenn County, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
Tn:		In	In		In	In			
Tehama	---	---	---	---	---	---	None	High	Low
Arbuckle	---	---	---	---	---	---	---	---	---
Hillgate	---	---	---	---	---	---	---	---	---
Plaza	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Glenn County, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
Tn:								
Tehama	0-9	10-20	---	5.6-6.5	0	0	0.0	0
	9-27	15-25	---	5.6-6.5	0	0	0.0	0
	27-60	15-20	---	7.4-8.4	1-5	0	0.0-2.0	0
Arbuckle	---	---	---	---	---	---	---	---
Hillgate	---	---	---	---	---	---	---	---
Plaza	---	---	---	---	---	---	---	---

Water Features

Glenn County, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
Tn:										
Tehama	D	High	January	3.0-4.0	>6.0	---	---	None	Brief	Rare
			February	3.0-4.0	>6.0	---	---	None	Brief	Rare
			March	3.0-4.0	>6.0	---	---	None	Brief	Rare
			April	---	---	---	---	None	Brief	Rare
			May	---	---	---	---	None	Brief	Rare
			June	---	---	---	---	None	Brief	Rare
			July	---	---	---	---	None	Brief	Rare
			August	---	---	---	---	None	Brief	Rare
			September	---	---	---	---	None	Brief	Rare
			October	---	---	---	---	None	Brief	Rare
			November	---	---	---	---	None	Brief	Rare
			December	3.0-4.0	>6.0	---	---	None	Brief	Rare
Arbuckle	---	---	Jan-Dec			---	---	None	---	None
Hillgate	---	---	Jan-Dec			---	---	None	---	None
Plaza	---	---	Jan-Dec			---	---	None	---	None

San Joaquin County | CA077

Map Unit Description

San Joaquin County, California

101 Acampo sandy loam, 0 to 2 percent slopes

Setting

Landscape: Basins, valleys
Elevation: 10 to 150 feet
Mean annual precipitation: 15 to 15 inches
Mean annual air temperature: 61 to 61 degrees F
Frost-free period: 260 to 260 days

Composition

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

Description of Acampo

Setting

Landform: Fan terraces
Landform position (two-dimensional): Footslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and Qualities

Slope: 0 to 2 percent
Surface area covered with stones and boulders: 2.0 percent
Depth to restrictive feature: 40 to 60 inches to Duripan; 43 to 60 inches to Duripan
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Available water capacity: Low (about 5.6 inches)

Interpretive Groups

Land capability classification (irrigated): 2s
Land capability (non irrigated): 4s

Typical Profile

0 to 19 inches: sandy loam
19 to 47 inches: sandy loam
47 to 49 inches: cemented
49 to 60 inches: cemented

Minor Components

Tujunga soils

Percent of map unit: 5 percent

Finer textured subsoil unnamed

Percent of map unit: 4 percent

Devries soils

Percent of map unit: 4 percent
Landform: Rims

Tokay soils

Percent of map unit: 2 percent

Taxonomic Classification of the Soils

San Joaquin County, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Acampo	Coarse-loamy, mixed, thermic Typic Haploxerolls

Engineering Properties

San Joaquin County, California

Absence of an entry indicates that the data were not estimated. The asterisk "*" denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
101:												
Acampo	0-19	Sandy loam	SM	A-4	0	0	100	90-100	65-80	35-50	20-30	NP-5
	19-47	Coarse sandy loam, Fine sandy loam, Sandy loam	SM	A-4	0	0	100	90-100	50-75	35-50	20-30	NP-5
	47-49	Cemented	---	---	---	---	0	0	0	0	0	NP
	49-60	Cemented	---	---	---	---	0	0	0	0	0	NP
Tujunga	---	---	---	---	---	---	---	---	---	---	---	---
Devries	---	---	---	---	---	---	---	---	---	---	---	---
Finer textured subsoil unnamed	---	---	---	---	---	---	---	---	---	---	---	---
Tokay	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

San Joaquin County, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
101:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Acampo	0-19	---	---	7-18	1.50-1.60	14.00-42.00	0.11-0.13	0.0-2.9	1.0-3.0	.32	.32	3	3	86
	19-47	---	---	7-15	1.50-1.65	14.00-42.00	0.10-0.14	0.0-2.9	0.0-0.5	.37	.37			
	47-49	---	---	---	---	0.00	0.00	0.0-2.9	0.0-0.5	---	---			
	49-60	---	---	---	---	0.00	0.00	0.0-2.9	0.0-0.5	---	---			
Tujunga	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Devries	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Finer textured subsoil unnamed	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Tokay	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

San Joaquin County, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
101:									
Acampo	Duripan	40-60	0-3	Indurated	---	---	None	High	Low
	Duripan	43-60	2-20	Strongly cemented					
Tujunga	---	---	---	---	---	---	---	---	---
Devries	---	---	---	---	---	---	---	---	---
Finer textured subsoil unnamed	---	---	---	---	---	---	---	---	---
Tokay	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

San Joaquin County, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
101:								
Acampo	0-19	15-20	---	6.1-7.8	0	0	0.0-2.0	0
	19-47	15-20	---	6.6-8.4	0	0	0.0-2.0	0
	47-49	---	---	---	---	---	---	0
	49-60	---	---	---	---	---	---	0
Tujunga	---	---	---	---	---	---	---	
Devries	---	---	---	---	---	---	---	
Finer textured subsoil unnamed	---	---	---	---	---	---	---	
Tokay	---	---	---	---	---	---	---	

Water Features

San Joaquin County, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
101:										
Acampo	C	Very low	Jan-Dec			---	---	None	---	None
Tujunga	---	---	Jan-Dec			---	---	None	---	None
Devries	---	---	Jan-Dec			---	---	None	---	None
Finer textured subsoil unnamed	---	---	Jan-Dec			---	---	None	---	None
Tokay	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

San Joaquin County, California

149 Devries sandy loam, drained, 0 to 2 percent slopes

Setting

Landscape: Valleys
Elevation: -10 to 40 feet
Mean annual precipitation: 14 to 14 inches
Mean annual air temperature: 61 to 61 degrees F
Frost-free period: 270 to 270 days

Composition

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

Description of Devries

Setting

Landform: Rims on basin floors
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed rock sources

Properties and Qualities

Slope: 0 to 2 percent
Surface area covered with stones and boulders: 2.0 percent
Depth to restrictive feature: 20 to 40 inches to Duripan
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: About 60 to 60 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 3 percent
Gypsum maximum: 0 percent
Available water capacity: Low (about 3.5 inches)

Interpretive Groups

Land capability classification (irrigated): 3w
Land capability (non irrigated): 4w

Typical Profile

0 to 13 inches: sandy loam
13 to 28 inches: sandy loam
28 to 80 inches: indurated

Minor Components

Dello soils

Percent of map unit: 4 percent
Landform: Flood plains

Rioblancho soils

Percent of map unit: 4 percent
Landform: Valley floors

Unnamed, ponded

Percent of map unit: 3 percent
Landform: Depressions

Guard soils

Percent of map unit: 1 percent
Landform: Rims on valley floors

Tujunga soils

Percent of map unit: 1 percent

Acampo soils

Percent of map unit: 1 percent

Map Unit Description

San Joaquin County, California

Shallow to hardpan

Percent of map unit: 1 percent

Taxonomic Classification of the Soils

San Joaquin County, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Devries	Coarse-loamy, mixed, thermic Typic Duraquolls

Engineering Properties

San Joaquin County, California

Absence of an entry indicates that the data were not estimated. The asterisk "*" denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
149:												
Devries	0-13	Sandy loam	SM	A-4	0	0	100	95-100	60-70	35-50	20-30	NP-5
	13-28	Fine sandy loam, Sandy loam	SM	A-4	0	0	100	95-100	60-85	35-50	20-30	NP-5
	28-80	Indurated	---	---	0	0	0	0	0	0	0	NP
Dello	---	---	---	---	---	---	---	---	---	---	---	---
Rioblancho	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, ponded	---	---	---	---	---	---	---	---	---	---	---	---
Acampo	---	---	---	---	---	---	---	---	---	---	---	---
Guard	---	---	---	---	---	---	---	---	---	---	---	---
Shallow to hardpan	---	---	---	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

San Joaquin County, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
149:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Devries	0-13	---	---	7-18	1.50-1.60	14.00-42.00	0.10-0.13	0.0-2.9	1.0-3.0	.24	.24	2	3	86
	13-28	---	---	7-18	1.50-1.60	14.00-42.00	0.11-0.14	0.0-2.9	0.0	.28	.28			
	28-80	---	---	---	---	0.00	0.00	0.0-2.9	---	---	---			
Dello	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Rioblancho	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, ponded	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Acampo	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Guard	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Shallow to hardpan	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

San Joaquin County, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
149:									
Devries	Duripan	20-40	4-17	Indurated	---	---	None	High	Low
Dello	---	---	---	---	---	---	---	---	---
Rioblancho	---	---	---	---	---	---	---	---	---
Unnamed, ponded	---	---	---	---	---	---	---	---	---
Acampo	---	---	---	---	---	---	---	---	---
Guard	---	---	---	---	---	---	---	---	---
Shallow to hardpan	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

San Joaquin County, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
149:								
Devries	0-13	10-15	---	6.6-8.4	0	0	0.0-2.0	0
	13-28	5.0-10	---	6.6-8.4	1-3	0	0.0-2.0	0
	28-80	---	---	---	---	---	---	0
Dello	---	---	---	---	---	---	---	---
Rioblancho	---	---	---	---	---	---	---	---
Unnamed, ponded	---	---	---	---	---	---	---	---
Acampo	---	---	---	---	---	---	---	---
Guard	---	---	---	---	---	---	---	---
Shallow to hardpan	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---

Water Features

San Joaquin County, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
149:										
Devries	C	Very low	January	5.0	>6.0	---	---	None	Brief	Rare
			February	5.0	>6.0	---	---	None	Brief	Rare
			March	5.0	>6.0	---	---	None	Brief	Rare
			April	5.0	>6.0	---	---	None	Brief	Rare
			May	5.0	>6.0	---	---	None	Brief	Rare
			June	5.0	>6.0	---	---	None	Brief	Rare
			July	5.0	>6.0	---	---	None	Brief	Rare
			August	5.0	>6.0	---	---	None	Brief	Rare
			September	5.0	>6.0	---	---	None	Brief	Rare
			October	5.0	>6.0	---	---	None	Brief	Rare
			November	5.0	>6.0	---	---	None	Brief	Rare
			December	5.0	>6.0	---	---	None	Brief	Rare
Dello	---	---	Jan-Dec			---	---	None	---	None
Rioblancho	---	---	Jan-Dec			---	---	None	---	None
Unnamed, ponded	---	---	Jan-Dec			---	---	None	---	None
Acampo	---	---	Jan-Dec			---	---	None	---	None
Guard	---	---	Jan-Dec			---	---	None	---	None
Shallow to hardpan	---	---	Jan-Dec			---	---	None	---	None
Tujunga	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

San Joaquin County, California

256 Tokay fine sandy loam, 0 to 2 percent slopes

Setting

Landscape: Valleys
Elevation: 10 to 120 feet
Mean annual precipitation: 15 to 15 inches
Mean annual air temperature: 61 to 61 degrees F
Frost-free period: 260 to 260 days

Composition

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

Description of Tokay

Setting

Landform: Fan skirts
Landform position (two-dimensional): Footslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granitic rock sources

Properties and Qualities

Slope: 0 to 2 percent
Surface area covered with stones and boulders: 2.0 percent
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Available water capacity: Moderate (about 7.8 inches)

Interpretive Groups

Land capability classification (irrigated): 1
Land capability (non irrigated): 4c

Typical Profile

0 to 19 inches: fine sandy loam
19 to 45 inches: fine sandy loam
45 to 60 inches: sandy loam

Minor Components

Devries soils

Percent of map unit: 4 percent
Landform: Valley floors

Tujunga soils

Percent of map unit: 4 percent

Acampo soils

Percent of map unit: 4 percent

Kingdon soils

Percent of map unit: 3 percent

Taxonomic Classification of the Soils

San Joaquin County, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Tokay	Coarse-loamy, mixed, thermic Typic Haploxerolls

Engineering Properties

San Joaquin County, California

Absence of an entry indicates that the data were not estimated. The asterisk "*" denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
256:												
Tokay	0-19	Fine sandy loam	SM	A-4	0	0	100	95-100	75-85	35-50	20-30	NP-5
	19-45	Fine sandy loam, Sandy loam	SM	A-4	0	0	100	95-100	65-85	35-50	20-30	NP-5
	45-60	Coarse sandy loam, Fine sandy loam, Sandy loam	SM	A-2, A-4	0	0	100	95-100	50-75	25-50	20-30	NP-5
Acampo	---	---	---	---	---	---	---	---	---	---	---	---
Devries	---	---	---	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---	---	---	---
Kingdon	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

San Joaquin County, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
256:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Tokay	0-19	---	---	10-15	1.50-1.60	14.00-42.00	0.13-0.15	0.0-2.9	1.0-3.0	.32	.32	5	3	86
	19-45	---	---	10-18	1.50-1.60	14.00-42.00	0.12-0.14	0.0-2.9	0.0	.37	.37			
	45-60	---	---	8-15	1.50-1.65	14.00-42.00	0.10-0.14	0.0-2.9	0.0	.37	.37			
Acampo	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Devries	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Kingdon	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

San Joaquin County, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
256:		In	In		In	In			
Tokay	---	---	---	---	---	---	None	High	Moderate
Acampo	---	---	---	---	---	---	---	---	---
Devries	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---
Kingdon	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

San Joaquin County, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
256:								
Tokay	0-19	9.0-12	---	6.1-7.8	0	0	0.0-2.0	0
	19-45	9.0-14	---	6.1-7.8	0	0	0.0-2.0	0
	45-60	8.0-12	---	6.1-8.4	0	0	0.0-2.0	0
Acampo	---	---	---	---	---	---	---	---
Devries	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---
Kingdon	---	---	---	---	---	---	---	---

Water Features

San Joaquin County, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
256:										
Tokay	B	Very low	Jan-Dec			---	---	None	---	None
Acampo	---	---	Jan-Dec			---	---	None	---	None
Devries	---	---	Jan-Dec			---	---	None	---	None
Tujunga	---	---	Jan-Dec			---	---	None	---	None
Kingdon	---	---	Jan-Dec			---	---	None	---	None

Eastern Stanislaus Area | CA644

Map Unit Description

Eastern Stanislaus Area, California

CaA Chualar sandy loam, 0 to 3 percent slopes

Setting

Elevation: 50 to 2000 feet
Mean annual precipitation: 12 to 25 inches
Mean annual air temperature: 57 to 63 degrees F
Frost-free period: 175 to 300 days

Composition

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

Description of Chualar

Setting

Landform: Fan remnants
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous, metamorphic and sedimentary rock

Properties and Qualities

Slope: 0 to 3 percent
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Available water capacity: Moderate (about 7.9 inches)

Interpretive Groups

Land capability classification (irrigated): 2s
Land capability (non irrigated): 4s

Typical Profile

0 to 24 inches: sandy loam
24 to 58 inches: sandy clay loam
58 to 72 inches: sandy loam

Minor Components

Oakdale soils

Percent of map unit: 5 percent

Modesto soils

Percent of map unit: 5 percent

Dinuba soils

Percent of map unit: 5 percent

Taxonomic Classification of the Soils

Eastern Stanislaus Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Chualar	Fine-loamy, mixed, superactive, thermic Typic Argixerolls

Engineering Properties

Eastern Stanislaus Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
CaA:												
Chualar	0-24	Sandy loam	SM	A-4	0	0	84-100	63-100	46-81	22-43	22-33	6-12
	24-58	Sandy clay loam, Sandy loam	SC, SC-SM	A-4, A-6	0	0	84-100	63-100	52-90	28-51	27-36	12-17
	58-72	Sandy loam	SC-SM, SM	A-4	0	0	84-100	64-100	46-82	22-45	20-32	6-13
Dinuba	---	---	---	---	---	---	---	---	---	---	---	---
Modesto	---	---	---	---	---	---	---	---	---	---	---	---
Oakdale	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Eastern Stanislaus Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
CaA:														
Chualar	0-24	---	---	10-18	1.45-1.55	4.00-14.00	0.10-0.13	0.8-2.3	1.0-2.0	.24	.24	5	3	86
	24-58	---	---	18-25	1.45-1.55	1.40-4.00	0.12-0.15	1.1-3.2	0.0-0.5	.28	.28			
	58-72	---	---	10-20	1.50-1.60	4.00-14.00	0.10-0.13	0.5-1.6	0.0-0.5	.24	.24			
Dinuba	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Modesto	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Oakdale	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Eastern Stanislaus Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
CaA:		In	In		In	In			
Chualar	---	---	---	---	---	---	None	Low	Low
Dinuba	---	---	---	---	---	---	---	---	---
Modesto	---	---	---	---	---	---	---	---	---
Oakdale	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Eastern Stanislaus Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
CaA:								
Chualar	0-24	8.9-16	---	6.1-7.3	0	0	0.0	0
	24-58	13-20	---	6.1-7.3	0	0	0.0	0
	58-72	7.6-16	---	6.1-7.8	0	0	0.0	0
Dinuba	---	---	---	---	---	---	---	---
Modesto	---	---	---	---	---	---	---	---
Oakdale	---	---	---	---	---	---	---	---

Water Features

Eastern Stanislaus Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
CaA:										
Chualar	C	Low	Jan-Dec			---	---	None	---	None
Dinuba	---	---	Jan-Dec			---	---	None	---	None
Modesto	---	---	Jan-Dec			---	---	None	---	None
Oakdale	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Eastern Stanislaus Area, California

DfA Delhi loamy sand, moderately deep over clay, 0 to 3 percent slopes

Setting

Landscape: Alluvial plains, valleys
Elevation: 200 to 1400 feet
Mean annual precipitation: 13 to 13 inches
Mean annual air temperature: 63 to 63 degrees F
Frost-free period: 225 to 310 days

Composition

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

Description of Delhi

Setting

Landform: Sand sheets
Landform position (two-dimensional): Backslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Wind modified sandy alluvium derived from granite

Properties and Qualities

Slope: 0 to 3 percent
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low or moderately high (0.06 to 0.20 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Available water capacity: Moderate (about 6.2 inches)

Interpretive Groups

Land capability classification (irrigated): 3s
Land capability (non irrigated): 4e

Typical Profile

0 to 10 inches: loamy sand
10 to 40 inches: loamy sand
40 to 60 inches: clay

Minor Components

Dinuba soils

Percent of map unit: 10 percent

Hilmar soils

Percent of map unit: 5 percent

Taxonomic Classification of the Soils

Eastern Stanislaus Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Delhi	TYPIC XEROPSAMMENTS, MIXED, THERMIC

Engineering Properties

Eastern Stanislaus Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
DfA:												
Delhi	0-10	Loamy sand	SM	A-2	0	0	100	100	76-81	26-31	0-20	NP-2
	10-40	Loamy fine sand, Loamy sand	SM	A-2	0	0	100	100	76-81	26-31	0-19	NP-2
	40-60	Clay	CH, CL	A-7	0	0	100	100	82-100	71-91	49-69	29-44
Dinuba	---	---	---	---	---	---	---	---	---	---	---	---
Hilmar	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Eastern Stanislaus Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
DfA:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Delhi	0-10	---	---	0-5	1.60-1.70	42.00-141.00	0.06-0.10	0.0-0.5	0.5-1.0	.15	.15	4	2	134
	10-40	---	---	0-5	1.60-1.70	42.00-141.00	0.06-0.10	0.0-0.5	0.0-0.5	.15	.15			
	40-60	---	---	40-60	1.35-1.50	0.42-1.40	0.14-0.16	0.5-2.1	0.0-0.5	.15	.15			
Dinuba	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hilmar	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Eastern Stanislaus Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
DfA:		In	In		In	In			
Delhi	---	---	---	---	---	---	None	Low	Low
Dinuba	---	---	---	---	---	---	---	---	---
Hilmar	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Eastern Stanislaus Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
DfA:								
Delhi	0-10	0.1-4.2	---	6.1-7.8	0	0	0.0	0
	10-40	0.1-4.0	---	6.1-7.8	0	0	0.0	0
	40-60	19-35	---	6.1-7.8	0	0	0.0	0
Dinuba	---	---	---	---	---	---	---	---
Hilmar	---	---	---	---	---	---	---	---

Water Features

Eastern Stanislaus Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
DfA:										
Delhi	A	Negligible	Jan-Dec			---	---	None	---	None
Dinuba	---	---	Jan-Dec			---	---	None	---	None
Hilmar	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Eastern Stanislaus Area, California

DhA Delhi sand, 0 to 3 percent slopes

Setting

Landscape: Alluvial plains, valleys
Elevation: 30 to 1400 feet
Mean annual precipitation: 10 to 16 inches
Mean annual air temperature: 59 to 64 degrees F
Frost-free period: 225 to 310 days

Composition

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

Description of Delhi

Setting

Landform: Sand sheets
Landform position (two-dimensional): Backslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Wind modified sandy alluvium derived from granite

Properties and Qualities

Slope: 0 to 3 percent
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High or very high (5.95 to 19.98 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Available water capacity: Low (about 4.8 inches)

Interpretive Groups

Land capability classification (irrigated): 3s
Land capability (non irrigated): 4e

Typical Profile

0 to 10 inches: loamy sand
10 to 60 inches: loamy sand

Minor Components

Dinuba soils

Percent of map unit: 10 percent

Hilmar soils

Percent of map unit: 5 percent

Taxonomic Classification of the Soils

Eastern Stanislaus Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Delhi	TYPIC XEROPSAMMENTS, MIXED, THERMIC

Engineering Properties

Eastern Stanislaus Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
DhA:												
Delhi	0-10	Loamy sand	SM	A-2	0	0	100	100	76-81	26-31	0-20	NP-2
	10-60	Loamy fine sand, Loamy sand	SM	A-2	0	0	100	100	76-81	26-31	0-19	NP-2
Dinuba	---	---	---	---	---	---	---	---	---	---	---	---
Hilmar	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Eastern Stanislaus Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
DhA:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Delhi	0-10	---	---	0-5	1.60-1.70	42.00-141.00	0.06-0.10	0.0-0.5	0.5-1.0	.15	.15	5	2	134
	10-60	---	---	0-5	1.60-1.70	42.00-141.00	0.06-0.10	0.0-0.5	0.0-0.5	.15	.15			
Dinuba	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hilmar	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Eastern Stanislaus Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
DhA:		In	In		In	In			
Delhi	---	---	---	---	---	---	None	Low	Low
Dinuba	---	---	---	---	---	---	---	---	---
Hilmar	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Eastern Stanislaus Area, California

Map symbol and soil name	Depth	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
DhA:								
Delhi	0-10	0.1-4.2	---	6.1-7.8	0	0	0.0	0
	10-60	0.1-4.0	---	6.1-7.8	0	0	0.0	0
Dinuba	---	---	---	---	---	---	---	---
Hilmar	---	---	---	---	---	---	---	---

Water Features

Eastern Stanislaus Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
DhA:										
Delhi	A	Negligible	Jan-Dec			---	---	None	---	None
Dinuba	---	---	Jan-Dec			---	---	None	---	None
Hilmar	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Eastern Stanislaus Area, California

DhB Delhi sand, 3 to 8 percent slopes

Setting

Landscape: Alluvial plains, valleys
Elevation: 30 to 1400 feet
Mean annual precipitation: 10 to 16 inches
Mean annual air temperature: 59 to 64 degrees F
Frost-free period: 225 to 310 days

Composition

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

Description of Delhi

Setting

Landform: Sand sheets
Landform position (two-dimensional): Backslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Wind modified sandy alluvium derived from granite

Properties and Qualities

Slope: 3 to 8 percent
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High or very high (5.95 to 19.98 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Available water capacity: Low (about 4.8 inches)

Interpretive Groups

Land capability classification (irrigated): 3s
Land capability (non irrigated): 4e

Typical Profile

0 to 10 inches: loamy sand
10 to 60 inches: loamy sand

Minor Components

Dinuba soils

Percent of map unit: 10 percent

Hilmar soils

Percent of map unit: 5 percent

Taxonomic Classification of the Soils

Eastern Stanislaus Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Delhi	TYPIC XEROPSAMMENTS, MIXED, THERMIC

Engineering Properties

Eastern Stanislaus Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
DhB:												
Delhi	0-10	Loamy sand	SM	A-2	0	0	100	100	76-81	26-31	0-20	NP-2
	10-60	Loamy fine sand, Loamy sand	SM	A-2	0	0	100	100	76-81	26-31	0-19	NP-2
Dinuba	---	---	---	---	---	---	---	---	---	---	---	---
Hilmar	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Eastern Stanislaus Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
DhB:														
Delhi	0-10	---	---	0-5	1.60-1.70	42.00-141.00	0.06-0.10	0.0-0.5	0.5-1.0	.15	.15	5	2	134
	10-60	---	---	0-5	1.60-1.70	42.00-141.00	0.06-0.10	0.0-0.5	0.0-0.5	.15	.15			
Dinuba	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hilmar	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Eastern Stanislaus Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
DhB:		In	In		In	In			
Delhi	---	---	---	---	---	---	None	Low	Low
Dinuba	---	---	---	---	---	---	---	---	---
Hilmar	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Eastern Stanislaus Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
DhB:								
Delhi	0-10	0.1-4.2	---	6.1-7.8	0	0	0.0	0
	10-60	0.1-4.0	---	6.1-7.8	0	0	0.0	0
Dinuba	---	---	---	---	---	---	---	---
Hilmar	---	---	---	---	---	---	---	---

Water Features

Eastern Stanislaus Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
DhB:										
Delhi	A	Very low	Jan-Dec			---	---	None	---	None
Dinuba	---	---	Jan-Dec			---	---	None	---	None
Hilmar	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Eastern Stanislaus Area, California

DmA Dinuba fine sandy loam, 0 to 1 percent slopes

Setting

Elevation: 100 to 500 feet
Mean annual precipitation: 12 to 12 inches
Mean annual air temperature: 63 to 63 degrees F
Frost-free period: 250 to 250 days

Composition

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

Description of Dinuba

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and Qualities

Slope: 0 to 1 percent
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low or moderately high (0.06 to 0.20 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Available water capacity: Moderate (about 7.2 inches)

Interpretive Groups

Land capability classification (irrigated): 2s
Land capability (non irrigated): 4s

Typical Profile

0 to 10 inches: fine sandy loam
10 to 28 inches: sandy loam
28 to 60 inches: very fine sand, silt loam

Minor Components

Hilmar soils

Percent of map unit: 5 percent

Hanford soils

Percent of map unit: 5 percent

Fresno soils

Percent of map unit: 5 percent

Taxonomic Classification of the Soils

Eastern Stanislaus Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Dinuba	Coarse-loamy, mixed, active, thermic Typic Haploxeralfs

Engineering Properties

Eastern Stanislaus Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
DmA:												
Dinuba	0-10	Fine sandy loam	SM	A-4	0	0	100	95-100	83-95	37-47	19-28	3-10
	10-28	Fine sandy loam, Sandy loam	SM	A-4	0	0	100	95-100	69-81	33-43	20-30	6-12
	28-60	Very fine sand, silt loam	ML, SM	A-4	0	0	100	96-100	91-100	74-85	20-29	6-12
Fresno	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---
Hilmar	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Eastern Stanislaus Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
DmA:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Dinuba	0-10	---	---	7-15	1.50-1.60	14.00-42.00	0.10-0.13	0.5-1.3	0.5-1.0	.24	.24	5	3	86
	10-28	---	---	10-18	1.50-1.60	14.00-42.00	0.10-0.13	0.7-1.5	0.0-0.5	.32	.32			
	28-60	---	---	10-18	1.70-1.80	0.42-1.40	0.10-0.13	0.7-1.5	0.0	.64	.64			
Fresno	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hilmar	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Eastern Stanislaus Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
DmA:		In	In		In	In			
Dinuba	---	---	---	---	---	---	None	High	Moderate
Fresno	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---
Hilmar	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Eastern Stanislaus Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
DmA:								
Dinuba	0-10	3.8-8.1	---	6.6-7.8	0	0	0.0	0
	10-28	5.1-9.6	---	6.6-7.8	0	0	0.0	0
	28-60	5.1-9.1	---	7.9-8.4	0	0	0.0-4.0	0
Fresno	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---
Hilmar	---	---	---	---	---	---	---	---

Water Features

Eastern Stanislaus Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
DmA:										
Dinuba	C	Medium	Jan-Dec			---	---	None	---	None
Fresno	---	---	Jan-Dec			---	---	None	---	None
Hanford	---	---	Jan-Dec			---	---	None	---	None
Hilmar	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Eastern Stanislaus Area, California

DpA Dinuba fine sandy loam, slightly saline-alkali, 0 to 1 percent slopes

Setting

Elevation: 100 to 500 feet
Mean annual precipitation: 12 to 12 inches
Mean annual air temperature: 63 to 63 degrees F
Frost-free period: 250 to 250 days

Composition

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

Description of Dinuba

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and Qualities

Slope: 0 to 1 percent
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low or moderately high (0.06 to 0.20 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Salinity maximum: Very slightly saline or slightly saline (4.0 to 8.0 mmhos/cm)
Sodium adsorption ratio maximum: 5.0
Available water capacity: Low (about 5.4 inches)

Interpretive Groups

Land capability classification (irrigated): 2s
Land capability (non irrigated): 4s

Typical Profile

0 to 10 inches: fine sandy loam
10 to 30 inches: sandy loam
30 to 60 inches: very fine sand, silt loam

Minor Components

Hilmar soils

Percent of map unit: 5 percent

Hanford soils

Percent of map unit: 5 percent

Fresno soils

Percent of map unit: 5 percent

Taxonomic Classification of the Soils

Eastern Stanislaus Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Dinuba	Coarse-loamy, mixed, active, thermic Typic Haploxeralfs

Engineering Properties

Eastern Stanislaus Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
DpA:												
Dinuba	0-10	Fine sandy loam	SM	A-4	0	0	100	95-100	83-95	37-47	19-28	3-10
	10-30	Fine sandy loam, Sandy loam	SM	A-4	0	0	100	95-100	69-81	33-43	20-30	6-12
	30-60	Very fine sand, silt loam	ML, SM	A-4	0	0	100	96-100	91-100	74-85	20-29	6-12
Fresno	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---
Hilmar	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Eastern Stanislaus Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
DpA:														
Dinuba	0-10	---	---	7-15	1.45-1.55	4.00-14.00	0.07-0.11	0.5-1.3	0.5-1.0	.28	.28	5	3	86
	10-30	---	---	10-18	1.45-1.55	4.00-14.00	0.07-0.11	0.7-1.5	0.0-0.5	.24	.24			
	30-60	---	---	10-18	1.70-1.80	0.42-1.40	0.07-0.11	0.7-1.5	0.0	.64	.64			
Fresno	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hilmar	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Eastern Stanislaus Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
DpA:		In	In		In	In			
Dinuba	---	---	---	---	---	---	None	High	Moderate
Fresno	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---
Hilmar	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Eastern Stanislaus Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
DpA:								
Dinuba	0-10	3.8-8.1	---	7.4-8.4	0	0	4.0-8.0	0
	10-30	5.1-9.6	---	7.4-8.4	0	0	4.0-8.0	0-5
	30-60	5.1-9.1	---	7.4-9.0	0	0	4.0-8.0	0-5
Fresno	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---
Hilmar	---	---	---	---	---	---	---	---

Water Features

Eastern Stanislaus Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
DpA:										
Dinuba	C	Medium	Jan-Dec			---	---	None	---	None
Fresno	---	---	Jan-Dec			---	---	None	---	None
Hanford	---	---	Jan-Dec			---	---	None	---	None
Hilmar	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Eastern Stanislaus Area, California

DrA Dinuba sandy loam, 0 to 1 percent slopes

Setting

Elevation: 100 to 500 feet
Mean annual precipitation: 12 to 12 inches
Mean annual air temperature: 63 to 63 degrees F
Frost-free period: 250 to 250 days

Composition

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

Description of Dinuba

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and Qualities

Slope: 0 to 1 percent
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low or moderately high (0.06 to 0.20 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Available water capacity: Moderate (about 7.2 inches)

Interpretive Groups

Land capability classification (irrigated): 2w
Land capability (non irrigated): 4s

Typical Profile

0 to 10 inches: sandy loam
10 to 30 inches: sandy loam
30 to 60 inches: very fine sand, silt loam

Minor Components

Hilmar soils

Percent of map unit: 5 percent

Hanford soils

Percent of map unit: 5 percent

Fresno soils

Percent of map unit: 5 percent

Taxonomic Classification of the Soils

Eastern Stanislaus Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Dinuba	Coarse-loamy, mixed, active, thermic Typic Haploxeralfs

Engineering Properties

Eastern Stanislaus Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
DrA:												
Dinuba	0-10	Sandy loam	SM	A-4	0	0	100	95-100	70-82	35-45	19-28	3-10
	10-30	Fine sandy loam, Sandy loam	SM	A-4	0	0	100	95-100	69-81	33-43	20-30	6-12
	30-60	Very fine sand, silt loam	ML, SM	A-4	0	0	100	96-100	91-100	74-85	20-29	6-12
Fresno	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---
Hilmar	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Eastern Stanislaus Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
DrA:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Dinuba	0-10	---	---	7-15	1.50-1.60	14.00-42.00	0.10-0.13	0.5-1.3	0.5-1.0	.20	.20	5	3	86
	10-30	---	---	10-18	1.50-1.60	14.00-42.00	0.10-0.13	0.7-1.5	0.0-0.5	.24	.24			
	30-60	---	---	10-18	1.70-1.80	0.42-1.40	0.10-0.13	0.7-1.5	0.0	.64	.64			
Fresno	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hilmar	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Eastern Stanislaus Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
DrA:		In	In		In	In			
Dinuba	---	---	---	---	---	---	None	High	Moderate
Fresno	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---
Hilmar	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Eastern Stanislaus Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
DrA:								
Dinuba	0-10	3.8-8.1	---	6.6-7.8	0	0	0.0	0
	10-30	5.1-9.6	---	6.6-7.8	0	0	0.0	0
	30-60	5.1-9.1	---	7.9-8.4	0	0	0.0-4.0	0
Fresno	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---
Hilmar	---	---	---	---	---	---	---	---

Water Features

Eastern Stanislaus Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
DrA: Dinuba	C	Medium	Jan-Dec			---	---	None	---	None
Fresno	---	---	Jan-Dec			---	---	None	---	None
Hanford	---	---	Jan-Dec			---	---	None	---	None
Hilmar	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Eastern Stanislaus Area, California

DxA Dinuba sandy loam, moderately saline-alkali, 0 to 1 percent slopes

Setting

Elevation: 100 to 500 feet
Mean annual precipitation: 12 to 12 inches
Mean annual air temperature: 63 to 63 degrees F
Frost-free period: 250 to 250 days

Composition

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

Description of Dinuba

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and Qualities

Slope: 0 to 1 percent
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low or moderately high (0.06 to 0.20 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Salinity maximum: Slightly saline or moderately saline (8.0 to 16.0 mmhos/cm)
Sodium adsorption ratio maximum: 5.0
Available water capacity: Low (about 5.4 inches)

Interpretive Groups

Land capability classification (irrigated): 4s
Land capability (non irrigated): 4s

Typical Profile

0 to 10 inches: sandy loam
10 to 30 inches: sandy loam
30 to 60 inches: very fine sand, silt loam

Minor Components

Hilmar soils

Percent of map unit: 5 percent

Hanford soils

Percent of map unit: 5 percent

Fresno soils

Percent of map unit: 5 percent

Taxonomic Classification of the Soils

Eastern Stanislaus Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Dinuba	Coarse-loamy, mixed, active, thermic Typic Haploxeralfs

Engineering Properties

Eastern Stanislaus Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
DxA:												
Dinuba	0-10	Sandy loam	SM	A-4	0	0	100	95-100	70-82	35-45	19-28	3-10
	10-30	Fine sandy loam, Sandy loam	SM	A-4	0	0	100	95-100	69-81	33-43	20-30	6-12
	30-60	Very fine sand, silt loam	ML, SM	A-4	0	0	100	96-100	91-100	74-85	20-29	6-12
Fresno	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---
Hilmar	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Eastern Stanislaus Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
DxA:														
Dinuba	0-10	---	---	7-15	1.45-1.55	4.00-14.00	0.07-0.11	0.5-1.3	0.5-1.0	.24	.24	5	3	86
	10-30	---	---	10-18	1.45-1.55	4.00-14.00	0.07-0.11	0.7-1.5	0.0-0.5	.24	.24			
	30-60	---	---	10-18	1.70-1.80	0.42-1.40	0.07-0.11	0.7-1.5	0.0	.64	.64			
Fresno	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hilmar	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Eastern Stanislaus Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
DxA:		In	In		In	In			
Dinuba	---	---	---	---	---	---	None	High	High
Fresno	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---
Hilmar	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Eastern Stanislaus Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
DxA:								
Dinuba	0-10	3.8-8.1	---	7.4-8.4	0	0	8.0-16.0	0
	10-30	5.1-9.6	---	7.4-8.4	0	0	8.0-16.0	0-5
	30-60	5.1-9.1	---	7.4-9.0	0	0	8.0-16.0	0-5
Fresno	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---
Hilmar	---	---	---	---	---	---	---	---

Water Features

Eastern Stanislaus Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
DxA:										
Dinuba	C	Medium	Jan-Dec			---	---	None	---	None
Fresno	---	---	Jan-Dec			---	---	None	---	None
Hanford	---	---	Jan-Dec			---	---	None	---	None
Hilmar	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Eastern Stanislaus Area, California

DwA Dinuba sandy loam, slightly saline-alkali, 0 to 1 percent slopes

Setting

Elevation: 100 to 500 feet
Mean annual precipitation: 12 to 12 inches
Mean annual air temperature: 63 to 63 degrees F
Frost-free period: 250 to 250 days

Composition

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

Description of Dinuba

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and Qualities

Slope: 0 to 1 percent
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low or moderately high (0.06 to 0.20 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Salinity maximum: Very slightly saline or slightly saline (4.0 to 8.0 mmhos/cm)
Sodium adsorption ratio maximum: 5.0
Available water capacity: Low (about 5.4 inches)

Interpretive Groups

Land capability classification (irrigated): 2w
Land capability (non irrigated): 4s

Typical Profile

0 to 10 inches: sandy loam
10 to 30 inches: sandy loam
30 to 60 inches: very fine sand, silt loam

Minor Components

Hilmar soils

Percent of map unit: 5 percent

Hanford soils

Percent of map unit: 5 percent

Fresno soils

Percent of map unit: 5 percent

Taxonomic Classification of the Soils

Eastern Stanislaus Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Dinuba	Coarse-loamy, mixed, active, thermic Typic Haploxeralfs

Engineering Properties

Eastern Stanislaus Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
DwA:												
Dinuba	0-10	Sandy loam	SM	A-4	0	0	100	95-100	70-82	35-45	19-28	3-10
	10-30	Fine sandy loam, Sandy loam	SM	A-4	0	0	100	95-100	69-81	33-43	20-30	6-12
	30-60	Very fine sand, silt loam	ML, SM	A-4	0	0	100	96-100	91-100	74-85	20-29	6-12
Fresno	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---
Hilmar	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Eastern Stanislaus Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
DwA:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Dinuba	0-10	---	---	7-15	1.45-1.55	4.00-14.00	0.07-0.11	0.5-1.3	0.5-1.0	.24	.24	5	3	86
	10-30	---	---	10-18	1.45-1.55	4.00-14.00	0.07-0.11	0.7-1.5	0.0-0.5	.24	.24			
	30-60	---	---	10-18	1.70-1.80	0.42-1.40	0.07-0.11	0.7-1.5	0.0	.64	.64			
Fresno	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hilmar	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Eastern Stanislaus Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
DwA:		In	In		In	In			
Dinuba	---	---	---	---	---	---	None	High	Moderate
Fresno	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---
Hilmar	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Eastern Stanislaus Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
DwA:								
Dinuba	0-10	3.8-8.1	---	7.4-8.4	0	0	4.0-8.0	0
	10-30	5.1-9.6	---	7.4-8.4	0	0	4.0-8.0	0-5
	30-60	5.1-9.1	---	7.4-9.0	0	0	4.0-8.0	0-5
Fresno	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---
Hilmar	---	---	---	---	---	---	---	---

Water Features

Eastern Stanislaus Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
DwA:										
Dinuba	C	Medium	Jan-Dec			---	---	None	---	None
Fresno	---	---	Jan-Dec			---	---	None	---	None
Hanford	---	---	Jan-Dec			---	---	None	---	None
Hilmar	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Eastern Stanislaus Area, California

FrA Fresno fine sandy loam, moderately saline-alkali, 0 to 1 percent slopes

Setting

Landscape: Alluvial plains
Elevation: 0 to 250 feet
Mean annual precipitation: 8 to 8 inches
Mean annual air temperature: 63 to 63 degrees F
Frost-free period: 250 to 250 days

Composition

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

Description of Fresno

Setting

Landform: Fan remnants
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and Qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 38 to 40 inches to Duripan
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 5 percent
Gypsum maximum: 0 percent
Salinity maximum: Very slightly saline or moderately saline (4.0 to 16.0 mmhos/cm)
Sodium adsorption ratio maximum: 20.0
Available water capacity: Low (about 3.7 inches)

Interpretive Groups

Land capability classification (irrigated): 4s
Land capability (non irrigated): 6s

Typical Profile

0 to 5 inches: fine sandy loam
5 to 18 inches: sandy clay loam
18 to 38 inches: silt loam
38 to 40 inches: cemented
40 to 60 inches: sandy loam, loam

Minor Components

Unnamed

Percent of map unit: 10 percent
Landform: Depressions

Traver soils

Percent of map unit: 5 percent

Taxonomic Classification of the Soils

Eastern Stanislaus Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Fresno	Fine-loamy, mixed, thermic Natric Durixeralfs

Engineering Properties

Eastern Stanislaus Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
FrA:												
Fresno	0-5	Fine sandy loam	SM	A-4	0	0	100	95-100	83-98	34-46	21-33	6-13
	5-18	Loam, Sandy clay loam	CL, SC	A-6	0	0	100	95-100	75-94	41-59	31-46	13-25
	18-38	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	88-98	76-85	29-36	13-17
	38-40	Cemented	---	---	---	---	---	---	---	---	---	---
	40-60	Sandy loam, loam	ML, SM	A-4	0	0	100	95-100	82-100	46-64	20-35	6-17
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---
Traver	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Eastern Stanislaus Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
FrA:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Fresno	0-5	---	---	10-20	1.45-1.55	4.00-14.00	0.08-0.10	0.7-1.6	0.5-1.0	.32	.32	2	3	86
	5-18	---	---	20-35	1.35-1.50	0.01-0.42	0.09-0.12	1.6-4.1	0.0-0.5	.28	.28			
	18-38	---	---	20-25	1.45-1.55	0.42-1.40	0.08-0.10	1.6-2.6	0.0-0.5	.49	.49			
	38-40	---	---	---	---	0.00-0.01	0.00	---	---	---	---			
	40-60	---	---	10-25	1.45-1.65	1.40-4.00	0.08-0.12	1.0-2.6	0.0	.37	.37			
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Traver	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Eastern Stanislaus Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
FrA:		In	In		In	In			
Fresno	Duripan	38-40	0-3	Strongly cemented	---	---	None	High	High
Unnamed	---	---	---	---	---	---	---	---	---
Traver	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Eastern Stanislaus Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
FrA:								
Fresno	0-5	8.6-17	---	7.8-9.6	0-5	0	4.0-8.0	0-5
	5-18	14-27	---	7.8-9.6	0-5	0	4.0-8.0	10-20
	18-38	14-20	---	7.8-9.6	0-5	0	4.0-8.0	10-20
	38-40	---	---	---	---	---	---	---
	40-60	7.6-17	---	7.8-9.6	0-5	0	4.0-16.0	0-5
Unnamed	---	---	---	---	---	---	---	---
Traver	---	---	---	---	---	---	---	---

Water Features

Eastern Stanislaus Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
FrA:										
Fresno	D	Very high	January	---	---	---	---	None	Brief	Rare
			February	---	---	---	---	None	Brief	Rare
			March	---	---	---	---	None	Brief	Rare
			April	---	---	---	---	None	Brief	Rare
			May	---	---	---	---	None	Brief	Rare
			June	---	---	---	---	None	Brief	Rare
			July	---	---	---	---	None	Brief	Rare
			August	---	---	---	---	None	Brief	Rare
			September	---	---	---	---	None	Brief	Rare
			October	---	---	---	---	None	Brief	Rare
			November	---	---	---	---	None	Brief	Rare
			December	---	---	---	---	None	Brief	Rare
Unnamed	---	---	Jan-Dec			---	---	None	---	None
Traver	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Eastern Stanislaus Area, California

HdA Hanford sandy loam, 0 to 3 percent slopes

Setting

Elevation: 150 to 900 feet
Mean annual precipitation: 10 to 20 inches
Mean annual air temperature: 63 to 63 degrees F
Frost-free period: 250 to 280 days

Composition

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

Description of Hanford

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous rock

Properties and Qualities

Slope: 0 to 3 percent
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Available water capacity: Moderate (about 8.1 inches)

Interpretive Groups

Land capability classification (irrigated): 1
Land capability (non irrigated): 4c

Typical Profile

0 to 12 inches: sandy loam
12 to 60 inches: sandy loam

Minor Components

Tujunga soils

Percent of map unit: 5 percent

Grangeville soils

Percent of map unit: 5 percent

Dinuba soils

Percent of map unit: 5 percent

Taxonomic Classification of the Soils

Eastern Stanislaus Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Hanford	Coarse-loamy, mixed, superactive, nonacid, thermic Typic Xerorthents

Engineering Properties

Eastern Stanislaus Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
HdA:												
Hanford	0-12	Sandy loam	SM	A-4	0	0	95-100	86-100	61-82	28-44	19-31	3-12
	12-60	Fine sandy loam, Sandy loam	SM	A-4	0	0	95-100	86-100	61-82	28-44	18-30	3-12
Dinuba	---	---	---	---	---	---	---	---	---	---	---	---
Grangeville	---	---	---	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Eastern Stanislaus Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
HdA:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Hanford	0-12	---	---	7-18	1.50-1.60	14.00-42.00	0.11-0.13	0.5-1.5	0.5-1.0	.17	.17	5	3	86
	12-60	---	---	7-18	1.50-1.60	14.00-42.00	0.12-0.15	0.5-1.5	0.0-0.5	.24	.24			
Dinuba	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Grangeville	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Eastern Stanislaus Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
HdA:		In	In		In	In			
Hanford	---	---	---	---	---	---	None	Low	Low
Dinuba	---	---	---	---	---	---	---	---	---
Grangeville	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Eastern Stanislaus Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
HdA:								
Hanford	0-12	6.3-15	---	6.1-7.8	0	0	0.0	0
	12-60	5.5-15	---	6.1-7.8	0	0	0.0	0
Dinuba	---	---	---	---	---	---	---	---
Grangeville	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---

Water Features

Eastern Stanislaus Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
HdA:										
Hanford	A	Very low	Jan-Dec			---	---	None	---	None
Dinuba	---	---	Jan-Dec			---	---	None	---	None
Grangeville	---	---	Jan-Dec			---	---	None	---	None
Tujunga	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Eastern Stanislaus Area, California

HdpA Hanford sandy loam, moderately deep over silt, 0 to 1 percent slopes

Setting

Elevation: 900 to 900 feet
Mean annual precipitation: 12 to 12 inches
Mean annual air temperature: 63 to 63 degrees F
Frost-free period: 250 to 280 days

Composition

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

Description of Hanford

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous rock

Properties and Qualities

Slope: 0 to 1 percent
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Available water capacity: Moderate (about 8.9 inches)

Interpretive Groups

Land capability classification (irrigated): 2s
Land capability (non irrigated): 4s

Typical Profile

0 to 12 inches: sandy loam
12 to 36 inches: sandy loam
36 to 60 inches: silt loam

Minor Components

Tujunga soils

Percent of map unit: 5 percent

Grangeville soils

Percent of map unit: 5 percent

Dinuba soils

Percent of map unit: 5 percent

Taxonomic Classification of the Soils

Eastern Stanislaus Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Hanford	Coarse-loamy, mixed, superactive, nonacid, thermic Typic Xerorthents

Engineering Properties

Eastern Stanislaus Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
HdpA:												
Hanford	0-12	Sandy loam	SM	A-4	0	0	87-100	66-100	47-82	22-44	19-31	3-12
	12-36	Fine sandy loam, Sandy loam	SM	A-4	0	0	87-100	66-100	47-82	22-44	18-30	3-12
	36-60	Silt loam, Very fine sandy loam	CL-ML, ML	A-4	0	0	100	100	91-100	79-89	29-40	13-21
Dinuba	---	---	---	---	---	---	---	---	---	---	---	---
Grangeville	---	---	---	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Eastern Stanislaus Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
HdpA:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Hanford	0-12	---	---	7-18	1.50-1.60	14.00-42.00	0.11-0.13	0.4-1.5	0.5-1.0	.17	.17	5	3	86
	12-36	---	---	7-18	1.50-1.60	14.00-42.00	0.12-0.15	0.4-1.5	0.0-0.5	.24	.24			
	36-60	---	---	20-30	1.45-1.55	1.40-4.00	0.15-0.18	1.6-3.0	0.0-0.5	.49	.49			
Dinuba	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Grangeville	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Eastern Stanislaus Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
HdpA:		In	In		In	In			
Hanford	---	---	---	---	---	---	None	Low	Low
Dinuba	---	---	---	---	---	---	---	---	---
Grangeville	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Eastern Stanislaus Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
HdpA:								
Hanford	0-12	6.3-15	---	6.1-7.8	0	0	0.0	0
	12-36	5.5-15	---	6.1-7.8	0	0	0.0	0
	36-60	14-23	---	6.1-7.8	0	0	0.0	0
Dinuba	---	---	---	---	---	---	---	---
Grangeville	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---

Water Features

Eastern Stanislaus Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
HdpA:										
Hanford	C	Low	Jan-Dec			---	---	None	---	None
Dinuba	---	---	Jan-Dec			---	---	None	---	None
Grangeville	---	---	Jan-Dec			---	---	None	---	None
Tujunga	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Eastern Stanislaus Area, California

OaA Oakdale sandy loam, 0 to 3 percent slopes

Setting

Elevation: 50 to 150 feet
Mean annual precipitation: 10 to 15 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 250 to 300 days

Composition

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

Description of Oakdale

Setting

Landform: Fan remnants
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and Qualities

Slope: 0 to 3 percent
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Available water capacity: Moderate (about 7.3 inches)

Interpretive Groups

Land capability classification (irrigated): 1
Land capability (non irrigated): 4c

Typical Profile

0 to 25 inches: sandy loam
25 to 45 inches: sandy loam
45 to 60 inches: loamy sand

Minor Components

Tujunga soils

Percent of map unit: 5 percent

Hanford soils

Percent of map unit: 5 percent

Dinuba soils

Percent of map unit: 5 percent

Taxonomic Classification of the Soils

Eastern Stanislaus Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Oakdale	Coarse-loamy, mixed, active, thermic Mollic Haploxeralfs

Engineering Properties

Eastern Stanislaus Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
OaA:												
Oakdale	0-25	Sandy loam	SM	A-2, A-4	0	0	95-100	86-100	62-82	30-45	17-31	2-10
	25-45	Sandy clay loam, Sandy loam	SC-SM	A-4	0	0	95-100	86-100	65-79	34-43	24-30	9-12
	45-60	Loamy sand, Sandy loam	SM	A-1, A-2	0	0	95-100	81-100	61-86	17-31	16-27	2-10
Dinuba	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Eastern Stanislaus Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
OaA:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Oakdale	0-25	---	---	5-15	1.50-1.60	14.00-42.00	0.11-0.13	0.4-1.7	0.5-2.0	.24	.24	5	3	86
	25-45	---	---	15-18	1.50-1.60	14.00-42.00	0.12-0.15	0.8-1.5	0.0-0.5	.20	.20			
	45-60	---	---	5-15	1.50-1.60	14.00-42.00	0.08-0.11	0.4-1.3	0.0-0.5	.17	.17			
Dinuba	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Eastern Stanislaus Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
OaA:		In	In		In	In			
Oakdale	---	---	---	---	---	---	None	Low	Low
Dinuba	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---

Water Features

Eastern Stanislaus Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
OaA:										
Oakdale	A	Very low	Jan-Dec			---	---	None	---	None
Dinuba	---	---	Jan-Dec			---	---	None	---	None
Hanford	---	---	Jan-Dec			---	---	None	---	None
Tujunga	---	---	Jan-Dec			---	---	None	---	None

Chemical Soil Properties

Eastern Stanislaus Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
OaA:								
Oakdale	0-25	2.7-8.2	---	6.1-7.3	0	0	0.0	0
	25-45	7.6-9.6	---	6.1-7.3	0	0	0.0	0
	45-60	2.6-8.0	---	6.1-7.3	0	0	0.0	0
Dinuba	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---

Map Unit Description

Eastern Stanislaus Area, California

TuA Tujunga loamy sand, 0 to 3 percent slopes

Setting

Elevation: 10 to 2500 feet
Mean annual precipitation: 10 to 25 inches
Mean annual air temperature: 59 to 64 degrees F
Frost-free period: 280 to 350 days

Composition

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

Description of Tujunga

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy alluvium derived from granite

Properties and Qualities

Slope: 0 to 3 percent
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High or very high (5.95 to 19.98 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Available water capacity: Low (about 4.3 inches)

Interpretive Groups

Land capability classification (irrigated): 3e
Land capability (non irrigated): 6e

Typical Profile

0 to 10 inches: loamy sand
10 to 60 inches: loamy sand

Minor Components

Hanford soils

Percent of map unit: 5 percent

Grangeville soils

Percent of map unit: 5 percent

Foster soils

Percent of map unit: 5 percent

Taxonomic Classification of the Soils

Eastern Stanislaus Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Tujunga	TYPIC XEROPSAMMENTS, MIXED, THERMIC

Engineering Properties

Eastern Stanislaus Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
TuA:												
Tujunga	0-10	Loamy sand	SM, SP-SM, SW-SM	A-1, A-2, A-3	0	0-4	91-100	71-100	53-81	18-31	0-20	NP-2
	10-60	Fine sand, Loamy sand, Sand	SM, SP-SM, SW-SM	A-1, A-2, A-3	0	0-4	91-100	71-100	53-81	18-31	0-19	NP-2
Foster	---	---	---	---	---	---	---	---	---	---	---	---
Grangeville	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Eastern Stanislaus Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
TuA:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Tujunga	0-10	---	---	0-5	1.60-1.70	42.00-141.00	0.05-0.10	0.0-0.5	0.5-1.0	.15	.15	5	2	134
	10-60	---	---	0-5	1.60-1.70	42.00-141.00	0.05-0.08	0.0-0.5	0.0-0.5	.15	.15			
Foster	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Grangeville	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Eastern Stanislaus Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
TuA:		In	In		In	In			
Tujunga	---	---	---	---	---	---	None	Low	Low
Foster	---	---	---	---	---	---	---	---	---
Grangeville	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Eastern Stanislaus Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
TuA:								
Tujunga	0-10	0.1-4.2	---	6.1-7.3	0	0	0.0	0
	10-60	0.1-4.0	---	6.1-7.8	0	0	0.0	0
Foster	---	---	---	---	---	---	---	---
Grangeville	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---

Water Features

Eastern Stanislaus Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
TuA:										
Tujunga	A	Negligible	Jan-Dec			---	---	None	---	None
Foster	---	---	Jan-Dec			---	---	None	---	None
Grangeville	---	---	Jan-Dec			---	---	None	---	None
Hanford	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Eastern Stanislaus Area, California

WbA Waukena fine sandy loam, moderately saline-alkali, 0 to 1 percent slopes

Setting

Elevation: 1500 to 3800 feet
Mean annual precipitation: 50 to 50 inches
Mean annual air temperature: 55 to 55 degrees F
Frost-free period: 225 to 275 days

Composition

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

Description of Waukena

Setting

Landform: Basin-floor remnants
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and Qualities

Slope: 0 to 1 percent
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low or moderately high (0.06 to 0.20 in/hr)
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 5 percent
Gypsum maximum: 0 percent
Salinity maximum: Slightly saline or strongly saline (8.0 to 18.0 mmhos/cm)
Sodium adsorption ratio maximum: 20.0
Available water capacity: Low (about 5.4 inches)

Interpretive Groups

Land capability classification (irrigated): 4s
Land capability (non irrigated): 6s

Typical Profile

0 to 6 inches: fine sandy loam
6 to 60 inches: sandy loam

Minor Components

Unnamed

Percent of map unit: 5 percent
Landform: Depressions

Rossi soils

Percent of map unit: 5 percent

Fresno soils

Percent of map unit: 5 percent

Taxonomic Classification of the Soils

Eastern Stanislaus Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Waukena	Fine, serpentinitic, superactive, mesic Pachic Ultic Argixerolls

Engineering Properties

Eastern Stanislaus Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
WbA:												
Waukena	0-6	Fine sandy loam	SM	A-4	0	0	100	95-100	84-97	34-44	25-35	6-12
	6-60	Fine sandy loam, Sandy loam	SM	A-4	0	0	100	95-100	69-81	33-43	20-30	6-12
Fresno	---	---	---	---	---	---	---	---	---	---	---	---
Rossi	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Eastern Stanislaus Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
WbA:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Waukena	0-6	---	---	10-18	1.50-1.60	1.40-4.00	0.08-0.10	0.7-1.9	2.0-3.0	.28	.28	2	3	86
	6-60	---	---	10-18	1.50-1.60	0.42-1.40	0.08-0.10	0.7-1.5	0.0-0.5	.32	.32			
Fresno	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Rossi	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Eastern Stanislaus Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
WbA:		In	In		In	In			
Waukena	---	---	---	---	---	---	None	High	High
Fresno	---	---	---	---	---	---	---	---	---
Rossi	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Eastern Stanislaus Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
WbA:								
Waukena	0-6	10-17	---	7.8-7.9	0	0	8.0-16.0	0-5
	6-60	7.2-12	---	7.9-9.0	1-5	0	8.0-18.0	15-20
Fresno	---	---	---	---	---	---	---	---
Rossi	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---

Water Features

Eastern Stanislaus Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
WbA:										
Waukena	C	High	January	---	---	---	---	None	Brief	Rare
			February	---	---	---	---	None	Brief	Rare
			March	---	---	---	---	None	Brief	Rare
			April	---	---	---	---	None	Brief	Rare
			May	---	---	---	---	None	Brief	Rare
			June	---	---	---	---	None	Brief	Rare
			July	---	---	---	---	None	Brief	Rare
			August	---	---	---	---	None	Brief	Rare
			September	---	---	---	---	None	Brief	Rare
			October	---	---	---	---	None	Brief	Rare
			November	---	---	---	---	None	Brief	Rare
			December	---	---	---	---	None	Brief	Rare
Fresno	---	---	Jan-Dec			---	---	None	---	None
Rossi	---	---	Jan-Dec			---	---	None	---	None
Unnamed	---	---	Jan-Dec			---	---	None	---	None

Madera Area | CA651

Map Unit Description

Madera Area, California

CebA Chino clay loam, moderately saline-alkali, 0 to 1 percent slope

Setting

Elevation: 3100 to 3100 feet
Mean annual precipitation: 8 to 20 inches
Mean annual air temperature: 61 to 64 degrees F
Frost-free period: 230 to 340 days

Composition

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

Description of Chino

Setting

Landform: Basin floors
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and Qualities

Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 10 percent
Gypsum maximum: 0 percent
Salinity maximum: Slightly saline or moderately saline (8.0 to 16.0 mmhos/cm)
Sodium adsorption ratio maximum: 10.0
Available water capacity: Moderate (about 7.8 inches)

Interpretive Groups

Land capability classification (irrigated): 3s
Land capability (non irrigated): 4s

Typical Profile

0 to 4 inches: clay loam
4 to 60 inches: silty clay loam

Minor Components

Hanford

Percent of map unit: 5 percent

Foster

Percent of map unit: 5 percent
Landform: Flood plains

Rossi

Percent of map unit: 2 percent
Landform: Basin floors

Temple

Percent of map unit: 2 percent
Landform: Basin floors

Visalia

Percent of map unit: 1 percent

Taxonomic Classification of the Soils

Madera Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Chino	Fine-loamy, mixed, superactive, thermic Aquic Haploxerolls

Engineering Properties

Madera Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
CebA:												
Chino	0-4	Clay loam	CL	A-6	0	0	100	100	90-100	70-85	30-40	10-20
	4-60	Clay loam, Silty clay loam, Silt loam	CL	A-6, A-7	0	0	100	100	85-100	60-85	30-50	10-25
Foster	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---
Rossi	---	---	---	---	---	---	---	---	---	---	---	---
Temple	---	---	---	---	---	---	---	---	---	---	---	---
Visalia	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Madera Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
CebA:														
Chino	0-4	---	---	27-35	1.35-1.45	1.40-4.00	0.11-0.15	3.0-5.9	1.0-3.0	.37	.37	5	6	48
	4-60	---	---	18-35	1.35-1.50	1.40-4.00	0.11-0.15	3.0-5.9	0.5-1.0	.37	.37			
Foster	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Rossi	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Temple	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Visalia	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Madera Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
CebA:		In	In		In	In			
Chino	---	---	---	---	---	---	None	High	Low
Foster	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---
Rossi	---	---	---	---	---	---	---	---	---
Temple	---	---	---	---	---	---	---	---	---
Visalia	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Madera Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
CebA:								
Chino	0-4	20-25	---	7.4-8.4	0-10	0	8.0-16.0	5-10
	4-60	15-20	---	7.9-8.4	5-10	0	8.0-16.0	5-10
Foster	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---
Rossi	---	---	---	---	---	---	---	---
Temple	---	---	---	---	---	---	---	---
Visalia	---	---	---	---	---	---	---	---

Water Features

Madera Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
CebA:										
Chino	B	Medium	January	---	---	---	---	None	Very brief	Rare
			February	---	---	---	---	None	Very brief	Rare
			March	---	---	---	---	None	Very brief	Rare
			April	---	---	---	---	None	Very brief	Rare
			May	---	---	---	---	None	Very brief	Rare
			June	---	---	---	---	None	Very brief	Rare
			July	---	---	---	---	None	Very brief	Rare
			August	---	---	---	---	None	Very brief	Rare
			September	---	---	---	---	None	Very brief	Rare
			October	---	---	---	---	None	Very brief	Rare
			November	---	---	---	---	None	Very brief	Rare
			December	---	---	---	---	None	Very brief	Rare
Foster	---	---	Jan-Dec			---	---	None	---	None
Hanford	---	---	Jan-Dec			---	---	None	---	None
Rossi	---	---	Jan-Dec			---	---	None	---	None
Temple	---	---	Jan-Dec			---	---	None	---	None
Visalia	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Madera Area, California

CeaA Chino clay loam, slightly saline-alkali, 0 to 1 percent slopes

Setting

Elevation: 20 to 3100 feet
Mean annual precipitation: 8 to 20 inches
Mean annual air temperature: 61 to 64 degrees F
Frost-free period: 230 to 340 days

Composition

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

Description of Chino

Setting

Landform: Basin floors
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and Qualities

Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 10 percent
Gypsum maximum: 0 percent
Salinity maximum: Very slightly saline or slightly saline (4.0 to 8.0 mmhos/cm)
Sodium adsorption ratio maximum: 5.0
Available water capacity: High (about 10.3 inches)

Interpretive Groups

Land capability classification (irrigated): 2s
Land capability (non irrigated): 4s

Typical Profile

0 to 4 inches: clay loam
4 to 60 inches: silty clay loam

Minor Components

Hanford

Percent of map unit: 10 percent

Visalia

Percent of map unit: 5 percent

Taxonomic Classification of the Soils

Madera Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Chino	Fine-loamy, mixed, superactive, thermic Aquic Haploxerolls

Engineering Properties

Madera Area, California

Absence of an entry indicates that the data were not estimated. The asterisk "*" denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
CeaA:												
Chino	0-4	Clay loam	CL	A-6	0	0	100	100	90-100	70-85	30-40	10-20
	4-60	Clay loam, Silty clay loam, Silt loam	CL	A-6, A-7	0	0	100	100	85-100	60-85	30-50	10-25
Hanford	---	---	---	---	---	---	---	---	---	---	---	---
Visalia	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Madera Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
CeaA:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Chino	0-4	---	---	27-35	1.35-1.45	1.40-4.00	0.17-0.20	3.0-5.9	1.0-3.0	.37	.37	5	6	48
	4-60	---	---	18-35	1.35-1.50	1.40-4.00	0.15-0.19	3.0-5.9	0.5-1.0	.37	.37			
Hanford	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Visalia	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Madera Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
CeaA:		In	In		In	In			
Chino	---	---	---	---	---	---	None	High	Low
Hanford	---	---	---	---	---	---	---	---	---
Visalia	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Madera Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
CeaA:								
Chino	0-4	20-25	---	6.6-8.4	0-10	0	4.0-8.0	0-5
	4-60	15-20	---	7.9-8.4	5-10	0	4.0-8.0	0-5
Hanford	---	---	---	---	---	---	---	---
Visalia	---	---	---	---	---	---	---	---

Water Features

Madera Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
CeaA:										
Chino	B	Medium	January	---	---	---	---	None	Very brief	Rare
			February	---	---	---	---	None	Very brief	Rare
			March	---	---	---	---	None	Very brief	Rare
			April	---	---	---	---	None	Very brief	Rare
			May	---	---	---	---	None	Very brief	Rare
			June	---	---	---	---	None	Very brief	Rare
			July	---	---	---	---	None	Very brief	Rare
			August	---	---	---	---	None	Very brief	Rare
			September	---	---	---	---	None	Very brief	Rare
			October	---	---	---	---	None	Very brief	Rare
			November	---	---	---	---	None	Very brief	Rare
			December	---	---	---	---	None	Very brief	Rare
Hanford	---	---	Jan-Dec			---	---	None	---	None
Visalia	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Madera Area, California

CgaA Chino loam, slightly saline-alkali, 0 to 1 percent slopes

Setting

Elevation: 20 to 3100 feet
Mean annual precipitation: 8 to 20 inches
Mean annual air temperature: 61 to 64 degrees F
Frost-free period: 230 to 340 days

Composition

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

Description of Chino

Setting

Landform: Basin floors
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and Qualities

Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 10 percent
Gypsum maximum: 0 percent
Salinity maximum: Very slightly saline or slightly saline (4.0 to 8.0 mmhos/cm)
Sodium adsorption ratio maximum: 5.0
Available water capacity: High (about 10.2 inches)

Interpretive Groups

Land capability classification (irrigated): 2s
Land capability (non irrigated): 4s

Typical Profile

0 to 4 inches: loam
4 to 60 inches: silty clay loam

Minor Components

Hanford

Percent of map unit: 10 percent

Visalia

Percent of map unit: 5 percent

Taxonomic Classification of the Soils

Madera Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Chino	Fine-loamy, mixed, superactive, thermic Aquic Haploxerolls

Engineering Properties

Madera Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
CgaA:												
Chino	0-4	Loam	CL-ML, ML	A-4	0	0	100	100	85-95	60-85	25-35	5-10
	4-60	Clay loam, Silty clay loam, Silt loam	CL	A-6, A-7	0	0	100	100	85-100	60-85	30-50	10-25
Hanford	---	---	---	---	---	---	---	---	---	---	---	---
Visalia	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Madera Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
CgaA:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Chino	0-4	---	---	18-27	1.40-1.50	4.00-14.00	0.15-0.18	0.0-2.9	1.0-3.0	.43	.43	5	6	48
	4-60	---	---	18-35	1.35-1.50	1.40-4.00	0.15-0.19	3.0-5.9	0.5-1.0	.37	.37			
Hanford	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Visalia	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Madera Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
CgaA:		In	In		In	In			
Chino	---	---	---	---	---	---	None	High	Low
Hanford	---	---	---	---	---	---	---	---	---
Visalia	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Madera Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
CgaA:								
Chino	0-4	15-20	---	6.6-8.4	0-10	0	4.0-8.0	0-5
	4-60	15-20	---	7.9-8.4	5-10	0	4.0-8.0	0-5
Hanford	---	---	---	---	---	---	---	---
Visalia	---	---	---	---	---	---	---	---

Water Features

Madera Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
CgaA:										
Chino	B	Medium	January	---	---	---	---	None	Very brief	Rare
			February	---	---	---	---	None	Very brief	Rare
			March	---	---	---	---	None	Very brief	Rare
			April	---	---	---	---	None	Very brief	Rare
			May	---	---	---	---	None	Very brief	Rare
			June	---	---	---	---	None	Very brief	Rare
			July	---	---	---	---	None	Very brief	Rare
			August	---	---	---	---	None	Very brief	Rare
			September	---	---	---	---	None	Very brief	Rare
			October	---	---	---	---	None	Very brief	Rare
			November	---	---	---	---	None	Very brief	Rare
			December	---	---	---	---	None	Very brief	Rare
Hanford	---	---	Jan-Dec			---	---	None	---	None
Visalia	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Madera Area, California

FeaA Fresno and El Peco fine sandy loams, slightly saline-alkali, 0 to 1 percent slopes

Setting

Landscape: Alluvial plains
Elevation: 0 to 500 feet
Mean annual precipitation: 8 to 8 inches
Mean annual air temperature: 63 to 63 degrees F
Frost-free period: 250 to 250 days

Composition

Fresno and similar soils: 35 percent
El peco and similar soils: 35 percent
Minor components: 30 percent

Description of Fresno

Setting

Landform: Fan remnants
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and Qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 18 to 24 inches to Duripan
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 10 percent
Gypsum maximum: 0 percent
Salinity maximum: Very slightly saline or slightly saline (4.0 to 8.0 mmhos/cm)
Sodium adsorption ratio maximum: 20.0
Available water capacity: Very low (about 1.8 inches)

Interpretive Groups

Land capability classification (irrigated): 4s
Land capability (non irrigated): 6s

Typical Profile

0 to 12 inches: fine sandy loam
12 to 18 inches: sandy clay loam
18 to 24 inches: cemented
24 to 60 inches: stratified sandy loam to loam

Description of El peco

Setting

Landform: Fan remnants
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and Qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 24 to 30 inches to Duripan
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 5 percent
Gypsum maximum: 0 percent
Salinity maximum: Very slightly saline or slightly saline (4.0 to 8.0 mmhos/cm)
Sodium adsorption ratio maximum: 5.0
Available water capacity: Very low (about 1.9 inches)

Map Unit Description

Madera Area, California

Interpretive Groups

Land capability classification (irrigated): 4s

Land capability (non irrigated): 4s

Typical Profile

0 to 15 inches: fine sandy loam

15 to 24 inches: fine sandy loam

24 to 30 inches: cemented

30 to 60 inches: stratified very fine sandy loam to silt loam

Minor Components

Pozo

Percent of map unit: 10 percent

Landform: Basin floors

Pachappa

Percent of map unit: 10 percent

Traver

Percent of map unit: 9 percent

Playas

Percent of map unit: 1 percent

Landform: Playas

Taxonomic Classification of the Soils

Madera Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
El Peco	Coarse-loamy, mixed, superactive, thermic Entic Durochrepts
Fresno	Fine-loamy, mixed, thermic Natric Durixeralfs

Engineering Properties

Madera Area, California

Absence of an entry indicates that the data were not estimated. The asterisk "*" denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
FeaA:												
El Peco	0-15	Fine sandy loam	SM	A-4	0	0	100	95-100	70-85	35-50	20-30	NP-5
	15-24	Fine sandy loam, Sandy loam	SM	A-4	0	0	100	95-100	70-85	35-50	20-30	NP-5
	24-30	Cemented	---	---	---	---	---	---	---	---	---	---
	30-60	Stratified very fine sandy loam to silt loam	ML, SM	A-4	0	0	100	95-100	80-95	40-60	25-35	NP-10
Fresno	0-12	Fine sandy loam	SM	A-4	0	0	100	95-100	60-85	35-50	20-30	NP-5
	12-18	Clay loam, Sandy clay loam	CL, SC	A-6	0	0	100	95-100	85-95	35-65	30-40	10-20
	18-24	Cemented	---	---	---	---	---	---	---	---	---	---
	24-60	Stratified sandy loam to loam	ML, SM	A-4	0	0	100	95-100	60-85	35-60	20-35	NP-10
Pachappa	---	---	---	---	---	---	---	---	---	---	---	---
Pozo	---	---	---	---	---	---	---	---	---	---	---	---
Traver	---	---	---	---	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Madera Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
FeaA:														
El Peco	0-15	---	---	7-18	1.40-1.50	4.00-14.00	0.05-0.10	0.0-2.9	0.5-1.0	.43	.43	3	3	86
	15-24	---	---	7-18	1.40-1.55	4.00-14.00	0.05-0.10	0.0-2.9	0.0-0.5	.43	.43			
	24-30	---	---	---	---	0.00-0.01	0.00	---	---	---	---			
	30-60	---	---	15-25	1.35-1.50	0.42-1.40	0.05-0.10	0.0-2.9	0.0	.43	.43			
Fresno	0-12	---	---	10-20	1.45-1.55	4.00-14.00	0.08-0.10	0.0-2.9	0.5-1.0	.43	.43	2	3	86
	12-18	---	---	20-35	1.35-1.50	0.01-0.42	0.09-0.12	3.0-5.9	0.0-0.5	.43	.43			
	18-24	---	---	---	---	0.00-0.01	0.00	---	---	---	---			
	24-60	---	---	10-25	1.45-1.65	1.40-4.00	0.08-0.12	0.0-2.9	0.0	.43	.43			
Pachappa	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Pozo	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Traver	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Madera Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
FeaA:		In	In		In	In			
El Peco	Duripan	24-30	0-3	Strongly cemented	---	---	None	High	Low
Fresno	Duripan	18-24	0-3	Strongly cemented	---	---	None	High	Moderate
Pachappa	---	---	---	---	---	---	---	---	---
Pozo	---	---	---	---	---	---	---	---	---
Traver	---	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Madera Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
FeaA:								
El Peco	0-15	5.0-10	---	7.8-9.6	0-1	0	4.0-8.0	0-5
	15-24	5.0-10	---	8.4-9.6	1-5	0	4.0-8.0	0-5
	24-30	---	---	---	---	---	---	---
	30-60	10-15	---	8.4-9.6	1-5	0	4.0-8.0	0-5
Fresno	0-12	5.0-15	---	7.8-9.6	1-5	0	4.0-8.0	0-5
	12-18	10-20	---	7.8-9.6	5-10	0	4.0-8.0	10-20
	18-24	---	---	---	---	---	---	---
	24-60	5.0-15	---	7.8-9.6	1-5	0	4.0-8.0	0-5
Pachappa	---	---	---	---	---	---	---	---
Pozo	---	---	---	---	---	---	---	---
Traver	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---

Water Features

Madera Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
FeaA:										
El Peco	C	Medium	January	---	---	---	---	None	Brief	Rare
			February	---	---	---	---	None	Brief	Rare
			March	---	---	---	---	None	Brief	Rare
			April	---	---	---	---	None	Brief	Rare
			May	---	---	---	---	None	Brief	Rare
			June	---	---	---	---	None	Brief	Rare
			July	---	---	---	---	None	Brief	Rare
			August	---	---	---	---	None	Brief	Rare
			September	---	---	---	---	None	Brief	Rare
			October	---	---	---	---	None	Brief	Rare
			November	---	---	---	---	None	Brief	Rare
			December	---	---	---	---	None	Brief	Rare
Fresno	D	Very high	January	---	---	---	---	None	Brief	Rare
			February	---	---	---	---	None	Brief	Rare
			March	---	---	---	---	None	Brief	Rare
			April	---	---	---	---	None	Brief	Rare
			May	---	---	---	---	None	Brief	Rare
			June	---	---	---	---	None	Brief	Rare
			July	---	---	---	---	None	Brief	Rare
			August	---	---	---	---	None	Brief	Rare
			September	---	---	---	---	None	Brief	Rare
			October	---	---	---	---	None	Brief	Rare
			November	---	---	---	---	None	Brief	Rare
			December	---	---	---	---	None	Brief	Rare
Pachappa	---	---	Jan-Dec			---	---	None	---	None
Pozo	---	---	Jan-Dec			---	---	None	---	None

Water Features

Madera Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
FeaA:										
Traver	---	---	Jan-Dec			---	---	None	---	None
Playas	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Madera Area, California

FebA Fresno and El Peco fine sandy loams, moderately saline-alkali, to 1 percent slopes

Setting

Landscape: Alluvial plains
Elevation: 0 to 500 feet
Mean annual precipitation: 8 to 8 inches
Mean annual air temperature: 63 to 63 degrees F
Frost-free period: 250 to 250 days

Composition

Fresno and similar soils: 35 percent
El peco and similar soils: 35 percent
Minor components: 30 percent

Description of Fresno

Setting

Landform: Fan remnants
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and Qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 18 to 24 inches to Duripan
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 10 percent
Gypsum maximum: 0 percent
Salinity maximum: Slightly saline or moderately saline (8.0 to 16.0 mmhos/cm)
Sodium adsorption ratio maximum: 20.0
Available water capacity: Very low (about 1.8 inches)

Interpretive Groups

Land capability classification (irrigated): 4s
Land capability (non irrigated): 6s

Typical Profile

0 to 12 inches: fine sandy loam
12 to 18 inches: sandy clay loam
18 to 24 inches: cemented
24 to 60 inches: stratified sandy loam to loam

Description of El peco

Setting

Landform: Fan remnants
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and Qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 24 to 30 inches to Duripan
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 5 percent
Gypsum maximum: 0 percent
Salinity maximum: Slightly saline or moderately saline (8.0 to 16.0 mmhos/cm)
Sodium adsorption ratio maximum: 10.0
Available water capacity: Very low (about 1.9 inches)

Map Unit Description

Madera Area, California

Interpretive Groups

Land capability classification (irrigated): 4s

Land capability (non irrigated): 4s

Typical Profile

0 to 15 inches: fine sandy loam

15 to 24 inches: fine sandy loam

24 to 30 inches: cemented

30 to 60 inches: stratified very fine sandy loam to silt loam

Minor Components

Pozo

Percent of map unit: 10 percent

Landform: Basin floors

Pachappa

Percent of map unit: 10 percent

Traver

Percent of map unit: 9 percent

Playas

Percent of map unit: 1 percent

Landform: Playas

Taxonomic Classification of the Soils

Madera Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
El Peco	Coarse-loamy, mixed, superactive, thermic Entic Durochrepts
Fresno	Fine-loamy, mixed, thermic Natric Durixeralfs

Engineering Properties

Madera Area, California

Absence of an entry indicates that the data were not estimated. The asterisk "*" denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
FebA:												
El Peco	0-15	Fine sandy loam	SM	A-4	0	0	100	95-100	70-85	35-50	20-30	NP-5
	15-24	Fine sandy loam, Sandy loam	SM	A-4	0	0	100	95-100	70-85	35-50	20-30	NP-5
	24-30	Cemented	---	---	---	---	---	---	---	---	---	---
	30-60	Stratified very fine sandy loam to silt loam	ML, SM	A-4	0	0	100	95-100	80-95	40-60	25-35	NP-10
Fresno	0-12	Fine sandy loam	SM	A-4	0	0	100	95-100	60-85	35-50	20-30	NP-5
	12-18	Clay loam, Sandy clay loam	CL, SC	A-6	0	0	100	95-100	85-95	35-65	30-40	10-20
	18-24	Cemented	---	---	---	---	---	---	---	---	---	---
	24-60	Stratified sandy loam to loam	ML, SM	A-4	0	0	100	95-100	60-85	35-60	20-35	NP-10
Pachappa	---	---	---	---	---	---	---	---	---	---	---	---
Pozo	---	---	---	---	---	---	---	---	---	---	---	---
Traver	---	---	---	---	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Madera Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
FebA:														
El Peco	0-15	---	---	7-18	1.40-1.50	4.00-14.00	0.05-0.10	0.0-2.9	0.5-1.0	.43	.43	3	3	86
	15-24	---	---	7-18	1.40-1.55	4.00-14.00	0.05-0.10	0.0-2.9	0.0-0.5	.43	.43			
	24-30	---	---	---	---	0.00-0.01	0.00	---	---	---	---			
	30-60	---	---	15-25	1.35-1.50	0.42-1.40	0.05-0.10	0.0-2.9	0.0	.43	.43			
Fresno	0-12	---	---	10-20	1.45-1.55	4.00-14.00	0.08-0.10	0.0-2.9	0.5-1.0	.43	.43	2	3	86
	12-18	---	---	20-35	1.35-1.50	0.01-0.42	0.09-0.12	3.0-5.9	0.0-0.5	.43	.43			
	18-24	---	---	---	---	0.00-0.01	0.00	---	---	---	---			
	24-60	---	---	10-25	1.45-1.65	1.40-4.00	0.08-0.12	0.0-2.9	0.0	.43	.43			
Pachappa	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Pozo	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Traver	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Madera Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
FebA:		In	In		In	In			
El Peco	Duripan	24-30	0-3	Strongly cemented	---	---	None	High	Low
Fresno	Duripan	18-24	0-3	Strongly cemented	---	---	None	High	Moderate
Pachappa	---	---	---	---	---	---	---	---	---
Pozo	---	---	---	---	---	---	---	---	---
Traver	---	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Madera Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
FebA:								
El Peco	0-15	5.0-10	---	7.8-9.6	0-1	0	8.0-16.0	5-10
	15-24	5.0-10	---	8.4-9.6	1-5	0	8.0-16.0	5-10
	24-30	---	---	---	---	---	---	---
	30-60	10-15	---	8.4-9.6	1-5	0	8.0-16.0	0-5
Fresno	0-12	5.0-15	---	7.8-9.6	1-5	0	8.0-16.0	5-10
	12-18	10-20	---	7.8-9.6	5-10	0	8.0-16.0	10-20
	18-24	---	---	---	---	---	---	---
	24-60	5.0-15	---	7.8-9.6	1-5	0	8.0-16.0	0-5
Pachappa	---	---	---	---	---	---	---	---
Pozo	---	---	---	---	---	---	---	---
Traver	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---

Water Features

Madera Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
FebA:										
El Peco	C	Medium	January	---	---	---	---	None	Brief	Rare
			February	---	---	---	---	None	Brief	Rare
			March	---	---	---	---	None	Brief	Rare
			April	---	---	---	---	None	Brief	Rare
			May	---	---	---	---	None	Brief	Rare
			June	---	---	---	---	None	Brief	Rare
			July	---	---	---	---	None	Brief	Rare
			August	---	---	---	---	None	Brief	Rare
			September	---	---	---	---	None	Brief	Rare
			October	---	---	---	---	None	Brief	Rare
			November	---	---	---	---	None	Brief	Rare
			December	---	---	---	---	None	Brief	Rare
Fresno	D	Very high	January	---	---	---	---	None	Brief	Rare
			February	---	---	---	---	None	Brief	Rare
			March	---	---	---	---	None	Brief	Rare
			April	---	---	---	---	None	Brief	Rare
			May	---	---	---	---	None	Brief	Rare
			June	---	---	---	---	None	Brief	Rare
			July	---	---	---	---	None	Brief	Rare
			August	---	---	---	---	None	Brief	Rare
			September	---	---	---	---	None	Brief	Rare
			October	---	---	---	---	None	Brief	Rare
			November	---	---	---	---	None	Brief	Rare
			December	---	---	---	---	None	Brief	Rare
Pachappa	---	---	Jan-Dec			---	---	None	---	None
Pozo	---	---	Jan-Dec			---	---	None	---	None

Water Features

Madera Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
FebA:										
Traver	---	---	Jan-Dec			---	---	None	---	None
Playas	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Madera Area, California

FfbA Fresno and El Peco loams, moderately saline-alkali, 0 to 1 percent slopes

Setting

Landscape: Alluvial plains
Elevation: 0 to 500 feet
Mean annual precipitation: 8 to 8 inches
Mean annual air temperature: 63 to 63 degrees F
Frost-free period: 250 to 250 days

Composition

Fresno and similar soils: 35 percent
El peco and similar soils: 35 percent
Minor components: 30 percent

Description of Fresno

Setting

Landform: Fan remnants
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and Qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 18 to 24 inches to Duripan
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 10 percent
Gypsum maximum: 0 percent
Salinity maximum: Slightly saline or moderately saline (8.0 to 16.0 mmhos/cm)
Sodium adsorption ratio maximum: 20.0
Available water capacity: Very low (about 2.0 inches)

Interpretive Groups

Land capability classification (irrigated): 4s
Land capability (non irrigated): 6s

Typical Profile

0 to 12 inches: loam
12 to 18 inches: sandy clay loam
18 to 24 inches: cemented
24 to 60 inches: stratified sandy loam to loam

Description of El peco

Setting

Landform: Fan remnants
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and Qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 24 to 30 inches to Duripan
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 5 percent
Gypsum maximum: 0 percent
Salinity maximum: Slightly saline or moderately saline (8.0 to 16.0 mmhos/cm)
Sodium adsorption ratio maximum: 10.0
Available water capacity: Very low (about 2.1 inches)

Map Unit Description

Madera Area, California

Interpretive Groups

Land capability classification (irrigated): 4s

Land capability (non irrigated): 4s

Typical Profile

0 to 15 inches: loam

15 to 24 inches: fine sandy loam

24 to 30 inches: cemented

30 to 60 inches: stratified very fine sandy loam to silt loam

Minor Components

Pozo

Percent of map unit: 10 percent

Landform: Basin floors

Pachappa

Percent of map unit: 10 percent

Traver

Percent of map unit: 9 percent

Playas

Percent of map unit: 1 percent

Landform: Playas

Taxonomic Classification of the Soils

Madera Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
El Peco	Coarse-loamy, mixed, superactive, thermic Entic Durochrepts
Fresno	Fine-loamy, mixed, thermic Natric Durixeralfs

Engineering Properties

Madera Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
FfbA:												
El Peco	0-15	Loam	ML	A-4	0	0	100	95-100	70-85	50-60	25-35	NP-5
	15-24	Fine sandy loam, Sandy loam	SM	A-4	0	0	100	95-100	70-85	35-50	20-30	NP-5
	24-30	Cemented	---	---	---	---	---	---	---	---	---	---
	30-60	Stratified very fine sandy loam to silt loam	ML, SM	A-4	0	0	100	95-100	80-95	40-60	25-35	NP-10
Fresno	0-12	Loam	CL-ML, ML	A-4	0	0	100	95-100	70-90	50-65	25-35	5-10
	12-18	Clay loam, Sandy clay loam	CL, SC	A-6	0	0	100	95-100	85-95	35-65	30-40	10-20
	18-24	Cemented	---	---	---	---	---	---	---	---	---	---
	24-60	Stratified sandy loam to loam	ML, SM	A-4	0	0	100	95-100	60-85	35-60	20-35	NP-10
Pachappa	---	---	---	---	---	---	---	---	---	---	---	---
Pozo	---	---	---	---	---	---	---	---	---	---	---	---
Traver	---	---	---	---	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Madera Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
FfbA:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
El Peco	0-15	---	---	10-18	1.35-1.45	4.00-14.00	0.05-0.12	0.0-2.9	0.5-1.0	.43	.43	3	4L	86
	15-24	---	---	7-18	1.40-1.55	4.00-14.00	0.05-0.10	0.0-2.9	0.0-0.5	.43	.43			
	24-30	---	---	---	---	0.00-0.01	0.00	---	---	---	---			
	30-60	---	---	15-25	1.35-1.50	0.42-1.40	0.05-0.10	0.0-2.9	0.0	.43	.43			
Fresno	0-12	---	---	15-25	1.35-1.45	4.00-14.00	0.09-0.12	0.0-2.9	0.5-1.0	.43	.43	2	4L	86
	12-18	---	---	20-35	1.35-1.50	0.01-0.42	0.09-0.12	3.0-5.9	0.0-0.5	.43	.43			
	18-24	---	---	---	---	0.00-0.01	0.00	---	---	---	---			
	24-60	---	---	10-25	1.45-1.65	1.40-4.00	0.08-0.12	0.0-2.9	0.0	.43	.43			
Pachappa	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Pozo	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Traver	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Madera Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
FfbA:		In	In		In	In			
El Peco	Duripan	24-30	0-3	Strongly cemented	---	---	None	High	Low
Fresno	Duripan	18-24	0-3	Strongly cemented	---	---	None	High	Moderate
Pachappa	---	---	---	---	---	---	---	---	---
Pozo	---	---	---	---	---	---	---	---	---
Traver	---	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Madera Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
FfbA:								
El Peco	0-15	10-20	---	7.8-9.6	0-1	0	8.0-16.0	5-10
	15-24	5.0-10	---	8.4-9.6	1-5	0	8.0-16.0	5-10
	24-30	---	---	---	---	---	---	---
	30-60	5.0-15	---	8.4-9.6	1-5	0	8.0-16.0	0-5
Fresno	0-12	15-20	---	7.8-9.6	1-5	0	8.0-16.0	5-10
	12-18	10-20	---	7.8-9.6	5-10	0	8.0-16.0	10-20
	18-24	---	---	---	---	---	---	---
	24-60	5.0-15	---	7.8-9.6	1-5	0	4.0-16.0	0-5
Pachappa	---	---	---	---	---	---	---	
Pozo	---	---	---	---	---	---	---	
Traver	---	---	---	---	---	---	---	
Playas	---	---	---	---	---	---	---	

Water Features

Madera Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
FfbA:										
El Peco	C	Medium	January	---	---	---	---	None	Brief	Rare
			February	---	---	---	---	None	Brief	Rare
			March	---	---	---	---	None	Brief	Rare
			April	---	---	---	---	None	Brief	Rare
			May	---	---	---	---	None	Brief	Rare
			June	---	---	---	---	None	Brief	Rare
			July	---	---	---	---	None	Brief	Rare
			August	---	---	---	---	None	Brief	Rare
			September	---	---	---	---	None	Brief	Rare
			October	---	---	---	---	None	Brief	Rare
			November	---	---	---	---	None	Brief	Rare
			December	---	---	---	---	None	Brief	Rare
Fresno	D	High	January	---	---	---	---	None	Brief	Rare
			February	---	---	---	---	None	Brief	Rare
			March	---	---	---	---	None	Brief	Rare
			April	---	---	---	---	None	Brief	Rare
			May	---	---	---	---	None	Brief	Rare
			June	---	---	---	---	None	Brief	Rare
			July	---	---	---	---	None	Brief	Rare
			August	---	---	---	---	None	Brief	Rare
			September	---	---	---	---	None	Brief	Rare
			October	---	---	---	---	None	Brief	Rare
			November	---	---	---	---	None	Brief	Rare
			December	---	---	---	---	None	Brief	Rare
Pachappa	---	---	Jan-Dec	---	---	---	---	None	---	None
Pozo	---	---	Jan-Dec	---	---	---	---	None	---	None

Water Features

Madera Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
FfbA:										
Traver	---	---	Jan-Dec			---	---	None	---	None
Playas	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Madera Area, California

FfaA Fresno and El Peco loams, slightly saline-alkali, 0 to 1 percent slopes

Setting

Landscape: Alluvial plains
Elevation: 0 to 500 feet
Mean annual precipitation: 8 to 8 inches
Mean annual air temperature: 63 to 63 degrees F
Frost-free period: 250 to 250 days

Composition

Fresno and similar soils: 35 percent
El peco and similar soils: 35 percent
Minor components: 30 percent

Description of Fresno

Setting

Landform: Fan remnants
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and Qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 18 to 24 inches to Duripan
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 10 percent
Gypsum maximum: 0 percent
Salinity maximum: Very slightly saline or moderately saline (4.0 to 16.0 mmhos/cm)
Sodium adsorption ratio maximum: 20.0
Available water capacity: Very low (about 2.0 inches)

Interpretive Groups

Land capability classification (irrigated): 4s
Land capability (non irrigated): 6s

Typical Profile

0 to 12 inches: loam
12 to 18 inches: sandy clay loam
18 to 24 inches: cemented
24 to 60 inches: stratified sandy loam to loam

Description of El peco

Setting

Landform: Fan remnants
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and Qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 24 to 30 inches to Duripan
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 5 percent
Gypsum maximum: 0 percent
Salinity maximum: Slightly saline or moderately saline (8.0 to 16.0 mmhos/cm)
Sodium adsorption ratio maximum: 5.0
Available water capacity: Very low (about 2.1 inches)

Map Unit Description

Madera Area, California

Interpretive Groups

Land capability classification (irrigated): 4s

Land capability (non irrigated): 4s

Typical Profile

0 to 15 inches: loam

15 to 24 inches: fine sandy loam

24 to 30 inches: cemented

30 to 60 inches: stratified very fine sandy loam to silt loam

Minor Components

Pozo

Percent of map unit: 10 percent

Landform: Basin floors

Pachappa

Percent of map unit: 10 percent

Traver

Percent of map unit: 9 percent

Playas

Percent of map unit: 1 percent

Landform: Playas

Taxonomic Classification of the Soils

Madera Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
El Peco	Coarse-loamy, mixed, superactive, thermic Entic Durochrepts
Fresno	Fine-loamy, mixed, thermic Natric Durixeralfs

Engineering Properties

Madera Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
FfaA:												
El Peco	0-15	Loam	ML	A-4	0	0	100	95-100	70-85	50-60	25-35	NP-5
	15-24	Fine sandy loam, Sandy loam	SM	A-4	0	0	100	95-100	70-85	35-50	20-30	NP-5
	24-30	Cemented	---	---	---	---	---	---	---	---	---	---
	30-60	Stratified very fine sandy loam to silt loam	ML, SM	A-4	0	0	100	95-100	80-95	40-60	25-35	NP-10
Fresno	0-12	Loam	CL-ML, ML	A-4	0	0	100	95-100	70-90	50-65	25-35	5-10
	12-18	Clay loam, Sandy clay loam	CL, SC	A-6	0	0	100	95-100	85-95	35-65	30-40	10-20
	18-24	Cemented	---	---	---	---	---	---	---	---	---	---
	24-60	Stratified sandy loam to loam	ML, SM	A-4	0	0	100	95-100	60-85	35-60	20-35	NP-10
Pachappa	---	---	---	---	---	---	---	---	---	---	---	---
Pozo	---	---	---	---	---	---	---	---	---	---	---	---
Traver	---	---	---	---	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Madera Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
FfaA:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
El Peco	0-15	---	---	10-18	1.35-1.45	4.00-14.00	0.05-0.12	0.0-2.9	0.5-1.0	.43	.43	3	4L	86
	15-24	---	---	7-18	1.40-1.55	4.00-14.00	0.05-0.10	0.0-2.9	0.0-0.5	.43	.43			
	24-30	---	---	---	---	0.00-0.01	0.00	---	---	---	---			
	30-60	---	---	15-25	1.35-1.50	0.42-1.40	0.05-0.10	0.0-2.9	0.0	.43	.43			
Fresno	0-12	---	---	15-25	1.35-1.45	4.00-14.00	0.09-0.12	0.0-2.9	0.5-1.0	.43	.43	2	4L	86
	12-18	---	---	20-35	1.35-1.50	0.01-0.42	0.09-0.12	3.0-5.9	0.0-0.5	.43	.43			
	18-24	---	---	---	---	0.00-0.01	0.00	---	---	---	---			
	24-60	---	---	10-25	1.45-1.65	1.40-4.00	0.08-0.12	0.0-2.9	0.0	.43	.43			
Pachappa	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Pozo	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Traver	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Madera Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
FfaA:		In	In		In	In			
El Peco	Duripan	24-30	0-3	Strongly cemented	---	---	None	High	Low
Fresno	Duripan	18-24	0-3	Strongly cemented	---	---	None	High	Moderate
Pachappa	---	---	---	---	---	---	---	---	---
Pozo	---	---	---	---	---	---	---	---	---
Traver	---	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Madera Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
FfaA:								
El Peco	0-15	10-20	---	7.8-9.6	0-1	0	4.0-8.0	0-5
	15-24	5.0-10	---	8.4-9.6	1-5	0	4.0-8.0	0-5
	24-30	---	---	---	---	---	---	---
	30-60	10-15	---	8.4-9.6	1-5	0	8.0-16.0	0-5
Fresno	0-12	15-20	---	7.8-9.6	1-5	0	4.0-8.0	0-5
	12-18	10-20	---	7.8-9.6	5-10	0	4.0-8.0	10-20
	18-24	---	---	---	---	---	---	---
	24-60	5.0-15	---	7.8-9.6	1-5	0	4.0-16.0	0-5
Pachappa	---	---	---	---	---	---	---	
Pozo	---	---	---	---	---	---	---	
Traver	---	---	---	---	---	---	---	
Playas	---	---	---	---	---	---	---	

Water Features

Madera Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
FfaA:										
El Peco	C	Medium	January	---	---	---	---	None	Brief	Rare
			February	---	---	---	---	None	Brief	Rare
			March	---	---	---	---	None	Brief	Rare
			April	---	---	---	---	None	Brief	Rare
			May	---	---	---	---	None	Brief	Rare
			June	---	---	---	---	None	Brief	Rare
			July	---	---	---	---	None	Brief	Rare
			August	---	---	---	---	None	Brief	Rare
			September	---	---	---	---	None	Brief	Rare
			October	---	---	---	---	None	Brief	Rare
			November	---	---	---	---	None	Brief	Rare
			December	---	---	---	---	None	Brief	Rare
Fresno	D	Very high	January	---	---	---	---	None	Brief	Rare
			February	---	---	---	---	None	Brief	Rare
			March	---	---	---	---	None	Brief	Rare
			April	---	---	---	---	None	Brief	Rare
			May	---	---	---	---	None	Brief	Rare
			June	---	---	---	---	None	Brief	Rare
			July	---	---	---	---	None	Brief	Rare
			August	---	---	---	---	None	Brief	Rare
			September	---	---	---	---	None	Brief	Rare
			October	---	---	---	---	None	Brief	Rare
			November	---	---	---	---	None	Brief	Rare
			December	---	---	---	---	None	Brief	Rare
Pachappa	---	---	Jan-Dec			---	---	None	---	None
Pozo	---	---	Jan-Dec			---	---	None	---	None

Water Features

Madera Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
FfaA:										
Traver	---	---	Jan-Dec			---	---	None	---	None
Playas	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Madera Area, California

FfcA Fresno and El Peco loams, strongly saline-alkali, 0 to 1 percent slopes

Setting

Landscape: Alluvial plains
Elevation: 0 to 500 feet
Mean annual precipitation: 8 to 8 inches
Mean annual air temperature: 63 to 63 degrees F
Frost-free period: 250 to 250 days

Composition

Fresno and similar soils: 35 percent
El peco and similar soils: 35 percent
Minor components: 30 percent

Description of Fresno

Setting

Landform: Fan remnants
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and Qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 18 to 24 inches to Duripan
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 10 percent
Gypsum maximum: 0 percent
Salinity maximum: Moderately saline or strongly saline (16.0 to 30.0 mmhos/cm)
Sodium adsorption ratio maximum: 20.0
Available water capacity: Very low (about 2.0 inches)

Interpretive Groups

Land capability classification (irrigated): 4s
Land capability (non irrigated): 6s

Typical Profile

0 to 12 inches: loam
12 to 18 inches: sandy clay loam
18 to 24 inches: cemented
24 to 60 inches: stratified sandy loam to loam

Description of El peco

Setting

Landform: Fan remnants
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and Qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 24 to 30 inches to Duripan
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 5 percent
Gypsum maximum: 0 percent
Salinity maximum: Moderately saline or strongly saline (16.0 to 30.0 mmhos/cm)
Sodium adsorption ratio maximum: 15.0
Available water capacity: Very low (about 2.1 inches)

Map Unit Description

Madera Area, California

Interpretive Groups

Land capability classification (irrigated): 6s

Land capability (non irrigated): 6s

Typical Profile

0 to 15 inches: loam

15 to 24 inches: fine sandy loam

24 to 30 inches: cemented

30 to 60 inches: stratified very fine sandy loam to silt loam

Minor Components

Pozo

Percent of map unit: 10 percent

Landform: Basin floors

Pachappa

Percent of map unit: 10 percent

Traver

Percent of map unit: 9 percent

Playas

Percent of map unit: 1 percent

Landform: Playas

Taxonomic Classification of the Soils

Madera Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
El Peco	Coarse-loamy, mixed, superactive, thermic Entic Durochrepts
Fresno	Fine-loamy, mixed, thermic Natric Durixeralfs

Engineering Properties

Madera Area, California

Absence of an entry indicates that the data were not estimated. The asterisk "*" denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
FfcA:												
El Peco	0-15	Loam	ML	A-4	0	0	100	95-100	70-85	50-60	25-35	NP-5
	15-24	Fine sandy loam, Sandy loam	SM	A-4	0	0	100	95-100	70-85	35-50	20-30	NP-5
	24-30	Cemented	---	---	---	---	---	---	---	---	---	---
	30-60	Stratified very fine sandy loam to silt loam	ML, SM	A-4	0	0	100	95-100	80-95	40-60	25-35	NP-10
Fresno	0-12	Loam	CL-ML, ML	A-4	0	0	100	95-100	70-90	50-65	25-35	5-10
	12-18	Clay loam, Sandy clay loam	CL, SC	A-6	0	0	100	95-100	85-95	35-65	30-40	10-20
	18-24	Cemented	---	---	---	---	---	---	---	---	---	---
	24-60	Stratified sandy loam to loam	ML, SM	A-4	0	0	100	95-100	60-85	35-60	20-35	NP-10
Pachappa	---	---	---	---	---	---	---	---	---	---	---	---
Pozo	---	---	---	---	---	---	---	---	---	---	---	---
Traver	---	---	---	---	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Madera Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
FfcA:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
El Peco	0-15	---	---	10-18	1.35-1.45	4.00-14.00	0.05-0.12	0.0-2.9	0.5-1.0	.43	.43	3	4L	86
	15-24	---	---	7-18	1.40-1.55	4.00-14.00	0.05-0.10	0.0-2.9	0.0-0.5	.43	.43			
	24-30	---	---	---	---	0.00-0.01	0.00	---	---	---	---			
	30-60	---	---	15-25	1.35-1.50	0.42-1.40	0.05-0.10	0.0-2.9	0.0	.43	.43			
Fresno	0-12	---	---	15-25	1.35-1.45	4.00-14.00	0.09-0.12	0.0-2.9	0.5-1.0	.43	.43	2	4L	86
	12-18	---	---	20-35	1.35-1.50	0.01-0.42	0.09-0.12	3.0-5.9	0.0-0.5	.43	.43			
	18-24	---	---	---	---	0.00-0.01	0.00	---	---	---	---			
	24-60	---	---	10-25	1.45-1.65	1.40-4.00	0.08-0.12	0.0-2.9	0.0	.43	.43			
Pachappa	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Pozo	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Traver	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Madera Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
FfcA:		In	In		In	In			
El Peco	Duripan	24-30	0-3	Strongly cemented	---	---	None	High	Low
Fresno	Duripan	18-24	0-3	Strongly cemented	---	---	None	High	Moderate
Pachappa	---	---	---	---	---	---	---	---	---
Pozo	---	---	---	---	---	---	---	---	---
Traver	---	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Madera Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
FfcA:								
El Peco	0-15	10-20	---	7.8-9.6	0-1	0	16.0-30.0	10-15
	15-24	5.0-10	---	8.4-9.6	1-5	0	16.0-30.0	10-15
	24-30	---	---	---	---	---	---	---
	30-60	10-15	---	8.4-9.6	1-5	0	8.0-16.0	0-5
Fresno	0-12	15-20	---	7.8-9.6	1-5	0	16.0-30.0	10-15
	12-18	10-20	---	7.8-9.6	5-10	0	16.0-30.0	10-20
	18-24	---	---	---	---	---	---	---
	24-60	5.0-15	---	7.8-9.6	1-5	0	4.0-16.0	0-5
Pachappa	---	---	---	---	---	---	---	
Pozo	---	---	---	---	---	---	---	
Traver	---	---	---	---	---	---	---	
Playas	---	---	---	---	---	---	---	

Water Features

Madera Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
FfcA:										
El Peco	C	Medium	January	---	---	---	---	None	Brief	Rare
			February	---	---	---	---	None	Brief	Rare
			March	---	---	---	---	None	Brief	Rare
			April	---	---	---	---	None	Brief	Rare
			May	---	---	---	---	None	Brief	Rare
			June	---	---	---	---	None	Brief	Rare
			July	---	---	---	---	None	Brief	Rare
			August	---	---	---	---	None	Brief	Rare
			September	---	---	---	---	None	Brief	Rare
			October	---	---	---	---	None	Brief	Rare
			November	---	---	---	---	None	Brief	Rare
			December	---	---	---	---	None	Brief	Rare
Fresno	D	Very high	January	---	---	---	---	None	Brief	Rare
			February	---	---	---	---	None	Brief	Rare
			March	---	---	---	---	None	Brief	Rare
			April	---	---	---	---	None	Brief	Rare
			May	---	---	---	---	None	Brief	Rare
			June	---	---	---	---	None	Brief	Rare
			July	---	---	---	---	None	Brief	Rare
			August	---	---	---	---	None	Brief	Rare
			September	---	---	---	---	None	Brief	Rare
			October	---	---	---	---	None	Brief	Rare
			November	---	---	---	---	None	Brief	Rare
			December	---	---	---	---	None	Brief	Rare
Pachappa	---	---	Jan-Dec	---	---	---	---	None	---	None
Pozo	---	---	Jan-Dec	---	---	---	---	None	---	None

Water Features

Madera Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
FfcA:										
Traver	---	---	Jan-Dec			---	---	None	---	None
Playas	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Madera Area, California

GdA Grangeville fine sandy loam, over traver soils, slightly saline alkali, 0 to 1 percent slopes

Setting

Elevation: 10 to 1800 feet
Mean annual precipitation: 8 to 16 inches
Mean annual air temperature: 61 to 64 degrees F
Frost-free period: 200 to 300 days

Composition

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

Description of Grangeville

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and Qualities

Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 1 percent
Gypsum maximum: 0 percent
Salinity maximum: Very slightly saline or slightly saline (4.0 to 8.0 mmhos/cm)
Sodium adsorption ratio maximum: 5.0
Available water capacity: Moderate (about 7.2 inches)

Interpretive Groups

Land capability classification (irrigated): 2s
Land capability (non irrigated): 4s

Typical Profile

0 to 11 inches: fine sandy loam
11 to 20 inches: sandy loam
20 to 40 inches: stratified loamy sand to silt loam
40 to 60 inches: loam

Minor Components

Traver

Percent of map unit: 5 percent

Hanford

Percent of map unit: 5 percent

Foster

Percent of map unit: 5 percent

Landform: Flood plains

Taxonomic Classification of the Soils

Madera Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Grangeville	Coarse-loamy, mixed, superactive, thermic Fluvaquentic Haploxerolls

Engineering Properties

Madera Area, California

Absence of an entry indicates that the data were not estimated. The asterisk "*" denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
GdA:												
Grangeville	0-11	Fine sandy loam	SM	A-4	0	0	100	95-100	60-85	35-50	20-30	NP-5
	11-20	Fine sandy loam, Sandy loam	ML, SM	A-4	0	0	100	95-100	60-95	35-50	20-35	NP-10
	20-40	Stratified loamy sand to silt loam	SM	A-2, A-4	0	0	100	95-100	60-95	25-50	15-25	NP-5
	40-60	Loam	ML	A-4	0	0	100	95-100	70-95	50-60	20-35	NP-10
Foster	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---
Traver	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Madera Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
GdA:														
Grangeville	0-11	---	---	8-18	1.50-1.60	14.00-42.00	0.10-0.13	0.0-2.9	1.0-6.0	.32	.32	5	3	86
	11-20	---	---	8-18	1.50-1.60	4.00-14.00	0.10-0.13	0.0-2.9	0.7-1.0	.32	.32			
	20-40	---	---	8-18	1.55-1.70	4.00-14.00	0.07-0.10	0.0-2.9	0.0-0.5	.32	.32			
	40-60	---	---	15-25	1.45-1.55	1.40-4.00	0.14-0.16	0.0-2.9	0.0-0.5	.32	.32			
Foster	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Traver	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Madera Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
GdA:		In	In		In	In			
Grangeville	---	---	---	---	---	---	None	High	Low
Foster	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---
Traver	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Madera Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
GdA:								
Grangeville	0-11	5.0-15	---	7.4-8.4	0-1	0	4.0-8.0	0-5
	11-20	5.0-10	---	7.4-8.4	0-1	0	4.0-8.0	0-5
	20-40	5.0-10	---	7.4-8.4	0-1	0	4.0-8.0	0-5
	40-60	10-15	---	7.4-8.4	0-1	0	4.0-8.0	0-5
Foster	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---
Traver	---	---	---	---	---	---	---	---

Water Features

Madera Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
GdA:										
Grangeville	B	Low	January	---	---	---	---	None	Brief	Rare
			February	---	---	---	---	None	Brief	Rare
			March	---	---	---	---	None	Brief	Rare
			April	---	---	---	---	None	Brief	Rare
			May	---	---	---	---	None	Brief	Rare
			June	---	---	---	---	None	Brief	Rare
			July	---	---	---	---	None	Brief	Rare
			August	---	---	---	---	None	Brief	Rare
			September	---	---	---	---	None	Brief	Rare
			October	---	---	---	---	None	Brief	Rare
			November	---	---	---	---	None	Brief	Rare
			December	---	---	---	---	None	Brief	Rare
Foster	---	---	Jan-Dec			---	---	None	---	None
Hanford	---	---	Jan-Dec			---	---	None	---	None
Traver	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Madera Area, California

GcA Grangeville fine sandy loam, over traver soils, 0 to 1 percent slopes

Setting

Elevation: 10 to 1800 feet
Mean annual precipitation: 8 to 16 inches
Mean annual air temperature: 61 to 64 degrees F
Frost-free period: 200 to 300 days

Composition

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

Description of Grangeville

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and Qualities

Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 1 percent
Gypsum maximum: 0 percent
Sodium adsorption ratio maximum: 5.0
Available water capacity: Moderate (about 7.2 inches)

Interpretive Groups

Land capability classification (irrigated): 2s
Land capability (non irrigated): 4s

Typical Profile

0 to 11 inches: fine sandy loam
11 to 20 inches: sandy loam
20 to 40 inches: stratified loamy sand to silt loam
40 to 60 inches: loam

Minor Components

Traver

Percent of map unit: 5 percent

Hanford

Percent of map unit: 5 percent

Foster

Percent of map unit: 5 percent

Landform: Flood plains

Taxonomic Classification of the Soils

Madera Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Grangeville	Coarse-loamy, mixed, superactive, thermic Fluvaquentic Haploxerolls

Physical Soil Properties

Madera Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
GcA:														
Grangeville	0-11	---	---	8-18	1.50-1.60	14.00-42.00	0.10-0.13	0.0-2.9	1.0-6.0	.32	.32	5	3	0
	11-20	---	---	8-18	1.50-1.60	4.00-14.00	0.10-0.13	0.0-2.9	0.7-1.0	.32	.32			
	20-40	---	---	8-18	1.55-1.70	4.00-14.00	0.07-0.10	0.0-2.9	0.0-0.5	.32	.32			
	40-60	---	---	15-26	1.45-1.55	1.40-4.00	0.14-0.16	0.0-2.9	0.0-0.5	.32	.32			
Foster	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Traver	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Engineering Properties

Madera Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
GcA:												
Grangeville	0-11	Fine sandy loam	SM	A-4	0	0	100	95-100	60-85	35-50	20-30	NP-5
	11-20	Fine sandy loam, Sandy loam	SM	A-4	0	0	100	95-100	60-95	35-50	20-35	NP-10
	20-40	Stratified loamy sand to silt loam	SM	A-2, A-4	0	0	100	95-100	60-95	25-50	15-25	NP-5
	40-60	Loam	ML	A-4	0	0	100	95-100	70-95	50-60	20-35	NP-10
Foster	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---
Traver	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Madera Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
GcA:		In	In		In	In			
Grangeville	---	---	---	---	---	---	None	High	Low
Foster	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---
Traver	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Madera Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
GcA:								
Grangeville	0-11	5.0-15	---	6.6-8.4	0-1	0	0.0-4.0	0
	11-20	5.0-10	---	6.6-8.4	0-1	0	0.0-4.0	0
	20-40	5.0-10	---	7.9-8.4	0-1	0	0.0-4.0	0
	40-60	10-15	---	7.9-8.4	0-1	0	0.0-4.0	0-5
Foster	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---
Traver	---	---	---	---	---	---	---	---

Water Features

Madera Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
GcA:										
Grangeville	B	Low	January	---	---	---	---	None	Brief	Rare
			February	---	---	---	---	None	Brief	Rare
			March	---	---	---	---	None	Brief	Rare
			April	---	---	---	---	None	Brief	Rare
			May	---	---	---	---	None	Brief	Rare
			June	---	---	---	---	None	Brief	Rare
			July	---	---	---	---	None	Brief	Rare
			August	---	---	---	---	None	Brief	Rare
			September	---	---	---	---	None	Brief	Rare
			October	---	---	---	---	None	Brief	Rare
			November	---	---	---	---	None	Brief	Rare
			December	---	---	---	---	None	Brief	Rare
Foster	---	---	Jan-Dec			---	---	None	---	None
Hanford	---	---	Jan-Dec			---	---	None	---	None
Traver	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Madera Area, California

GbA Grangeville fine sandy loam, slightly saline-alkali, 0 to 1 percent slopes

Setting

Elevation: 10 to 1800 feet
Mean annual precipitation: 8 to 16 inches
Mean annual air temperature: 61 to 64 degrees F
Frost-free period: 200 to 300 days

Composition

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

Description of Grangeville

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and Qualities

Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 1 percent
Gypsum maximum: 0 percent
Salinity maximum: Very slightly saline or slightly saline (4.0 to 8.0 mmhos/cm)
Sodium adsorption ratio maximum: 5.0
Available water capacity: Moderate (about 6.3 inches)

Interpretive Groups

Land capability classification (irrigated): 2s
Land capability (non irrigated): 4s

Typical Profile

0 to 11 inches: fine sandy loam
11 to 20 inches: sandy loam
20 to 60 inches: stratified loamy sand to silt loam

Minor Components

Traver

Percent of map unit: 5 percent

Hanford

Percent of map unit: 5 percent

Foster

Percent of map unit: 5 percent

Landform: Flood plains

Taxonomic Classification of the Soils

Madera Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Grangeville	Coarse-loamy, mixed, superactive, thermic Fluvaquentic Haploxerolls

Engineering Properties

Madera Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
GbA:												
Grangeville	0-11	Fine sandy loam	SM	A-4	0	0	100	95-100	60-85	35-50	20-30	NP-5
	11-20	Fine sandy loam, Sandy loam	SM	A-4	0	0	100	95-100	60-95	35-50	20-35	NP-10
	20-60	Stratified loamy sand to silt loam	SM	A-2, A-4	0	0	100	95-100	60-95	25-50	15-25	NP-5
Foster	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---
Traver	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Madera Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
GbA:														
Grangeville	0-11	---	---	8-18	1.50-1.60	14.00-42.00	0.12-0.14	0.0-2.9	1.0-6.0	.32	.32	5	3	86
	11-20	---	---	8-18	1.50-1.60	14.00-42.00	0.12-0.15	0.0-2.9	0.7-1.0	.32	.32			
	20-60	---	---	8-18	1.55-1.70	14.00-42.00	0.08-0.10	0.0-2.9	0.0-0.5	.32	.32			
Foster	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Traver	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Madera Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
GbA:		In	In		In	In			
Grangeville	---	---	---	---	---	---	None	High	Low
Foster	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---
Traver	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Madera Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
GbA:								
Grangeville	0-11	5.0-15	---	6.6-8.4	0-1	0	4.0-8.0	0-5
	11-20	5.0-10	---	6.6-8.4	0-1	0	4.0-8.0	0-5
	20-60	5.0-10	---	7.9-8.4	0-1	0	4.0-8.0	0-5
Foster	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---
Traver	---	---	---	---	---	---	---	---

Water Features

Madera Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
GbA:										
Grangeville	B	Very low	January	---	---	---	---	None	Brief	Rare
			February	---	---	---	---	None	Brief	Rare
			March	---	---	---	---	None	Brief	Rare
			April	---	---	---	---	None	Brief	Rare
			May	---	---	---	---	None	Brief	Rare
			June	---	---	---	---	None	Brief	Rare
			July	---	---	---	---	None	Brief	Rare
			August	---	---	---	---	None	Brief	Rare
			September	---	---	---	---	None	Brief	Rare
			October	---	---	---	---	None	Brief	Rare
			November	---	---	---	---	None	Brief	Rare
			December	---	---	---	---	None	Brief	Rare
Foster	---	---	Jan-Dec			---	---	None	---	None
Hanford	---	---	Jan-Dec			---	---	None	---	None
Traver	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Madera Area, California

TnA Traver loam, moderately saline alkali, 0 to 1 percent slopes

Setting

Elevation: 1000 to 1000 feet
Mean annual precipitation: 10 to 10 inches
Mean annual air temperature: 63 to 63 degrees F
Frost-free period: 250 to 250 days

Composition

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

Description of Traver

Setting

Landform: Fan remnants
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and Qualities

Slope: 0 to 1 percent
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high or high (0.57 to 1.98 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 5 percent
Gypsum maximum: 0 percent
Salinity maximum: Slightly saline or moderately saline (8.0 to 16.0 mmhos/cm)
Sodium adsorption ratio maximum: 20.0
Available water capacity: Moderate (about 6.6 inches)

Interpretive Groups

Land capability classification (irrigated): 3s
Land capability (non irrigated): 6s

Typical Profile

0 to 3 inches: loam
3 to 17 inches: sandy clay loam
17 to 64 inches: stratified fine sandy loam to silty clay loam

Minor Components

Fresno

Percent of map unit: 5 percent

Chino

Percent of map unit: 5 percent

Hanford

Percent of map unit: 4 percent

Playas

Percent of map unit: 1 percent
Landform: Playas

Taxonomic Classification of the Soils

Madera Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Traver	Coarse-loamy, mixed, thermic Natric Haploxeralfs

Engineering Properties

Madera Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
TnA:												
Traver	0-3	Loam	ML	A-4	0	0	100	95-100	65-90	50-60	25-35	NP-10
	3-17	Sandy clay loam	SC, SC-SM	A-4, A-6	0	0	100	95-100	65-90	35-50	25-35	5-17
	17-64	Stratified fine sandy loam to silty clay loam	ML, SM	A-4	0	0	100	95-100	65-90	35-55	25-35	NP-10
Chino	---	---	---	---	---	---	---	---	---	---	---	---
Fresno	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Madera Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
TnA:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Traver	0-3	---	---	10-15	1.50-1.60	4.00-14.00	0.08-0.12	0.0-2.9	0.5-1.0	.43	.43	5	4L	86
	3-17	---	---	20-25	1.45-1.55	4.00-14.00	0.08-0.13	0.0-2.9	0.0-0.5	.43	.43			
	17-64	---	---	10-20	1.45-1.55	4.00-14.00	0.08-0.13	0.0-2.9	0.0-0.5	.43	.43			
Chino	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Fresno	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Madera Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
TnA:									
Traver	---	---	---	---	---	---	None	High	Low
Chino	---	---	---	---	---	---	---	---	---
Fresno	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Madera Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
TnA:								
Traver	0-3	5.0-10	---	7.4-9.0	1-5	0	8.0-16.0	5-10
	3-17	10-15	---	8.4-9.6	1-5	0	8.0-16.0	15-20
	17-64	5.0-10	---	8.4-9.6	1-5	0	8.0-16.0	5-10
Chino	---	---	---	---	---	---	---	---
Fresno	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---

Water Features

Madera Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
TnA: Traver	B	Low	Jan-Dec			---	---	None	---	None
Chino	---	---	Jan-Dec			---	---	None	---	None
Fresno	---	---	Jan-Dec			---	---	None	---	None
Hanford	---	---	Jan-Dec			---	---	None	---	None
Playas	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Madera Area, California

TmA Traver loam, slightly saline-alkali, 0 to 1 percent slopes

Setting

Elevation: 1000 to 1000 feet
Mean annual precipitation: 10 to 10 inches
Mean annual air temperature: 63 to 63 degrees F
Frost-free period: 250 to 250 days

Composition

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

Description of Traver

Setting

Landform: Fan remnants
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and Qualities

Slope: 0 to 1 percent
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high or high (0.57 to 1.98 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 5 percent
Gypsum maximum: 0 percent
Salinity maximum: Very slightly saline or slightly saline (4.0 to 8.0 mmhos/cm)
Sodium adsorption ratio maximum: 20.0
Available water capacity: Moderate (about 6.6 inches)

Interpretive Groups

Land capability classification (irrigated): 2s
Land capability (non irrigated): 6s

Typical Profile

0 to 3 inches: loam
3 to 17 inches: sandy clay loam
17 to 64 inches: stratified fine sandy loam to silty clay loam

Minor Components

Fresno

Percent of map unit: 5 percent

Chino

Percent of map unit: 5 percent

Hanford

Percent of map unit: 4 percent

Playas

Percent of map unit: 1 percent
Landform: Playas

Taxonomic Classification of the Soils

Madera Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Traver	Coarse-loamy, mixed, thermic Natric Haploxeralfs

Engineering Properties

Madera Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
TmA:												
Traver	0-3	Loam	ML	A-4	0	0	100	95-100	65-90	50-60	25-35	NP-10
	3-17	Sandy clay loam	SC, SC-SM	A-4, A-6	0	0	100	95-100	65-90	35-50	25-35	5-15
	17-64	Stratified fine sandy loam to silty clay loam	ML, SM	A-4	0	0	100	95-100	65-90	35-55	25-35	NP-10
Chino	---	---	---	---	---	---	---	---	---	---	---	---
Fresno	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Madera Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
TmA:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Traver	0-3	---	---	10-15	1.50-1.60	4.00-14.00	0.08-0.12	0.0-2.9	0.5-1.0	.43	.43	5	4L	86
	3-17	---	---	20-25	1.45-1.55	4.00-14.00	0.08-0.13	0.0-2.9	0.0-0.5	.43	.43			
	17-64	---	---	10-20	1.45-1.55	4.00-14.00	0.08-0.13	0.0-2.9	0.0-0.5	.43	.43			
Chino	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Fresno	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Madera Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
TmA:		In	In		In	In			
Traver	---	---	---	---	---	---	None	High	Low
Chino	---	---	---	---	---	---	---	---	---
Fresno	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Madera Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
TmA:								
Traver	0-3	5.0-10	---	7.4-9.0	1-5	0	4.0-8.0	0-5
	3-17	10-15	---	8.4-9.6	1-5	0	4.0-8.0	15-20
	17-64	5.0-10	---	8.4-9.6	1-5	0	4.0-8.0	5-10
Chino	---	---	---	---	---	---	---	---
Fresno	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---

Water Features

Madera Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
TmA:										
Traver	B	Low	Jan-Dec			---	---	None	---	None
Chino	---	---	Jan-Dec			---	---	None	---	None
Fresno	---	---	Jan-Dec			---	---	None	---	None
Hanford	---	---	Jan-Dec			---	---	None	---	None
Playas	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Madera Area, California

ToA Traver loam, strongly saline-alkali, 0 to 1 percent slopes

Setting

Elevation: 1000 to 1000 feet
Mean annual precipitation: 10 to 10 inches
Mean annual air temperature: 63 to 63 degrees F
Frost-free period: 250 to 250 days

Composition

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

Description of Traver

Setting

Landform: Fan remnants
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and Qualities

Slope: 0 to 1 percent
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high or high (0.57 to 1.98 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 5 percent
Gypsum maximum: 0 percent
Salinity maximum: Moderately saline or strongly saline (16.0 to 30.0 mmhos/cm)
Sodium adsorption ratio maximum: 20.0
Available water capacity: Low (about 5.4 inches)

Interpretive Groups

Land capability classification (irrigated): 4s
Land capability (non irrigated): 6s

Typical Profile

0 to 3 inches: loam
3 to 17 inches: sandy clay loam
17 to 64 inches: stratified fine sandy loam to silty clay loam

Minor Components

Fresno

Percent of map unit: 5 percent

Chino

Percent of map unit: 5 percent

Hanford

Percent of map unit: 4 percent

Playas

Percent of map unit: 1 percent
Landform: Playas

Taxonomic Classification of the Soils

Madera Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Traver	Coarse-loamy, mixed, thermic Natric Haploxeralfs

Engineering Properties

Madera Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
ToA:												
Traver	0-3	Loam	ML	A-4	0	0	100	95-100	65-90	50-60	25-35	NP-10
	3-17	Sandy clay loam	SC, SC-SM	A-4, A-6	0	0	100	95-100	65-90	35-50	25-35	5-15
	17-64	Stratified fine sandy loam to silty clay loam	ML, SM	A-4	0	0	100	95-100	65-90	35-55	25-35	NP-10
Chino	---	---	---	---	---	---	---	---	---	---	---	---
Fresno	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Madera Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
ToA:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Traver	0-3	---	---	10-15	1.50-1.60	4.00-14.00	0.08-0.10	0.0-2.9	0.5-1.0	.43	.43	5	4L	86
	3-17	---	---	20-25	1.45-1.55	4.00-14.00	0.08-0.10	0.0-2.9	0.0-0.5	.43	.43			
	17-64	---	---	10-20	1.45-1.55	4.00-14.00	0.08-0.10	0.0-2.9	0.0-0.5	.43	.43			
Chino	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Fresno	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Madera Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
ToA:		In	In		In	In			
Traver	---	---	---	---	---	---	None	High	Low
Chino	---	---	---	---	---	---	---	---	---
Fresno	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Madera Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
ToA:								
Traver	0-3	5.0-10	---	7.4-9.0	1-5	0	16.0-30.0	10-15
	3-17	10-15	---	8.4-9.6	1-5	0	16.0-30.0	15-20
	17-64	5.0-10	---	8.4-9.6	1-5	0	16.0-30.0	5-10
Chino	---	---	---	---	---	---	---	---
Fresno	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---

Water Features

Madera Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
ToA: Traver	B	Low	Jan-Dec			---	---	None	---	None
Chino	---	---	Jan-Dec			---	---	None	---	None
Fresno	---	---	Jan-Dec			---	---	None	---	None
Hanford	---	---	Jan-Dec			---	---	None	---	None
Playas	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Madera Area, California

TwA Tujunga loamy sand, 0 to 3 percent slopes

Setting

Elevation: 10 to 1500 feet
Mean annual precipitation: 10 to 25 inches
Mean annual air temperature: 59 to 64 degrees F
Frost-free period: 250 to 350 days

Composition

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

Description of Tujunga

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy alluvium derived from granite

Properties and Qualities

Slope: 0 to 3 percent
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High or very high (5.95 to 19.98 in/hr)
Frequency of flooding: Occasional
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Available water capacity: Low (about 3.9 inches)

Interpretive Groups

Land capability classification (irrigated): 3e
Land capability (non irrigated): 6e

Typical Profile

0 to 11 inches: loamy sand
11 to 24 inches: stratified sand to loamy sand
24 to 60 inches: stratified gravelly sand to gravelly loamy sand

Minor Components

Hanford

Percent of map unit: 5 percent

Dinuba

Percent of map unit: 5 percent

Delhi

Percent of map unit: 5 percent

Taxonomic Classification of the Soils

Madera Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Tujunga	TYPIC XEROPSAMMENTS, MIXED, THERMIC

Engineering Properties

Madera Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
TwA:												
Tujunga	0-11	Loamy sand	SM	A-1, A-2	0	0-5	90-100	75-95	40-70	15-25	0	NP
	11-24	Stratified sand to loamy sand	SM, SP-SM, SW-SM	A-1, A-2, A-3	0	0-5	90-100	75-95	40-70	5-25	0	NP
	24-60	Stratified gravelly sand to gravelly loamy sand	SM, SP, SP-SM, SW-SM	A-1	0	0-5	60-80	50-75	20-50	0-20	0	NP
Delhi	---	---	---	---	---	---	---	---	---	---	---	---
Dinuba	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Madera Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
TwA:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Tujunga	0-11	---	---	0-5	1.60-1.70	42.00-141.00	0.05-0.10	0.0-2.9	0.5-1.0	.20	.20	5	2	134
	11-24	---	---	0-5	1.60-1.70	42.00-141.00	0.05-0.08	0.0-2.9	0.0-0.5	.17	.20			
	24-60	---	---	0-5	1.60-1.70	42.00-141.00	0.04-0.07	0.0-2.9	0.0-0.5	.15	.17			
Delhi	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Dinuba	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Madera Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
TWA:		In	In		In	In			
Tujunga	---	---	---	---	---	---	None	Moderate	Low
Delhi	---	---	---	---	---	---	---	---	---
Dinuba	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Madera Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
TwA:								
Tujunga	0-11	1.0-5.0	---	6.1-7.3	0	0	0.0	0
	11-24	1.0-5.0	---	6.1-7.8	0	0	0.0	0
	24-60	1.0-5.0	---	6.1-7.8	0	0	0.0	0
Delhi	---	---	---	---	---	---	---	---
Dinuba	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---

Water Features

Madera Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
TWA:										
Tujunga	A	Negligible	January	---	---	---	---	None	Brief	Occasional
			February	---	---	---	---	None	Brief	Occasional
			March	---	---	---	---	None	Brief	Occasional
			December	---	---	---	---	None	Brief	Occasional
Delhi	---	---	Jan-Dec			---	---	None	---	None
Dinuba	---	---	Jan-Dec			---	---	None	---	None
Hanford	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Madera Area, California

VdA Visalia sandy loam, 0 to 3 percent slopes

Setting

Elevation: 600 to 1200 feet
Mean annual precipitation: 15 to 15 inches
Mean annual air temperature: 57 to 57 degrees F
Frost-free period: 225 to 350 days

Composition

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

Description of Visalia

Setting

Landform: Alluvial fans
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and Qualities

Slope: 0 to 3 percent
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Available water capacity: Moderate (about 7.9 inches)

Interpretive Groups

Land capability classification (irrigated): 1
Land capability (non irrigated): 4c

Typical Profile

0 to 12 inches: sandy loam
12 to 35 inches: sandy loam
35 to 60 inches: stratified sandy loam to fine sandy loam

Minor Components

Hanford

Percent of map unit: 10 percent

Tujunga

Percent of map unit: 5 percent

Taxonomic Classification of the Soils

Madera Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Visalia	CUMULIC HAPLOXEROLLS, COARSE-LOAMY, MIXED, THERMIC

Engineering Properties

Madera Area, California

Absence of an entry indicates that the data were not estimated. The asterisk "*" denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
VdA:												
Visalia	0-12	Sandy loam	SM	A-4	0	0	80-100	75-100	50-70	35-50	20-30	NP-5
	12-35	Fine sandy loam, Sandy loam	SM	A-4	0	0	80-100	75-100	50-70	35-50	20-30	NP-5
	35-60	Stratified sandy loam to fine sandy loam	SM	A-4	0	0	80-100	75-100	50-70	35-50	20-30	NP-5
Hanford	---	---	---	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Madera Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
VdA:														
Visalia	0-12	---	---	8-18	1.45-1.55	14.00-42.00	0.10-0.14	0.0-2.9	1.0-4.0	.32	.32	5	3	86
	12-35	---	---	8-18	1.50-1.60	14.00-42.00	0.10-0.14	0.0-2.9	0.7-1.0	.32	.32			
	35-60	---	---	8-18	1.45-1.55	14.00-42.00	0.14-0.16	0.0-2.9	0.0-0.5	.32	.32			
Hanford	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Madera Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
VdA:		In	In		In	In			
Visalia	---	---	---	---	---	---	None	Moderate	Low
Hanford	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Madera Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
VdA:								
Visalia	0-12	5.0-15	---	6.5-7.8	0	0	0.0	0
	12-35	5.0-15	---	6.5-7.8	0	0	0.0	0
	35-60	5.0-10	---	6.5-7.8	0	0	0.0	0
Hanford	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---

Water Features

Madera Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
VdA:										
Visalia	B	Very low	January	---	---	---	---	None	Brief	Rare
			February	---	---	---	---	None	Brief	Rare
			March	---	---	---	---	None	Brief	Rare
			April	---	---	---	---	None	Brief	Rare
			May	---	---	---	---	None	Brief	Rare
			June	---	---	---	---	None	Brief	Rare
			July	---	---	---	---	None	Brief	Rare
			August	---	---	---	---	None	Brief	Rare
			September	---	---	---	---	None	Brief	Rare
			October	---	---	---	---	None	Brief	Rare
			November	---	---	---	---	None	Brief	Rare
			December	---	---	---	---	None	Brief	Rare
Hanford	---	---	Jan-Dec			---	---	None	---	None
Tujunga	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Madera Area, California

WuA Wunje very fine sandy loam, slightly saline-alkali, 0 to 1 percent slopes

Setting

Elevation: 150 to 300 feet
Mean annual precipitation: 9 to 9 inches
Mean annual air temperature: 63 to 63 degrees F
Frost-free period: 265 to 265 days

Composition

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

Description of Wunje

Setting

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and Qualities

Slope: 0 to 1 percent
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high or high (0.57 to 1.98 in/hr)
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Salinity maximum: Very slightly saline or slightly saline (4.0 to 8.0 mmhos/cm)
Available water capacity: Moderate (about 7.2 inches)

Interpretive Groups

Land capability classification (irrigated): 2s
Land capability (non irrigated): 4s

Typical Profile

0 to 12 inches: very fine sandy loam
12 to 24 inches: very fine sandy loam
24 to 60 inches: stratified very fine sandy loam to silt loam

Minor Components

Dinuba

Percent of map unit: 5 percent

Chino

Percent of map unit: 5 percent

Hanford

Percent of map unit: 4 percent

Unnamed

Percent of map unit: 1 percent
Landform: Depressions

Taxonomic Classification of the Soils

Madera Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Wunjey	TYPIC XEROFLUVENTS, COARSE-SILTY, MIXED (CALCAREOUS), THERMIC

Engineering Properties

Madera Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
WuA:												
Wunjeý	0-12	Very fine sandy loam	ML	A-4	0	0	100	100	95-100	60-75	20-30	NP-5
	12-24	Very fine sandy loam	ML	A-4	0	0	100	100	95-100	60-75	20-30	NP-5
	24-60	Stratified very fine sandy loam to silt loam	ML	A-4	0	0	100	100	95-100	85-95	25-35	NP-10
Chino	---	---	---	---	---	---	---	---	---	---	---	---
Dinuba	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Madera Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
WuA:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Wunjey	0-12	---	---	8-15	1.45-1.55	4.00-14.00	0.10-0.13	0.0-2.9	0.5-1.0	.37	.37	5	3	86
	12-24	---	---	8-18	1.45-1.55	4.00-14.00	0.10-0.13	0.0-2.9	0.0-0.5	.43	.43			
	24-60	---	---	8-18	1.45-1.55	4.00-14.00	0.10-0.14	0.0-2.9	0.0-0.5	.43	.43			
Chino	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Dinuba	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Madera Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
WuA:		In	In		In	In			
Wunjey	---	---	---	---	---	---	None	High	Moderate
Chino	---	---	---	---	---	---	---	---	---
Dinuba	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Madera Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
WuA:								
Wunje	0-12	5.0-10	---	8.5-9.0	0	0	4.0-8.0	0
	12-24	5.0-10	---	8.5-9.0	0	0	4.0-8.0	0
	24-60	5.0-10	---	7.8-9.6	0	0	4.0-8.0	0
Chino	---	---	---	---	---	---	---	---
Dinuba	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---

Water Features

Madera Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
WuA:										
Wunje	B	Low	January	---	---	---	---	None	Brief	Rare
			February	---	---	---	---	None	Brief	Rare
			March	---	---	---	---	None	Brief	Rare
			April	---	---	---	---	None	Brief	Rare
			May	---	---	---	---	None	Brief	Rare
			June	---	---	---	---	None	Brief	Rare
			July	---	---	---	---	None	Brief	Rare
			August	---	---	---	---	None	Brief	Rare
			September	---	---	---	---	None	Brief	Rare
			October	---	---	---	---	None	Brief	Rare
			November	---	---	---	---	None	Brief	Rare
			December	---	---	---	---	None	Brief	Rare
Chino	---	---	Jan-Dec			---	---	None	---	None
Dinuba	---	---	Jan-Dec			---	---	None	---	None
Hanford	---	---	Jan-Dec			---	---	None	---	None
Unnamed	---	---	Jan-Dec			---	---	None	---	None

Eastern Fresno Area | CA654

Map Unit Description

Eastern Fresno Area, California

CfA Calhi loamy sand, 0 to 3 percent slopes

Setting

Landscape: Valleys
Elevation: 170 to 250 feet
Mean annual precipitation: 6 to 10 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 225 to 250 days

Composition

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

Description of Calhi

Setting

Landform: Dunes on fan skirts
Landform position (two-dimensional): Footslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian deposits derived from granitic alluvium

Properties and Qualities

Slope: 0 to 3 percent
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High or very high (5.95 to 19.98 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 5 percent
Gypsum maximum: 0 percent
Available water capacity: Low (about 4.1 inches)

Interpretive Groups

Land capability classification (irrigated): 3s
Land capability (non irrigated): 4e

Typical Profile

0 to 11 inches: loamy sand
11 to 54 inches: loamy sand
54 to 60 inches: sand

Minor Components

Unnamed, silty substratum
Percent of map unit: 12 percent
Landform: Dunes on fan skirts

Unnamed
Percent of map unit: 3 percent
Landform: Dunes on fan skirts

Taxonomic Classification of the Soils

Eastern Fresno Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Calhi	Mixed, thermic Typic Xeropsamments

Engineering Properties

Eastern Fresno Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
CfA:												
Calhi	0-11	Loamy sand	SM	A-2-4	0	0	100	100	65-90	15-35	0	NP
	11-54	Loamy sand, Sand	SM	A-2-4	0	0	100	100	60-90	15-35	0	NP
	54-60	Sand	SM, SP-SM	A-2-4, A-3	0	0	100	100	50-70	5-15	0	NP
Unnamed, silty substratum	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
CfA:														
Calhi	0-11	---	---	4-8	1.60-1.70	42.00-141.00	0.06-0.08	0.0-2.9	0.5-1.0	.24	.24	5	2	134
	11-54	---	---	4-8	1.60-1.70	42.00-141.00	0.06-0.08	0.0-2.9	0.0-0.5	.24	.24			
	54-60	---	---	0-5	1.60-1.70	42.00-141.00	0.05-0.07	0.0-2.9	0.0-0.5	.15	.15			
Unnamed, silty substratum	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Eastern Fresno Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
CfA:		In	In		In	In			
Calhi	---	---	---	---	0	0	None	High	Low
Unnamed, silty substratum	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
CfA:								
Calhi	0-11	1.0-5.0	---	7.4-9.0	1-5	0	0.0-4.0	0
	11-54	1.0-5.0	---	7.8-9.0	1-5	0	0.0-4.0	0
	54-60	1.0-5.0	---	7.8-9.0	1-5	0	0.0-4.0	0
Unnamed, silty substratum	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---

Water Features

Eastern Fresno Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
CfA: Calhi	A	Very low	Jan-Dec			---	---	None	---	None
Unnamed, silty substratum	---	---	Jan-Dec			---	---	None	---	None
Unnamed	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Eastern Fresno Area, California

DhA Delhi loamy sand, 0 to 3 percent slopes

Setting

Landscape: Valleys
Elevation: 230 to 400 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 225 to 250 days

Composition

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

Description of Delhi

Setting

Landform: Dunes on fan remnants
Landform position (two-dimensional): Shoulder, toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian deposits derived from granitic alluvium

Properties and Qualities

Slope: 0 to 3 percent
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High or very high (5.95 to 19.98 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Available water capacity: Low (about 4.8 inches)

Interpretive Groups

Land capability classification (irrigated): 3s
Land capability (non irrigated): 4e

Typical Profile

0 to 7 inches: loamy sand
7 to 25 inches: loamy sand
25 to 60 inches: loamy sand

Minor Components

Dello soils

Percent of map unit: 8 percent
Landform: Depressions on fan remnants

Hanford soils

Percent of map unit: 7 percent
Landform: Depressions on fan remnants

Taxonomic Classification of the Soils

Eastern Fresno Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Delhi	Mixed, thermic Typic Xeropsamments

Engineering Properties

Eastern Fresno Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
DhA:												
Delhi	0-7	Loamy sand	SM	A-2-4	0	0	100	100	50-80	20-30	0	NP
	7-25	Loamy fine sand, Loamy sand	SM	A-2-4	0	0	100	100	50-80	20-30	0	NP
	25-60	Loamy sand	SM	A-2-4	0	0	100	100	50-80	20-30	0	NP
Dello	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
DhA:														
Delhi	0-7	---	---	0-5	1.60-1.70	42.00-141.00	0.06-0.10	0.0-2.9	0.5-1.0	.24	.24	5	2	134
	7-25	---	---	0-5	1.60-1.70	42.00-141.00	0.06-0.10	0.0-2.9	0.0-0.5	.24	.24			
	25-60	---	---	0-5	1.60-1.70	42.00-141.00	0.05-0.10	0.0-2.9	0.0-0.5	.20	.20			
Dello	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Eastern Fresno Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
DhA:		In	In		In	In			
Delhi	---	---	---	---	0	0	None	Moderate	Low
Dello	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
DhA:								
Delhi	0-7	1.0-5.0	---	6.1-7.3	0	0	0.0	0
	7-25	1.0-5.0	---	6.1-7.3	0	0	0.0	0
	25-60	1.0-5.0	---	6.1-7.3	0	0	0.0	0
Dello	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---

Water Features

Eastern Fresno Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
DhA:										
Delhi	A	Very low	Jan-Dec			---	---	None	---	None
Dello	---	---	Jan-Dec			---	---	None	---	None
Hanford	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Eastern Fresno Area, California

DeA Delhi sand, 0 to 3 percent slopes

Setting

Landscape: Valleys
Elevation: 230 to 400 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 225 to 250 days

Composition

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

Description of Delhi

Setting

Landform: Dunes on fan remnants
Landform position (two-dimensional): Shoulder, toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian deposits derived from granitic alluvium

Properties and Qualities

Slope: 0 to 3 percent
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High or very high (5.95 to 19.98 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Available water capacity: Low (about 4.7 inches)

Interpretive Groups

Land capability classification (irrigated): 3s
Land capability (non irrigated): 4e

Typical Profile

0 to 7 inches: sand
7 to 25 inches: sand
25 to 60 inches: sand

Minor Components

Unnamed compact substratum
Percent of map unit: 10 percent
Landform: Dunes on fan remnants

Unnamed
Percent of map unit: 5 percent
Landform: Dunes on fan remnants

Taxonomic Classification of the Soils

Eastern Fresno Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Delhi	Mixed, thermic Typic Xeropsamments

Engineering Properties

Eastern Fresno Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
DeA:												
Delhi	0-7	Sand	SP-SM	A-1-b, A-2-4, A-3	0	0	100	100	40-70	5-10	0	NP
	7-25	Sand	SP-SM	A-1-b, A-2-4, A-3	0	0	100	100	40-70	5-10	0	NP
	25-60	Fine sand, Loamy sand, Sand	SP-SM	A-1-b, A-2-4, A-3	0	0	100	100	40-80	5-10	0	NP
Unnamed compact substratum	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
DeA:														
Delhi	0-7	---	---	0-5	1.60-1.70	42.00-141.00	0.05-0.08	0.0-2.9	0.5-1.0	.20	.20	5	1	180
	7-25	---	---	0-5	1.60-1.70	42.00-141.00	0.06-0.10	0.0-2.9	0.0-0.5	.24	.24			
	25-60	---	---	0-5	1.60-1.70	42.00-141.00	0.05-0.10	0.0-2.9	0.0-0.5	.20	.20			
Unnamed compact substratum	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Eastern Fresno Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
DeA:		In	In		In	In			
Delhi	---	---	---	---	0	0	None	Moderate	Low
Unnamed compact substratum	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
DeA:								
Delhi	0-7	1.0-5.0	---	6.1-7.3	0	0	0.0	0
	7-25	1.0-5.0	---	6.1-7.3	0	0	0.0	0
	25-60	1.0-5.0	---	6.1-7.3	0	0	0.0	0
Unnamed compact substratum	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---

Water Features

Eastern Fresno Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
DeA:										
Delhi	A	Very low	Jan-Dec			---	---	None	---	None
Unnamed compact substratum	---	---	Jan-Dec			---	---	None	---	None
Unnamed	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Eastern Fresno Area, California

Dm Dello loamy sand

Setting

Landscape: Valleys
Elevation: 160 to 400 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 225 to 250 days

Composition

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

Description of Dello

Setting

Landform: Depressions on flood plains, depressions on alluvial fans
Landform position (two-dimensional): Footslope, toeslope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Granitic alluvium

Properties and Qualities

Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): High or very high (5.95 to 19.98 in/hr)
Depth to water table: About 36 to 60 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Available water capacity: Low (about 4.1 inches)

Interpretive Groups

Land capability classification (irrigated): 3w
Land capability (non irrigated): 4w

Typical Profile

0 to 8 inches: loamy sand
8 to 36 inches: loamy sand
36 to 60 inches: sand

Minor Components

Unnamed

Percent of map unit: 13 percent
Landform: Depressions on flood plains

Unnamed, hummock

Percent of map unit: 2 percent
Landform: Hummocks on alluvial fans, levees on flood plains

Taxonomic Classification of the Soils

Eastern Fresno Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Dello	Mixed, thermic Mollic Psammaquents

Engineering Properties

Eastern Fresno Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
Dm:												
Dello	0-8	Loamy sand	SM	A-2-4	0	0	100	100	60-80	15-35	0	NP
	8-36	Loamy fine sand, Loamy sand	SM	A-2-4	0	0	100	100	60-80	15-35	0	NP
	36-60	Sand	SM, SP-SM	A-2-4, A-3	0	0	100	100	50-70	5-15	0	NP
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, hummock	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
Dm:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Dello	0-8	---	---	0-10	1.60-1.70	42.00-141.00	0.07-0.10	0.0-2.9	0.5-1.0	.15	.15	5	2	134
	8-36	---	---	0-10	1.60-1.70	42.00-141.00	0.06-0.10	0.0-2.9	0.0-0.5	.15	.15			
	36-60	---	---	0-5	1.60-1.70	42.00-141.00	0.04-0.06	0.0-2.9	0.0-0.5	.15	.15			
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, hummock	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Eastern Fresno Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
Dm:		In	In		In	In			
Dello	---	---	---	---	0	0	None	High	Low
Unnamed	---	---	---	---	---	---	---	---	---
Unnamed, hummock	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
Dm:								
Dello	0-8	1.0-5.0	---	6.6-8.4	0	0	0.0-2.0	0
	8-36	1.0-5.0	---	6.6-8.4	0	0	0.0-2.0	0
	36-60	1.0-5.0	---	6.6-8.4	0	0	0.0-2.0	0
Unnamed	---	---	---	---	---	---	---	---
Unnamed, hummock	---	---	---	---	---	---	---	---

Water Features

Eastern Fresno Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
Dm:										
Dello	C	Very low	January	3.0-5.0	>6.0	---	---	None	---	Rare
			February	3.0-5.0	>6.0	---	---	None	---	Rare
			March	3.0-5.0	>6.0	---	---	None	---	Rare
			April	3.0-5.0	>6.0	---	---	None	---	Rare
			May	3.0-5.0	>6.0	---	---	None	---	Rare
			June	3.0-5.0	>6.0	---	---	None	---	Rare
			July	3.0-5.0	>6.0	---	---	None	---	Rare
			August	3.0-5.0	>6.0	---	---	None	---	Rare
			September	3.0-5.0	>6.0	---	---	None	---	Rare
			October	3.0-5.0	>6.0	---	---	None	---	Rare
			November	3.0-5.0	>6.0	---	---	None	---	Rare
			December	3.0-5.0	>6.0	---	---	None	---	Rare
Unnamed	---	---	Jan-Dec			---	---	None	---	None
Unnamed, hummock	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Eastern Fresno Area, California

Dn Dello sandy loam

Setting

Landscape: Valleys
Elevation: 160 to 400 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 56 to 63 degrees F
Frost-free period: 225 to 250 days

Composition

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

Description of Dello

Setting

Landform: Depressions on flood plains, depressions on alluvial fans
Landform position (two-dimensional): Footslope, toeslope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Granitic alluvium

Properties and Qualities

Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 36 to 60 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Available water capacity: Low (about 4.5 inches)

Interpretive Groups

Land capability classification (irrigated): 3w
Land capability (non irrigated): 4w

Typical Profile

0 to 10 inches: sandy loam
10 to 36 inches: loamy sand
36 to 60 inches: sand

Minor Components

Unnamed

Percent of map unit: 8 percent
Landform: Depressions on flood plains

Unnamed, channeled

Percent of map unit: 5 percent
Landform: Channels on flood plains

Unnamed, hummock

Percent of map unit: 2 percent
Landform: Hummocks on alluvial fans, levees on flood plains

Taxonomic Classification of the Soils

Eastern Fresno Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Dello	Mixed, thermic Mollic Psammaquents

Engineering Properties

Eastern Fresno Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
Dello	0-10	Fine sandy loam, Sandy loam	SM	A-4	0	0	100	100	50-70	35-50	20-30	NP-5
	10-36	Loamy fine sand, Loamy sand	SM	A-2-4	0	0	100	100	60-80	15-35	0	NP
	36-60	Sand	SM, SP-SM	A-2-4, A-3	0	0	100	100	50-70	5-15	0	NP
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, channeled	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, hummock	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Dn:														
Dello	0-10	---	---	10-18	1.50-1.60	14.00-42.00	0.11-0.13	0.0-2.9	0.5-1.0	.24	.24	2	3	86
	10-36	---	---	0-10	1.60-1.70	42.00-141.00	0.06-0.10	0.0-2.9	0.5-1.0	.15	.15			
	36-60	---	---	0-5	1.60-1.70	42.00-141.00	0.04-0.06	0.0-2.9	0.0-0.5	.15	.15			
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, channeled	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, hummock	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Eastern Fresno Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
Dn:		In	In		In	In			
Dello	---	---	---	---	0	0	None	High	Low
Unnamed	---	---	---	---	---	---	---	---	---
Unnamed, channeled	---	---	---	---	---	---	---	---	---
Unnamed, hummock	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
Dn:								
Dello	0-10	5.0-10	---	6.6-8.4	0	0	0.0-2.0	0
	10-36	1.0-5.0	---	6.6-8.4	0	0	0.0-2.0	0
	36-60	1.0-5.0	---	6.6-8.4	0	0	0.0-2.0	0
Unnamed	---	---	---	---	---	---	---	---
Unnamed, channeled	---	---	---	---	---	---	---	---
Unnamed, hummock	---	---	---	---	---	---	---	---

Water Features

Eastern Fresno Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
Dn:										
Dello	C	Very low	January	3.0-5.0	>6.0	---	---	None	---	Rare
			February	3.0-5.0	>6.0	---	---	None	---	Rare
			March	3.0-5.0	>6.0	---	---	None	---	Rare
			April	3.0-5.0	>6.0	---	---	None	---	Rare
			May	3.0-5.0	>6.0	---	---	None	---	Rare
			June	3.0-5.0	>6.0	---	---	None	---	Rare
			July	3.0-5.0	>6.0	---	---	None	---	Rare
			August	3.0-5.0	>6.0	---	---	None	---	Rare
			September	3.0-5.0	>6.0	---	---	None	---	Rare
			October	3.0-5.0	>6.0	---	---	None	---	Rare
			November	3.0-5.0	>6.0	---	---	None	---	Rare
			December	3.0-5.0	>6.0	---	---	None	---	Rare
Unnamed	---	---	Jan-Dec			---	---	None	---	None
Unnamed, channeled	---	---	Jan-Dec			---	---	None	---	None
Unnamed, hummock	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Eastern Fresno Area, California

Ed El Peco fine sandy loam

Setting

Landscape: Valleys
Elevation: 170 to 270 feet
Mean annual precipitation: 6 to 10 inches
Mean annual air temperature: 61 to 64 degrees F
Frost-free period: 225 to 250 days

Composition

El peco and similar soils: 85 percent
Minor components: 15 percent

Description of El peco

Setting

Landform: Fan skirts
Landform position (two-dimensional): Footslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Granitic alluvium

Properties and Qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 20 to 40 inches to Duripan
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low or moderately low (0.00 to 0.01 in/hr)
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 5 percent
Gypsum maximum: 0 percent
Salinity maximum: Slightly saline or moderately saline (8.0 to 16.0 mmhos/cm)
Sodium adsorption ratio maximum: 5.0
Available water capacity: Very low (about 1.8 inches)

Interpretive Groups

Land capability classification (irrigated): 4s
Land capability (non irrigated): 4e

Typical Profile

0 to 10 inches: fine sandy loam
10 to 23 inches: fine sandy loam
23 to 33 inches: cemented
33 to 60 inches: stratified silt to silt loam

Minor Components

Unnamed, shallow hardpan
Percent of map unit: 6 percent

Unnamed, non saline-sodic
Percent of map unit: 5 percent

Unnamed, swale
Percent of map unit: 3 percent
Landform: Swales

Playas
Percent of map unit: 1 percent
Landform: Playas

Taxonomic Classification of the Soils

Eastern Fresno Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
El Peco	Coarse-loamy, mixed, calcareous, thermic Aquic Durorthidic Xerorthents

Engineering Properties

Eastern Fresno Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
Ed:	In				Pct	Pct					Pct	
El Peco	0-10	Fine sandy loam	SM	A-4	0	0	100	100	70-85	35-50	20-30	NP-5
	10-23	Fine sandy loam, Sandy loam	SM	A-4	0	0	100	100	70-85	35-50	20-30	NP-5
	23-33	Cemented	---	---	---	---	---	---	---	---	---	---
	33-60	Stratified silt to silt loam	ML	A-4	0	0	100	100	80-95	75-85	25-35	NP-10
Unnamed, shallow hardpan	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, non saline-sodic	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, swale	---	---	---	---	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
Ed:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
El Peco	0-10	---	---	7-18	1.40-1.50	4.00-14.00	0.05-0.10	0.0-2.9	0.5-1.0	.43	.43	3	3	86
	10-23	---	---	7-18	1.40-1.55	4.00-14.00	0.05-0.10	0.0-2.9	0.0-0.5	.43	.43			
	23-33	---	---	---	---	0.01-0.10	0.00	---	---	---	---			
	33-60	---	---	15-25	1.35-1.50	0.42-1.40	0.05-0.10	0.0-2.9	0.0	.43	.43			
Unnamed, shallow hardpan	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, non saline-sodic	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, swale	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Eastern Fresno Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
Ed: El Peco	Duripan	20-40	0-3	Indurated	0	0	None	High	Low
Unnamed, shallow hardpan	---	---	---	---	---	---	---	---	---
Unnamed, non saline-sodic	---	---	---	---	---	---	---	---	---
Unnamed, swale	---	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
Ed:								
El Peco	0-10	5.0-10	---	7.8-9.6	0-1	0	8.0-16.0	0
	10-23	5.0-10	---	8.4-9.6	1-5	0	8.0-16.0	0-5
	23-33	---	---	---	---	---	---	---
	33-60	10-15	---	8.4-9.6	1-5	0	8.0-16.0	0
Unnamed, shallow hardpan	---	---	---	---	---	---	---	---
Unnamed, non saline-sodic	---	---	---	---	---	---	---	---
Unnamed, swale	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---

Water Features

Eastern Fresno Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
Ed:										
El Peco	C	Medium	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			June	---	---	---	---	None	---	Rare
			July	---	---	---	---	None	---	Rare
			August	---	---	---	---	None	---	Rare
			September	---	---	---	---	None	---	Rare
			October	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare
Unnamed, shallow hardpan	---	---	Jan-Dec			---	---	None	---	None
Unnamed, non saline-sodic	---	---	Jan-Dec			---	---	None	---	None
Unnamed, swale	---	---	Jan-Dec			---	---	None	---	None
Playas	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Eastern Fresno Area, California

Ec El Peco sandy loam

Setting

Landscape: Valleys
Elevation: 170 to 270 feet
Mean annual precipitation: 6 to 10 inches
Mean annual air temperature: 61 to 64 degrees F
Frost-free period: 225 to 250 days

Composition

El peco and similar soils: 85 percent
Minor components: 15 percent

Description of El peco

Setting

Landform: Fan skirts
Landform position (two-dimensional): Footslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Granitic alluvium

Properties and Qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 20 to 40 inches to Duripan
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low or moderately low (0.00 to 0.01 in/hr)
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 5 percent
Gypsum maximum: 0 percent
Salinity maximum: Slightly saline or moderately saline (8.0 to 16.0 mmhos/cm)
Sodium adsorption ratio maximum: 5.0
Available water capacity: Very low (about 1.8 inches)

Interpretive Groups

Land capability classification (irrigated): 4s
Land capability (non irrigated): 4e

Typical Profile

0 to 10 inches: sandy loam
10 to 23 inches: sandy loam
23 to 33 inches: cemented
33 to 60 inches: stratified silt to silt loam

Minor Components

Unnamed

Percent of map unit: 11 percent

Unnamed, swale

Percent of map unit: 3 percent
Landform: Swales

Playas

Percent of map unit: 1 percent
Landform: Playas

Taxonomic Classification of the Soils

Eastern Fresno Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
El Peco	Coarse-loamy, mixed, calcareous, thermic Aquic Durorthidic Xerorthents

Engineering Properties

Eastern Fresno Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
Ec:												
El Peco	0-10	Sandy loam	SM	A-4	0	0	100	100	70-85	35-50	20-30	NP-5
	10-23	Fine sandy loam, Sandy loam	SM	A-4	0	0	100	100	70-85	35-50	20-30	NP-5
	23-33	Cemented	---	---	---	---	---	---	---	---	---	---
	33-60	Stratified silt to silt loam	ML	A-4	0	0	100	100	80-95	75-85	25-35	NP-10
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, swale	---	---	---	---	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Ec:														
El Peco	0-10	---	---	7-18	1.40-1.50	4.00-14.00	0.05-0.10	0.0-2.9	0.5-1.0	.43	.43	3	3	86
	10-23	---	---	7-18	1.40-1.55	4.00-14.00	0.05-0.10	0.0-2.9	0.0-0.5	.43	.43			
	23-33	---	---	---	---	0.01-0.10	0.00	---	---	---	---			
	33-60	---	---	15-25	1.35-1.50	0.42-1.40	0.05-0.10	0.0-2.9	0.0	.43	.43			
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, swale	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Eastern Fresno Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
Ec:									
El Peco	Duripan	20-40	0-3	Indurated	0	0	None	High	Low
Unnamed	---	---	---	---	---	---	---	---	---
Unnamed, swale	---	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
Ec:								
El Peco	0-10	5.0-10	---	7.8-9.6	0-1	0	8.0-16.0	0
	10-23	5.0-10	---	8.4-9.6	1-5	0	8.0-16.0	0-5
	23-33	---	---	---	---	---	---	---
	33-60	10-15	---	8.4-9.6	1-5	0	8.0-16.0	0
Unnamed	---	---	---	---	---	---	---	---
Unnamed, swale	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---

Water Features

Eastern Fresno Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
Ec:										
El Peco	C	Medium	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			June	---	---	---	---	None	---	Rare
			July	---	---	---	---	None	---	Rare
			August	---	---	---	---	None	---	Rare
			September	---	---	---	---	None	---	Rare
			October	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare
Unnamed	---	---	Jan-Dec			---	---	None	---	None
Unnamed, swale	---	---	Jan-Dec			---	---	None	---	None
Playas	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Eastern Fresno Area, California

Go Grangeville fine sandy loam, hard substratum, saline-alkali

Setting

Landscape: Valleys
Elevation: 160 to 500 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 200 to 250 days

Composition

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

Description of Grangeville

Setting

Landform: Alluvial fans, flood plains
Landform position (two-dimensional): Footslope, toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Recent granitic alluvium

Properties and Qualities

Slope: 0 to 2 percent
Surface area covered with stones and boulders: 3.0 percent
Depth to restrictive feature: 24 to 60 inches to Duripan
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low (0.01 to 0.14 in/hr)
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Salinity maximum: Very slightly saline or moderately saline (4.0 to 16.0 mmhos/cm)
Sodium adsorption ratio maximum: 5.0
Available water capacity: Low (about 4.0 inches)

Interpretive Groups

Land capability classification (irrigated): 3s
Land capability (non irrigated): 4s

Typical Profile

0 to 8 inches: fine sandy loam
8 to 40 inches: sandy loam
40 to 60 inches: cemented

Minor Components

Unnamed

Percent of map unit: 14 percent
Landform: Alluvial fans, flood plains

Unnamed, channelled

Percent of map unit: 1 percent
Landform: Channels on flood plains, alluvial fans

Taxonomic Classification of the Soils

Eastern Fresno Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Grangeville	Coarse-loamy, mixed, thermic Aquic Haploxerolls

Engineering Properties

Eastern Fresno Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
Go:												
Grangeville	0-8	Fine sandy loam	SM	A-4	0	0	100	95-100	50-75	35-50	20-30	NP-5
	8-40	Coarse sandy loam, Fine sandy loam, Sandy loam	SM	A-4	0	0	100	95-100	50-75	35-50	20-30	NP-5
	40-60	Cemented	---	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, channelled	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
Go:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Grangeville	0-8	---	---	8-18	1.50-1.60	14.00-42.00	0.07-0.13	0.0-2.9	1.0-6.0	.32	.32	3	3	86
	8-40	---	---	8-18	1.50-1.60	4.00-14.00	0.07-0.13	0.0-2.9	0.5-1.0	.32	.32			
	40-60	---	---	---	---	0.10-1.00	0.00	---	---	---	---			
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, channelled	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Eastern Fresno Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
Go: Grangeville	Duripan	24-60	4-17	Indurated	0	0	None	High	Low
Unnamed	---	---	---	---	---	---	---	---	---
Unnamed, channelled	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
Go:								
Grangeville	0-8	5.0-15	---	7.4-8.4	0	0	4.0-16.0	0
	8-40	5.0-15	---	7.9-8.4	0	0	4.0-16.0	0-5
	40-60	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---
Unnamed, channelled	---	---	---	---	---	---	---	---

Water Features

Eastern Fresno Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
Go:										
Grangeville	C	Very low	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			June	---	---	---	---	None	---	Rare
			July	---	---	---	---	None	---	Rare
			August	---	---	---	---	None	---	Rare
			September	---	---	---	---	None	---	Rare
			October	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare
Unnamed	---	---	Jan-Dec			---	---	None	---	None
Unnamed, channelled	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Eastern Fresno Area, California

Gn Grangeville fine sandy loam, hard substratum

Setting

Landscape: Valleys
Elevation: 160 to 500 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 200 to 250 days

Composition

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

Description of Grangeville

Setting

Landform: Alluvial fans, flood plains
Landform position (two-dimensional): Footslope, toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Recent granitic alluvium

Properties and Qualities

Slope: 0 to 2 percent
Surface area covered with stones and boulders: 3.0 percent
Depth to restrictive feature: 24 to 60 inches to Duripan
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low (0.01 to 0.14 in/hr)
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Available water capacity: Low (about 5.2 inches)

Interpretive Groups

Land capability classification (irrigated): 2s
Land capability (non irrigated): 4s

Typical Profile

0 to 8 inches: fine sandy loam
8 to 40 inches: sandy loam
40 to 60 inches: cemented

Minor Components

Unnamed, loamy sand surface
Percent of map unit: 10 percent
Landform: Alluvial fans, flood plains

Unnamed, sandy loam surface
Percent of map unit: 5 percent
Landform: Alluvial fans, flood plains

Taxonomic Classification of the Soils

Eastern Fresno Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Grangeville	Coarse-loamy, mixed, thermic Aquic Haploxerolls

Engineering Properties

Eastern Fresno Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
Gn:												
Grangeville	0-8	Fine sandy loam	SM	A-4	0	0	100	95-100	50-75	35-50	20-30	NP-5
	8-40	Coarse sandy loam, Fine sandy loam, Sandy loam	SM	A-4	0	0	100	95-100	50-75	35-50	20-30	NP-5
	40-60	Cemented	---	---	---	---	---	---	---	---	---	---
Unnamed, loamy sand surface	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, sandy loam surface	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
Gn:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Grangeville	0-8	---	---	8-18	1.50-1.60	14.00-42.00	0.10-0.15	0.0-2.9	1.0-6.0	.32	.32	3	3	86
	8-40	---	---	8-18	1.50-1.60	14.00-42.00	0.10-0.15	0.0-2.9	0.5-1.0	.32	.32			
	40-60	---	---	---	---	0.10-1.00	0.00	---	---	---	---			
Unnamed, loamy sand surface	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, sandy loam surface	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Eastern Fresno Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
Gn: Grangeville	Duripan	24-60	4-17	Indurated	0	0	None	High	Low
Unnamed, loamy sand surface	---	---	---	---	---	---	---	---	---
Unnamed, sandy loam surface	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
Gn:								
Grangeville	0-8	5.0-15	---	6.6-7.8	0	0	0.0	0
	8-40	5.0-15	---	6.6-8.4	0	0	0.0-2.0	0
	40-60	---	---	---	---	---	---	---
Unnamed, loamy sand surface	---	---	---	---	---	---	---	---
Unnamed, sandy loam surface	---	---	---	---	---	---	---	---

Water Features

Eastern Fresno Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
Gn:										
Grangeville	B	Very low	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			June	---	---	---	---	None	---	Rare
			July	---	---	---	---	None	---	Rare
			August	---	---	---	---	None	---	Rare
			September	---	---	---	---	None	---	Rare
			October	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare
Unnamed, loamy sand surface	---	---	Jan-Dec			---	---	None	---	None
Unnamed, sandy loam surface	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Eastern Fresno Area, California

Gg Grangeville fine sandy loam, saline alkali

Setting

Landscape: Valleys
Elevation: 160 to 500 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 200 to 250 days

Composition

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

Description of Grangeville

Setting

Landform: Alluvial fans, flood plains
Landform position (two-dimensional): Footslope, toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Recent granitic alluvium

Properties and Qualities

Slope: 0 to 2 percent
Surface area covered with stones and boulders: 3.0 percent
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high or high (0.57 to 1.98 in/hr)
Depth to water table: About 48 to 72 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Salinity maximum: Very slightly saline or slightly saline (4.0 to 8.0 mmhos/cm)
Sodium adsorption ratio maximum: 5.0
Available water capacity: Moderate (about 8.3 inches)

Interpretive Groups

Land capability classification (irrigated): 2s
Land capability (non irrigated): 4s

Typical Profile

0 to 8 inches: fine sandy loam
8 to 60 inches: fine sandy loam

Minor Components

Unnamed, loam

Percent of map unit: 14 percent
Landform: Alluvial fans, flood plains

Unnamed, channelled

Percent of map unit: 1 percent
Landform: Channels on flood plains, alluvial fans

Taxonomic Classification of the Soils

Eastern Fresno Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Grangeville	Coarse-loamy, mixed, thermic Aquic Haploxerolls

Engineering Properties

Eastern Fresno Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
Gg:												
Grangeville	0-8	Fine sandy loam	SM	A-4	0	0	100	95-100	60-85	35-50	20-30	NP-5
	8-60	Fine sandy loam, Loam, Sandy loam	ML, SM	A-4	0	0	100	95-100	60-95	35-60	20-35	NP-10
Unnamed, loam	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, channelled	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
Gg:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Grangeville	0-8	---	---	8-18	1.50-1.60	14.00-42.00	0.12-0.14	0.0-2.9	1.0-6.0	.32	.32	5	3	86
	8-60	---	---	8-18	1.50-1.60	4.00-14.00	0.12-0.15	0.0-2.9	0.5-1.0	.32	.32			
Unnamed, loam	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, channelled	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Eastern Fresno Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
Gg:		In	In		In	In			
Grangeville	---	---	---	---	0	0	None	High	Low
Unnamed, loam	---	---	---	---	---	---	---	---	---
Unnamed, channelled	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
Gg:								
Grangeville	0-8	5.0-15	---	7.4-9.0	0	0	4.0-8.0	0
	8-60	5.0-15	---	7.4-9.0	0	0	4.0-8.0	0-5
Unnamed, loam	---	---	---	---	---	---	---	---
Unnamed, channelled	---	---	---	---	---	---	---	---

Water Features

Eastern Fresno Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
Gg:										
Grangeville	B	Very low	January	4.0->6.0	>6.0	---	---	None	---	Rare
			February	4.0->6.0	>6.0	---	---	None	---	Rare
			March	4.0->6.0	>6.0	---	---	None	---	Rare
			April	4.0->6.0	>6.0	---	---	None	---	Rare
			May	4.0->6.0	>6.0	---	---	None	---	Rare
			June	4.0->6.0	>6.0	---	---	None	---	Rare
			July	4.0->6.0	>6.0	---	---	None	---	Rare
			August	4.0->6.0	>6.0	---	---	None	---	Rare
			September	4.0->6.0	>6.0	---	---	None	---	Rare
			October	4.0->6.0	>6.0	---	---	None	---	Rare
			November	4.0->6.0	>6.0	---	---	None	---	Rare
			December	4.0->6.0	>6.0	---	---	None	---	Rare
Unnamed, loam	---	---	Jan-Dec			---	---	None	---	None
Unnamed, channelled	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Eastern Fresno Area, California

Gm Grangeville fine sandy loam, sandy substratum

Setting

Landscape: Valleys
Elevation: 160 to 500 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 200 to 250 days

Composition

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

Description of Grangeville

Setting

Landform: Alluvial fans, flood plains
Landform position (two-dimensional): Footslope, toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Recent granitic alluvium

Properties and Qualities

Slope: 0 to 2 percent
Surface area covered with stones and boulders: 8.0 percent
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Available water capacity: Moderate (about 6.2 inches)

Interpretive Groups

Land capability classification (irrigated): 2s
Land capability (non irrigated): 4s

Typical Profile

0 to 8 inches: fine sandy loam
8 to 40 inches: sandy loam
40 to 60 inches: sand

Minor Components

Dello soils

Percent of map unit: 8 percent
Landform: Alluvial fans, depressions on flood plains

Unnamed

Percent of map unit: 6 percent
Landform: Alluvial fans, flood plains

Unnamed, channel

Percent of map unit: 1 percent
Landform: Drainageways

Taxonomic Classification of the Soils

Eastern Fresno Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Grangeville	Coarse-loamy, mixed, thermic Aquic Haploxerolls

Engineering Properties

Eastern Fresno Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
Gm:												
Grangeville	0-8	Fine sandy loam	SM	A-4	0	0	95-100	90-100	50-75	35-50	20-30	NP-5
	8-40	Coarse sandy loam, Fine sandy loam, Sandy loam	SM	A-4	0	0	95-100	90-100	50-75	35-50	20-30	NP-5
	40-60	Sand	SM, SP-SM	A-1-b, A-2-4	0	0	85-100	75-100	40-60	5-15	0	NP
Dello	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, channel	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
Gm:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Grangeville	0-8	---	---	8-18	1.50-1.60	14.00-42.00	0.10-0.15	0.0-2.9	1.0-6.0	.32	.32	4	3	86
	8-40	---	---	8-18	1.50-1.60	14.00-42.00	0.10-0.15	0.0-2.9	0.5-1.0	.32	.32			
	40-60	---	---	0-5	1.50-1.60	42.00-141.00	0.04-0.06	0.0-2.9	0.0-0.5	.15	.15			
Dello	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, channel	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Eastern Fresno Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
Gm:		In	In		In	In			
Grangeville	---	---	---	---	0	0	None	High	Low
Dello	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---
Unnamed, channel	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
Gm:								
Grangeville	0-8	5.0-15	---	6.6-7.8	0	0	0.0	0
	8-40	5.0-15	---	6.6-8.4	0	0	0.0-2.0	0
	40-60	1.0-5.0	---	6.6-8.4	0	0	0.0-2.0	0
Dello	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---
Unnamed, channel	---	---	---	---	---	---	---	---

Water Features

Eastern Fresno Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
Gm:										
Grangeville	B	Very low	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			June	---	---	---	---	None	---	Rare
			July	---	---	---	---	None	---	Rare
			August	---	---	---	---	None	---	Rare
			September	---	---	---	---	None	---	Rare
			October	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare
Dello	---	---	Jan-Dec			---	---	None	---	None
Unnamed	---	---	Jan-Dec			---	---	None	---	None
Unnamed, channel	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Eastern Fresno Area, California

Gd Grangeville sandy loam, saline alkali

Setting

Landscape: Valleys
Elevation: 160 to 500 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 200 to 250 days

Composition

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

Description of Grangeville

Setting

Landform: Alluvial fans, flood plains
Landform position (two-dimensional): Footslope, toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Recent granitic alluvium

Properties and Qualities

Slope: 0 to 2 percent
Surface area covered with stones and boulders: 3.0 percent
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high or high (0.57 to 1.98 in/hr)
Depth to water table: About 48 to 72 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Salinity maximum: Very slightly saline or slightly saline (4.0 to 8.0 mmhos/cm)
Sodium adsorption ratio maximum: 5.0
Available water capacity: Moderate (about 7.2 inches)

Interpretive Groups

Land capability classification (irrigated): 2s
Land capability (non irrigated): 4s

Typical Profile

0 to 8 inches: sandy loam
8 to 60 inches: sandy loam

Minor Components

Unnamed, loamy sand
Percent of map unit: 15 percent
Landform: Alluvial fans, flood plains
Down-slope shape: Linear
Across-slope shape: Linear

Taxonomic Classification of the Soils

Eastern Fresno Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Grangeville	Coarse-loamy, mixed, thermic Aquic Haploxerolls

Engineering Properties

Eastern Fresno Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
Gd:												
Grangeville	0-8	Sandy loam	SM	A-4	0	0	100	95-100	60-85	35-50	20-30	NP-5
	8-60	Fine sandy loam, Loam, Sandy loam	ML, SM	A-4	0	0	100	95-100	60-95	35-60	20-35	NP-10
Unnamed, loamy sand	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Gd:														
Grangeville	0-8	---	---	8-18	1.50-1.60	14.00-42.00	0.10-0.13	0.0-2.9	1.0-6.0	.32	.32	5	3	86
	8-60	---	---	8-18	1.60	4.00-14.00	0.10-0.13	0.0-2.9	0.5-1.0	.32	.32			
Unnamed, loamy sand	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Eastern Fresno Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
Gd:		In	In		In	In			
Grangeville	---	---	---	---	0	0	None	High	Low
Unnamed, loamy sand	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
Gd:								
Grangeville	0-8	5.0-15	---	7.4-9.0	0	0	4.0-8.0	0
	8-60	5.0-15	---	7.4-9.0	0	0	4.0-8.0	0-5
Unnamed, loamy sand	---	---	---	---	---	---	---	---

Water Features

Eastern Fresno Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
Gd:										
Grangeville	B	Very low	January	4.0->6.0	>6.0	---	---	None	---	Rare
			February	4.0->6.0	>6.0	---	---	None	---	Rare
			March	4.0->6.0	>6.0	---	---	None	---	Rare
			April	4.0->6.0	>6.0	---	---	None	---	Rare
			May	4.0->6.0	>6.0	---	---	None	---	Rare
			June	4.0->6.0	>6.0	---	---	None	---	Rare
			July	4.0->6.0	>6.0	---	---	None	---	Rare
			August	4.0->6.0	>6.0	---	---	None	---	Rare
			September	4.0->6.0	>6.0	---	---	None	---	Rare
			October	4.0->6.0	>6.0	---	---	None	---	Rare
			November	4.0->6.0	>6.0	---	---	None	---	Rare
			December	4.0->6.0	>6.0	---	---	None	---	Rare
Unnamed, loamy sand	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Eastern Fresno Area, California

Ge Grangeville sandy loam, sandy substratum

Setting

Landscape: Valleys
Elevation: 160 to 500 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 200 to 250 days

Composition

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

Description of Grangeville

Setting

Landform: Alluvial fans, flood plains
Landform position (two-dimensional): Footslope, toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Recent granitic alluvium

Properties and Qualities

Slope: 0 to 2 percent
Surface area covered with stones and boulders: 8.0 percent
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Available water capacity: Moderate (about 6.2 inches)

Interpretive Groups

Land capability classification (irrigated): 2s
Land capability (non irrigated): 4s

Typical Profile

0 to 8 inches: sandy loam
8 to 40 inches: sandy loam
40 to 60 inches: sand

Minor Components

Dello

Percent of map unit: 15 percent
Landform: Depressions on flood plains, alluvial fans
Down-slope shape: Linear
Across-slope shape: Linear

Taxonomic Classification of the Soils

Eastern Fresno Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Grangeville	Coarse-loamy, mixed, thermic Aquic Haploxerolls

Engineering Properties

Eastern Fresno Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
Ge:												
Grangeville	0-8	Sandy loam	SM	A-4	0	0	95-100	90-100	50-75	35-50	20-30	NP-5
	8-40	Coarse sandy loam, Fine sandy loam, Sandy loam	SM	A-4	0	0	95-100	90-100	50-75	35-50	20-30	NP-5
	40-60	Sand	SM, SP-SM	A-1-b, A-2-4	0	0	85-100	75-100	40-60	5-15	0	NP
Dello	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
Ge:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Grangeville	0-8	---	---	8-18	1.50-1.60	14.00-42.00	0.10-0.15	0.0-2.9	1.0-6.0	.32	.32	4	3	86
	8-40	---	---	8-18	1.50-1.60	14.00-42.00	0.10-0.15	0.0-2.9	0.5-1.0	.32	.32			
	40-60	---	---	0-5	1.50-1.60	42.00-141.00	0.04-0.06	0.0-2.9	0.0-0.5	.15	.15			
Dello	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Eastern Fresno Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
Ge: Grangeville	---	---	---	---	0	0	None	High	Low
Dello	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
Ge:								
Grangeville	0-8	5.0-15	---	6.6-7.8	0	0	0.0	0
	8-40	5.0-15	---	6.6-8.4	0	0	0.0-2.0	0
	40-60	1.0-5.0	---	6.6-8.4	0	0	0.0-2.0	0
Dello	---	---	---	---	---	---	---	---

Water Features

Eastern Fresno Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
Ge: Grangeville	B	Very low	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			June	---	---	---	---	None	---	Rare
			July	---	---	---	---	None	---	Rare
			August	---	---	---	---	None	---	Rare
			September	---	---	---	---	None	---	Rare
			October	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare
Dello	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Eastern Fresno Area, California

GtA Greenfield sandy loam, 0 to 3 percent slopes

Setting

Landscape: Valleys
Elevation: 250 to 500 feet
Mean annual precipitation: 9 to 17 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 200 to 275 days

Composition

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

Description of Greenfield

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Granitic alluvium

Properties and Qualities

Slope: 0 to 3 percent
Surface area covered with stones and boulders: 8.0 percent
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Available water capacity: Moderate (about 8.0 inches)

Interpretive Groups

Land capability classification (irrigated): 1
Land capability (non irrigated): 4c

Typical Profile

0 to 16 inches: sandy loam
16 to 38 inches: sandy loam
38 to 60 inches: sandy loam

Minor Components

Hanford soils

Percent of map unit: 8 percent
Landform: Alluvial fans

Ramona soils

Percent of map unit: 7 percent
Landform: Alluvial fans

Taxonomic Classification of the Soils

Eastern Fresno Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Greenfield	Coarse-loamy, mixed, thermic Typic Haploxeralfs

Engineering Properties

Eastern Fresno Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
GtA:												
Greenfield	0-16	Sandy loam	SM	A-2-4, A-4	0	0	95-100	90-100	50-75	30-50	10-28	NP-5
	16-38	Coarse sandy loam, Fine sandy loam, Sandy loam	SM	A-4	0	0	95-100	90-100	50-75	30-50	10-30	NP-5
	38-60	Sandy loam	SM	A-2, A-4	0	0	95-100	90-100	50-75	30-50	10-30	NP-5
Hanford	---	---	---	---	---	---	---	---	---	---	---	---
Ramona	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
GtA:														
Greenfield	0-16	---	---	7-15	1.50-1.60	14.00-42.00	0.10-0.15	0.0-2.9	0.5-1.0	.32	.32	5	3	86
	16-38	---	---	10-18	1.50-1.60	14.00-42.00	0.11-0.16	0.0-2.9	0.0-0.5	.32	.32			
	38-60	---	---	7-15	1.50-1.60	14.00-42.00	0.10-0.15	0.0-2.9	0.0-0.2	.32	.32			
Hanford	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Ramona	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Eastern Fresno Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
GtA:		In	In		In	In			
Greenfield	---	---	---	---	0	0	None	Moderate	Low
Hanford	---	---	---	---	---	---	---	---	---
Ramona	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
GtA:								
Greenfield	0-16	5.0-15	---	6.1-7.8	0	0	0.0	0
	16-38	5.0-10	---	6.1-7.8	0	0	0.0	0
	38-60	5.0-10	---	6.1-7.8	0	0	0.0	0
Hanford	---	---	---	---	---	---	---	---
Ramona	---	---	---	---	---	---	---	---

Water Features

Eastern Fresno Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
GtA: Greenfield	B	Very low	Jan-Dec			---	---	None	---	None
Hanford	---	---	Jan-Dec			---	---	None	---	None
Ramona	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Eastern Fresno Area, California

Hc Hanford sandy loam

Setting

Landscape: Valleys
Elevation: 200 to 500 feet
Mean annual precipitation: 8 to 15 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 250 to 275 days

Composition

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

Description of Hanford

Setting

Landform: Alluvial fans, flood plains
Landform position (two-dimensional): Footslope, toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Granitic alluvium

Properties and Qualities

Slope: 0 to 2 percent
Surface area covered with stones and boulders: 3.0 percent
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Available water capacity: Moderate (about 7.8 inches)

Interpretive Groups

Land capability classification (irrigated): 2s
Land capability (non irrigated): 4s

Typical Profile

0 to 16 inches: sandy loam
16 to 72 inches: sandy loam

Minor Components

Unnamed

Percent of map unit: 10 percent
Landform: Alluvial fans, flood plains

Unnamed, channel

Percent of map unit: 5 percent
Landform: Channels on alluvial fans

Taxonomic Classification of the Soils

Eastern Fresno Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Hanford	Coarse-loamy, mixed, nonacid, thermic Typic Xerorthents

Engineering Properties

Eastern Fresno Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
Hc:												
Hanford	0-16	Sandy loam	SM	A-2-4, A-4	0	0	100	95-100	50-75	30-40	20-30	NP-5
	16-72	Coarse sandy loam, Fine sandy loam, Sandy loam	SM	A-2-4, A-4	0	0	100	95-100	50-75	30-40	20-30	NP-5
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, channel	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
Hc:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Hanford	0-16	---	---	7-18	1.50-1.60	14.00-42.00	0.10-0.15	0.0-2.9	0.5-1.0	.32	.32	5	3	86
	16-72	---	---	7-18	1.50-1.60	14.00-42.00	0.10-0.15	0.0-2.9	0.0-0.5	.32	.32			
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, channel	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Eastern Fresno Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
Hc:		In	In		In	In			
Hanford	---	---	---	---	0	0	None	Moderate	Low
Unnamed	---	---	---	---	---	---	---	---	---
Unnamed, channel	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
Hc:								
Hanford	0-16	5.0-10	---	6.1-7.3	0	0	0.0	0
	16-72	5.0-10	---	6.1-7.3	0	0	0.0	0
Unnamed	---	---	---	---	---	---	---	---
Unnamed, channel	---	---	---	---	---	---	---	---

Water Features

Eastern Fresno Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
Hc: Hanford	B	Very low	Jan-Dec			---	---	None	---	None
Unnamed	---	---	Jan-Dec			---	---	None	---	None
Unnamed, channel	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Eastern Fresno Area, California

Hsm Hesperia sandy loam, moderately deep

Setting

Landscape: Valleys
Elevation: 200 to 400 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 225 to 250 days

Composition

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

Description of Hesperia

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Footslope, toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Granitic alluvium

Properties and Qualities

Slope: 0 to 2 percent
Surface area covered with stones and boulders: 3.0 percent
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low or moderately high (0.06 to 0.20 in/hr)
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 5 percent
Gypsum maximum: 0 percent
Available water capacity: Moderate (about 8.5 inches)

Interpretive Groups

Land capability classification (irrigated): 2s
Land capability (non irrigated): 4s

Typical Profile

0 to 11 inches: sandy loam
11 to 32 inches: sandy loam
32 to 43 inches: sandy loam
43 to 60 inches: silt

Minor Components

Unnamed, coarse sandy loam surface

Percent of map unit: 12 percent
Landform: Knolls on alluvial fans

Unnamed, swale

Percent of map unit: 3 percent
Landform: Swales on alluvial fans

Taxonomic Classification of the Soils

Eastern Fresno Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Hesperia	Coarse-loamy, mixed, nonacid, thermic Typic Xerorthents

Engineering Properties

Eastern Fresno Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
Hesperia	0-11	Sandy loam	SM	A-4	0	0	100	95-100	50-75	35-50	20-30	NP-5
	11-32	Coarse sandy loam, Fine sandy loam, Sandy loam	SM	A-4	0	0	100	95-100	50-75	35-50	20-30	NP-5
	32-43	Coarse sandy loam, Fine sandy loam, Sandy loam	SM	A-4	0	0	100	95-100	50-75	35-50	20-30	NP-5
	43-60	Silt, Silty clay loam, Silt loam	CL-ML, ML	A-4, A-6, A-7-6	0	0	100	100	90-100	75-90	25-45	5-15
Unnamed, coarse sandy loam surface	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, swale	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
Hsm:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Hesperia	0-11	---	---	7-18	1.50-1.60	14.00-42.00	0.10-0.15	0.0-2.9	0.5-1.0	.32	.32	5	3	86
	11-32	---	---	7-18	1.50-1.60	14.00-42.00	0.10-0.15	0.0-2.9	0.0-0.5	.32	.32			
	32-43	---	---	7-18	1.50-1.60	14.00-42.00	0.10-0.15	0.0-2.9	0.0-0.5	.32	.32			
	43-60	---	---	5-30	1.45-1.60	0.42-1.40	0.15-0.18	0.0-2.9	0.0-0.5	.49	.49			
Unnamed, coarse sandy loam surface	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, swale	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Eastern Fresno Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
Hsm:		In	In		In	In			
Hesperia	---	---	---	---	0	0	None	High	Low
Unnamed, coarse sandy loam surface	---	---	---	---	---	---	---	---	---
Unnamed, swale	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
Hsm:								
Hesperia	0-11	5.0-10	---	6.1-7.8	0	0	0.0	0
	11-32	5.0-10	---	6.6-7.8	0	0	0.0	0
	32-43	5.0-10	---	7.9-8.4	1-5	0	0.0-2.0	0
	43-60	10-15	---	7.4-8.4	1-5	0	0.0-2.0	0
Unnamed, coarse sandy loam surface	---	---	---	---	---	---	---	---
Unnamed, swale	---	---	---	---	---	---	---	---

Water Features

Eastern Fresno Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
Hsm:										
Hesperia	B	Very low	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			June	---	---	---	---	None	---	Rare
			July	---	---	---	---	None	---	Rare
			August	---	---	---	---	None	---	Rare
			September	---	---	---	---	None	---	Rare
			October	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare
Unnamed, coarse sandy loam surface	---	---	Jan-Dec			---	---	None	---	None
Unnamed, swale	---	---	January	0.0-0.8	>6.0	0.0-0.5	Long	Frequent	---	None
			February	0.0-0.8	>6.0	0.0-0.5	Long	Frequent	---	None
			March	0.0-0.8	>6.0	0.0-0.5	Long	Occasional	---	None
			April	0.8-2.5	>6.0	0.0-0.5	Brief	Occasional	---	None
			May	1.7-5.0	>6.0	---	---	Rare	---	None
			June	3.3->6.0	>6.0	---	---	None	---	None
			July	3.3->6.0	>6.0	---	---	None	---	None
			August	3.3->6.0	>6.0	---	---	None	---	None
			September	3.3->6.0	>6.0	---	---	None	---	None
			October	1.7-5.0	>6.0	---	---	Rare	---	None
			November	0.8-2.5	>6.0	0.0-0.5	Brief	Occasional	---	None
			December	0.0-0.8	>6.0	0.0-0.5	Long	Frequent	---	None

Map Unit Description

Eastern Fresno Area, California

Hsy Hesperia fine sandy loam, moderately deep, saline-alkali

Setting

Landscape: Valleys

Elevation: 200 to 400 feet

Mean annual precipitation: 8 to 10 inches

Mean annual air temperature: 61 to 63 degrees F

Frost-free period: 225 to 250 days

Composition

Hesperia and similar soils: 85 percent

Minor components: 15 percent

Description of Hesperia

Setting

Landform: Alluvial fans, fan skirts

Landform position (two-dimensional): Footslope, toeslope

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Granitic alluvium

Properties and Qualities

Slope: 0 to 2 percent

Surface area covered with stones and boulders: 3.0 percent

Drainage class: Well drained

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

Frequency of flooding: Rare

Frequency of ponding: None

Calcium carbonate maximum: 5 percent

Gypsum maximum: 0 percent

Salinity maximum: Very slightly saline or slightly saline (4.0 to 8.0 mmhos/cm)

Sodium adsorption ratio maximum: 5.0

Available water capacity: Moderate (about 6.9 inches)

Interpretive Groups

Land capability classification (irrigated): 3s

Land capability (non irrigated): 6s

Typical Profile

0 to 11 inches: fine sandy loam

11 to 32 inches: fine sandy loam

32 to 43 inches: fine sandy loam

43 to 60 inches: silt

Minor Components

Unnamed

Percent of map unit: 15 percent

Landform: Fan skirts, alluvial fans

Down-slope shape: Linear

Across-slope shape: Linear

Taxonomic Classification of the Soils

Eastern Fresno Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Hesperia	Coarse-loamy, mixed, nonacid, thermic Typic Xerorthents

Engineering Properties

Eastern Fresno Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
Hesperia	0-11	Fine sandy loam	SM	A-4	0	0	100	95-100	50-75	35-50	20-30	NP-5
	11-32	Fine sandy loam, Sandy loam	SM	A-4	0	0	100	95-100	50-75	35-50	20-30	NP-5
	32-43	Fine sandy loam, Sandy loam	SM	A-4	0	0	100	95-100	50-75	35-50	20-30	NP-5
	43-60	Silt, Silty clay loam, Silt loam	CL-ML, ML	A-4, A-6, A-7-6	0	0	100	100	90-100	75-90	25-45	5-15
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Hesperia	0-11	---	---	7-18	1.50-1.60	14.00-42.00	0.08-0.13	0.0-2.9	0.5-1.0	.32	.20	5	3	86
	11-32	---	---	7-18	1.50-1.60	14.00-42.00	0.08-0.13	0.0-2.9	0.0-0.5	.32	.20			
	32-43	---	---	7-18	1.50-1.60	14.00-42.00	0.08-0.13	0.0-2.9	0.0-0.5	.32	.32			
	43-60	---	---	5-30	1.45-1.60	0.42-1.40	0.10-0.15	0.0-2.9	0.0-0.5	.49	.49			
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Eastern Fresno Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
Hsy:		In	In		In	In			
Hesperia	---	---	---	---	0	0	None	High	Low
Unnamed	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
Hsy:								
Hesperia	0-11	5.0-10	---	7.9-9.0	0	0	4.0-8.0	0
	11-32	5.0-10	---	7.9-9.0	0	0	4.0-8.0	0-5
	32-43	5.0-10	---	7.9-9.0	1-5	0	4.0-8.0	0
	43-60	10-15	---	7.9-9.0	1-5	0	4.0-8.0	0
Unnamed	---	---	---	---	---	---	---	---

Water Features

Eastern Fresno Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
Hesperia	B	Very low	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			June	---	---	---	---	None	---	Rare
			July	---	---	---	---	None	---	Rare
			August	---	---	---	---	None	---	Rare
			September	---	---	---	---	None	---	Rare
			October	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare
Unnamed	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Eastern Fresno Area, California

Hst Hesperia fine sandy loam moderately deep

Setting

Landscape: Valleys
Elevation: 200 to 400 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 225 to 250 days

Composition

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

Description of Hesperia

Setting

Landform: Alluvial fans, fan skirts
Landform position (two-dimensional): Footslope, toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Granitic alluvium

Properties and Qualities

Slope: 0 to 2 percent
Surface area covered with stones and boulders: 3.0 percent
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low or moderately high (0.06 to 0.20 in/hr)
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 5 percent
Gypsum maximum: 0 percent
Available water capacity: Moderate (about 8.5 inches)

Interpretive Groups

Land capability classification (irrigated): 2s
Land capability (non irrigated): 4s

Typical Profile

0 to 11 inches: fine sandy loam
11 to 32 inches: fine sandy loam
32 to 43 inches: fine sandy loam
43 to 60 inches: silt

Minor Components

Unnamed, reclaimed

Percent of map unit: 10 percent
Landform: Fan skirts

Unnamed, loam surface

Percent of map unit: 5 percent
Landform: Alluvial fans

Taxonomic Classification of the Soils

Eastern Fresno Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Hesperia	Coarse-loamy, mixed, nonacid, thermic Typic Xerorthents

Engineering Properties

Eastern Fresno Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
Hst:												
Hesperia	0-11	Fine sandy loam	SM	A-4	0	0	100	95-100	50-75	35-50	20-30	NP-5
	11-32	Fine sandy loam, Sandy loam	SM	A-4	0	0	100	95-100	50-75	35-50	20-30	NP-5
	32-43	Fine sandy loam, Sandy loam	SM	A-4	0	0	100	95-100	50-75	35-50	20-30	NP-5
	43-60	Silt, Silty clay loam, Silt loam	CL-ML, ML	A-4, A-6, A-7-6	0	0	100	100	90-100	75-90	25-45	5-15
Unnamed, reclaimed	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, loam surface	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
Hst:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Hesperia	0-11	---	---	7-18	1.50-1.60	14.00-42.00	0.10-0.15	0.0-2.9	0.5-1.0	.32	.32	5	3	86
	11-32	---	---	7-18	1.50-1.60	14.00-42.00	0.10-0.15	0.0-2.9	0.0-0.5	.32	.32			
	32-43	---	---	7-18	1.50-1.60	14.00-42.00	0.10-0.15	0.0-2.9	0.0-0.5	.32	.32			
	43-60	---	---	5-30	1.45-1.60	0.42-1.40	0.15-0.18	0.0-2.9	0.0-0.5	.49	.49			
Unnamed, reclaimed	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, loam surface	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Eastern Fresno Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
Hst:		In	In		In	In			
Hesperia	---	---	---	---	0	0	None	High	Low
Unnamed, reclaimed	---	---	---	---	---	---	---	---	---
Unnamed, loam surface	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
Hst:								
Hesperia	0-11	5.0-10	---	6.1-7.8	0	0	0.0	0
	11-32	5.0-10	---	6.6-7.8	0	0	0.0	0
	32-43	5.0-10	---	7.9-8.4	1-5	0	0.0-2.0	0
	43-60	10-15	---	7.4-8.4	1-5	0	0.0-2.0	0
Unnamed, reclaimed	---	---	---	---	---	---	---	---
Unnamed, loam surface	---	---	---	---	---	---	---	---

Water Features

Eastern Fresno Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
Hst:										
Hesperia	B	Very low	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			June	---	---	---	---	None	---	Rare
			July	---	---	---	---	None	---	Rare
			August	---	---	---	---	None	---	Rare
			September	---	---	---	---	None	---	Rare
			October	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare
Unnamed, reclaimed	---	---	Jan-Dec			---	---	None	---	None
Unnamed, loam surface	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Eastern Fresno Area, California

Hsr Hesperia fine sandy loam

Setting

Landscape: Valleys
Elevation: 200 to 400 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 225 to 250 days

Composition

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

Description of Hesperia

Setting

Landform: -- error in exists on --
Landform position (two-dimensional): Footslope, toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Granitic alluvium

Properties and Qualities

Slope: 0 to 2 percent
Surface area covered with stones and boulders: 3.0 percent
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low or moderately high (0.06 to 0.20 in/hr)
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 5 percent
Gypsum maximum: 0 percent
Available water capacity: Moderate (about 7.8 inches)

Interpretive Groups

Land capability classification (irrigated): 1
Land capability (non irrigated): 4c

Typical Profile

0 to 11 inches: fine sandy loam
11 to 32 inches: fine sandy loam
32 to 60 inches: fine sandy loam
60 to 65 inches: silt

Minor Components

Unnamed, loam surface
Percent of map unit: 10 percent
Landform: Alluvial fans

Unnamed
Percent of map unit: 5 percent
Landform: Alluvial fans

Taxonomic Classification of the Soils

Eastern Fresno Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Hesperia	Coarse-loamy, mixed, nonacid, thermic Typic Xerorthents

Engineering Properties

Eastern Fresno Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
Hesperia	0-11	Fine sandy loam	SM	A-4	0	0	100	95-100	50-75	35-50	20-30	NP-5
	11-32	Fine sandy loam, Sandy loam	SM	A-4	0	0	100	95-100	50-75	35-50	20-30	NP-5
	32-60	Fine sandy loam, Sandy loam	SM	A-4	0	0	100	95-100	50-75	35-50	20-30	NP-5
	60-65	Silt, Silty clay loam, Silt loam	CL-ML, ML	A-4, A-6, A-7-6	0	0	100	100	90-100	75-90	25-45	5-15
Unnamed, loam surface	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Hesperia	0-11	---	---	7-18	1.50-1.60	14.00-42.00	0.10-0.15	0.0-2.9	0.5-1.0	.32	.32	5	3	86
	11-32	---	---	7-18	1.50-1.60	14.00-42.00	0.10-0.15	0.0-2.9	0.0-0.5	.32	.32			
	32-60	---	---	7-18	1.50-1.60	14.00-42.00	0.10-0.15	0.0-2.9	0.0-0.5	.32	.32			
	60-65	---	---	5-30	1.45-1.60	0.42-1.40	0.15-0.18	0.0-2.9	0.0-0.5	.49	.49			
Unnamed, loam surface	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Eastern Fresno Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
Hsr:		In	In		In	In			
Hesperia	---	---	---	---	0	0	None	High	Low
Unnamed, loam surface	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
Hsr:								
Hesperia	0-11	5.0-10	---	6.1-7.8	0	0	0.0	0
	11-32	5.0-10	---	6.6-7.8	0	0	0.0	0
	32-60	5.0-10	---	7.9-8.4	1-5	0	0.0-2.0	0
	60-65	10-15	---	7.4-8.4	1-5	0	0.0-2.0	0
Unnamed, loam surface	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---

Water Features

Eastern Fresno Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
Hsr:										
Hesperia	B	Very low	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			June	---	---	---	---	None	---	Rare
			July	---	---	---	---	None	---	Rare
			August	---	---	---	---	None	---	Rare
			September	---	---	---	---	None	---	Rare
			October	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare
Unnamed, loam surface	---	---	Jan-Dec			---	---	None	---	None
Unnamed	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Eastern Fresno Area, California

Hsn Hesperia sandy loam, moderately deep, saline-alkali

Setting

Landscape: Valleys

Elevation: 200 to 400 feet

Mean annual precipitation: 8 to 10 inches

Mean annual air temperature: 61 to 63 degrees F

Frost-free period: 225 to 250 days

Composition

Hesperia and similar soils: 85 percent

Minor components: 15 percent

Description of Hesperia

Setting

Landform: Fan skirts, abandoned channels on alluvial fans

Landform position (two-dimensional): Toeslope

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Granitic alluvium

Properties and Qualities

Slope: 0 to 2 percent

Surface area covered with stones and boulders: 3.0 percent

Drainage class: Well drained

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

Frequency of flooding: Rare

Frequency of ponding: None

Calcium carbonate maximum: 5 percent

Gypsum maximum: 0 percent

Salinity maximum: Very slightly saline or slightly saline (4.0 to 8.0 mmhos/cm)

Sodium adsorption ratio maximum: 5.0

Available water capacity: Moderate (about 6.9 inches)

Interpretive Groups

Land capability classification (irrigated): 3s

Land capability (non irrigated): 4s

Typical Profile

0 to 11 inches: sandy loam

11 to 32 inches: sandy loam

32 to 43 inches: sandy loam

43 to 60 inches: silt

Minor Components

Unnamed

Percent of map unit: 15 percent

Landform: Alluvial fans, fan skirts

Down-slope shape: Linear

Across-slope shape: Linear

Taxonomic Classification of the Soils

Eastern Fresno Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Hesperia	Coarse-loamy, mixed, nonacid, thermic Typic Xerorthents

Engineering Properties

Eastern Fresno Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
Hesperia	0-11	Sandy loam	SM	A-4	0	0	100	95-100	50-75	35-50	20-30	NP-5
	11-32	Coarse sandy loam, Fine sandy loam, Sandy loam	SM	A-4	0	0	100	95-100	50-75	35-50	20-30	NP-5
	32-43	Coarse sandy loam, Fine sandy loam, Sandy loam	SM	A-4	0	0	100	95-100	50-75	35-50	20-30	NP-5
	43-60	Silt, Silty clay loam, Silt loam	CL-ML, ML	A-4, A-6, A-7-6	0	0	100	100	90-100	75-90	25-45	5-15
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Hsn:														
Hesperia	0-11	---	---	7-18	1.50-1.60	14.00-42.00	0.08-0.13	0.0-2.9	0.5-1.0	.32	.20	5	3	86
	11-32	---	---	7-18	1.50-1.60	14.00-42.00	0.08-0.13	0.0-2.9	0.0-0.5	.32	.20			
	32-43	---	---	7-18	1.50-1.60	14.00-42.00	0.08-0.13	0.0-2.9	0.0-0.5	.32	.32			
	43-60	---	---	5-30	1.45-1.60	0.42-1.40	0.10-0.15	0.0-2.9	0.0-0.5	.49	.49			
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Eastern Fresno Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
Hsn:		In	In		In	In			
Hesperia	---	---	---	---	0	0	None	High	Low
Unnamed	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
Hsn:								
Hesperia	0-11	5.0-10	---	7.9-9.0	0	0	4.0-8.0	0
	11-32	5.0-10	---	7.9-9.0	0	0	4.0-8.0	0-5
	32-43	5.0-10	---	7.9-9.0	1-5	0	4.0-8.0	0
	43-60	10-15	---	7.9-9.0	1-5	0	4.0-8.0	0
Unnamed	---	---	---	---	---	---	---	---

Water Features

Eastern Fresno Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
Hsn:										
Hesperia	B	Very low	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			June	---	---	---	---	None	---	Rare
			July	---	---	---	---	None	---	Rare
			August	---	---	---	---	None	---	Rare
			September	---	---	---	---	None	---	Rare
			October	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare
Unnamed	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Eastern Fresno Area, California

Hsd Hesperia sandy loam

Setting

Landscape: Valleys
Elevation: 200 to 400 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 225 to 250 days

Composition

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

Description of Hesperia

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Footslope, toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Granitic alluvium

Properties and Qualities

Slope: 0 to 2 percent
Surface area covered with stones and boulders: 3.0 percent
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low or moderately high (0.06 to 0.20 in/hr)
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 5 percent
Gypsum maximum: 0 percent
Available water capacity: Moderate (about 7.8 inches)

Interpretive Groups

Land capability classification (irrigated): 2s
Land capability (non irrigated): 4s

Typical Profile

0 to 11 inches: sandy loam
11 to 32 inches: sandy loam
32 to 60 inches: sandy loam
60 to 65 inches: silt

Minor Components

Unnamed

Percent of map unit: 15 percent
Landform: Alluvial fans
Down-slope shape: Linear
Across-slope shape: Linear

Taxonomic Classification of the Soils

Eastern Fresno Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Hesperia	Coarse-loamy, mixed, nonacid, thermic Typic Xerorthents

Engineering Properties

Eastern Fresno Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
Hsd:												
Hesperia	0-11	Sandy loam	SM	A-4	0	0	100	95-100	50-75	35-50	20-30	NP-5
	11-32	Coarse sandy loam, Fine sandy loam, Sandy loam	SM	A-4	0	0	100	95-100	50-75	35-50	20-30	NP-5
	32-60	Coarse sandy loam, Fine sandy loam, Sandy loam	SM	A-4	0	0	100	95-100	50-75	35-50	20-30	NP-5
	60-65	Silt, Silty clay loam, Silt loam	CL-ML, ML	A-4, A-6, A-7-6	0	0	100	100	90-100	75-90	25-45	5-15
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
Hsd:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Hesperia	0-11	---	---	7-18	1.50-1.60	14.00-42.00	0.10-0.15	0.0-2.9	0.5-1.0	.32	.32	5	3	86
	11-32	---	---	7-18	1.50-1.60	14.00-42.00	0.10-0.15	0.0-2.9	0.0-0.5	.32	.32			
	32-60	---	---	7-18	1.50-1.60	14.00-42.00	0.10-0.15	0.0-2.9	0.0-0.5	.32	.32			
	60-65	---	---	5-30	1.45-1.60	0.42-1.40	0.15-0.18	0.0-2.9	0.0-0.5	.49	.49			
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Eastern Fresno Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
Hsd:		In	In		In	In			
Hesperia	---	---	---	---	0	0	None	High	Low
Unnamed	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
Hsd:								
Hesperia	0-11	5.0-10	---	6.1-7.8	0	0	0.0	0
	11-32	5.0-10	---	6.6-7.8	0	0	0.0	0
	32-60	5.0-10	---	7.9-8.4	1-5	0	0.0-2.0	0
	60-65	10-15	---	7.4-8.4	1-5	0	0.0-2.0	0
Unnamed	---	---	---	---	---	---	---	---

Water Features

Eastern Fresno Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
Hsd:										
Hesperia	B	Very low	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			June	---	---	---	---	None	---	Rare
			July	---	---	---	---	None	---	Rare
			August	---	---	---	---	None	---	Rare
			September	---	---	---	---	None	---	Rare
			October	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare
Unnamed	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Eastern Fresno Area, California

Tt Traver fine sandy loam

Setting

Landscape: Valleys
Elevation: 170 to 240 feet
Mean annual precipitation: 6 to 10 inches
Mean annual air temperature: 62 to 64 degrees F
Frost-free period: 225 to 275 days

Composition

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

Description of Traver

Setting

Landform: Fan skirts
Landform position (two-dimensional): Footslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Granitic alluvium

Properties and Qualities

Slope: 0 to 2 percent
Surface area covered with stones and boulders: 3.0 percent
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low or moderately high (0.06 to 0.20 in/hr)
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 5 percent
Gypsum maximum: 0 percent
Salinity maximum: Very slightly saline or moderately saline (4.0 to 16.0 mmhos/cm)
Sodium adsorption ratio maximum: 20.0
Available water capacity: Low (about 5.3 inches)

Interpretive Groups

Land capability classification (irrigated): 2s
Land capability (non irrigated): 4s

Typical Profile

0 to 10 inches: fine sandy loam
10 to 23 inches: sandy clay loam
23 to 60 inches: sandy loam

Minor Components

Unnamed, loam surface
Percent of map unit: 14 percent
Landform: Fan skirts

Playas

Percent of map unit: 1 percent
Landform: Playas on fan skirts

Taxonomic Classification of the Soils

Eastern Fresno Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Traver	Fine-loamy, mixed, thermic Natric Haploxeralfs

Engineering Properties

Eastern Fresno Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
Tt:												
Traver	0-10	Fine sandy loam	SM	A-4	0	0	100	95-100	65-85	35-50	20-30	NP-5
	10-23	Sandy clay loam, Sandy loam	SC, SC-SM	A-4, A-6	0	0	100	100	85-90	35-50	25-40	5-15
	23-60	Loam, Sandy loam	SM	A-4	0	0	100	100	65-85	35-50	20-30	NP-5
Unnamed, loam surface	---	---	---	---	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Tt:														
Traver	0-10	---	---	8-15	1.50-1.60	4.00-14.00	0.07-0.11	0.0-2.9	0.5-1.0	.37	.37	5	3	86
	10-23	---	---	18-25	1.45-1.60	0.42-1.40	0.08-0.13	3.0-5.9	0.0-0.5	.37	.37			
	23-60	---	---	8-20	1.50-1.70	1.40-4.00	0.06-0.10	0.0-2.9	0.0-0.5	.37	.37			
Unnamed, loam surface	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Eastern Fresno Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
Tt:		In	In		In	In			
Traver	---	---	---	---	0	0	None	High	Moderate
Unnamed, loam surface	---	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
Tt:								
Traver	0-10	5.0-10	---	7.4-9.0	1-5	0	4.0-16.0	0-5
	10-23	5.0-15	---	7.8-9.6	1-5	0	4.0-16.0	15-20
	23-60	5.0-10	---	7.8-9.6	1-5	0	4.0-16.0	5-10
Unnamed, loam surface	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---

Water Features

Eastern Fresno Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
Tt:										
Traver	D	Medium	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			June	---	---	---	---	None	---	Rare
			July	---	---	---	---	None	---	Rare
			August	---	---	---	---	None	---	Rare
			September	---	---	---	---	None	---	Rare
			October	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare
Unnamed, loam surface	---	---	Jan-Dec			---	---	None	---	None
Playas	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Eastern Fresno Area, California

Tr Traver sandy loam

Setting

Landscape: Valleys
Elevation: 170 to 240 feet
Mean annual precipitation: 6 to 10 inches
Mean annual air temperature: 62 to 64 degrees F
Frost-free period: 225 to 275 days

Composition

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

Description of Traver

Setting

Landform: Fan skirts
Landform position (two-dimensional): Footslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Granitic alluvium

Properties and Qualities

Slope: 0 to 2 percent
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low or moderately high (0.06 to 0.20 in/hr)
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 5 percent
Gypsum maximum: 0 percent
Salinity maximum: Very slightly saline or moderately saline (4.0 to 16.0 mmhos/cm)
Sodium adsorption ratio maximum: 20.0
Available water capacity: Low (about 5.3 inches)

Interpretive Groups

Land capability classification (irrigated): 2s
Land capability (non irrigated): 4s

Typical Profile

0 to 10 inches: sandy loam
10 to 23 inches: sandy clay loam
23 to 60 inches: sandy loam

Minor Components

Traver, non saline-sodic soils
Percent of map unit: 14 percent
Landform: Fan skirts

Playas

Percent of map unit: 1 percent
Landform: Playas on fan skirts

Taxonomic Classification of the Soils

Eastern Fresno Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Traver	Fine-loamy, mixed, thermic Natric Haploxeralfs

Engineering Properties

Eastern Fresno Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
Tr:												
Traver	0-10	Sandy loam	SM	A-4	0	0	100	100	65-85	35-50	20-30	NP-5
	10-23	Sandy clay loam, Sandy loam	SC, SC-SM	A-4, A-6	0	0	100	100	85-90	35-50	25-40	5-15
	23-60	Loam, Sandy loam	SM	A-4	0	0	100	100	65-85	35-50	20-30	NP-5
Traver, non saline-sodic	---	---	---	---	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Tr:														
Traver	0-10	---	---	8-15	1.50-1.60	4.00-14.00	0.07-0.11	0.0-2.9	0.5-1.0	.37	.37	5	3	86
	10-23	---	---	18-25	1.45-1.60	0.42-1.40	0.08-0.13	3.0-5.9	0.0-0.5	.37	.37			
	23-60	---	---	8-20	1.50-1.70	1.40-4.00	0.06-0.10	0.0-2.9	0.0-0.5	.37	.37			
Traver, non saline-sodic	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Eastern Fresno Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
Tr:		In	In		In	In			
Traver	---	---	---	---	0	0	None	High	Moderate
Traver, non saline-sodic	---	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
Traver	0-10	5.0-10	---	7.4-9.0	1-5	0	0.0-16.0	0-5
	10-23	5.0-15	---	7.8-9.6	1-5	0	4.0-16.0	15-20
	23-60	5.0-10	---	7.8-9.6	1-5	0	4.0-16.0	15-20
Traver, non saline-sodic	---	---	---	---	---	---	---	---
Playas	---	---	---	---	---	---	---	---

Water Features

Eastern Fresno Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
Traver	D	Medium	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			June	---	---	---	---	None	---	Rare
			July	---	---	---	---	None	---	Rare
			August	---	---	---	---	None	---	Rare
			September	---	---	---	---	None	---	Rare
			October	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare
Traver, non saline-sodic	---	---	Jan-Dec			---	---	None	---	None
Playas	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Eastern Fresno Area, California

Tzba Tujunga loamy sand, 0 to 3 percent slopes

Setting

Landscape: Valleys
Elevation: 180 to 400 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 62 to 64 degrees F
Frost-free period: 225 to 275 days

Composition

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

Description of Tujunga

Setting

Landform: Flood plains, alluvial fans
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Granitic alluvium

Properties and Qualities

Slope: 0 to 3 percent
Surface area covered with stones and boulders: 18.0 percent
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High or very high (5.95 to 19.98 in/hr)
Frequency of flooding: Occasional
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Available water capacity: Low (about 4.2 inches)

Interpretive Groups

Land capability classification (irrigated): 4s
Land capability (non irrigated): 4s

Typical Profile

0 to 4 inches: loamy sand
4 to 60 inches: stratified sand to loamy sand

Minor Components

Unnamed, loamy coarse sand
Percent of map unit: 12 percent
Landform: Alluvial fans, flood plains

Unnamed, compact substratum
Percent of map unit: 2 percent
Landform: Alluvial fans, flood plains

Unnamed, flooded
Percent of map unit: 1 percent
Landform: Flood plains

Taxonomic Classification of the Soils

Eastern Fresno Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Tujunga	Mixed, thermic Typic Xeropsamments

Engineering Properties

Eastern Fresno Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
Tzba:												
Tujunga	0-4	Loamy sand	SM, SP-SM	A-1-b, A-2-4	0	0-5	90-100	75-95	40-70	15-25	0	NP
	4-60	Stratified sand to loamy sand	SM, SP-SM	A-1-b, A-2-4, A-3	0	0-5	90-100	75-95	40-70	5-25	0	NP
Unnamed, loamy coarse sand	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, compact substratum	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, flooded	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
Tzba:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Tujunga	0-4	---	---	0-5	1.60-1.70	42.00-141.00	0.05-0.10	0.0-2.9	0.5-1.0	.17	.17	5	2	134
	4-60	---	---	0-5	1.60-1.70	42.00-141.00	0.05-0.08	0.0-2.9	0.0-0.5	.20	.20			
Unnamed, loamy coarse sand	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, compact substratum	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, flooded	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Eastern Fresno Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
TzbA:		In	In		In	In			
Tujunga	---	---	---	---	0	0	None	Moderate	Low
Unnamed, loamy coarse sand	---	---	---	---	---	---	---	---	---
Unnamed, compact substratum	---	---	---	---	---	---	---	---	---
Unnamed, flooded	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
TzbA:								
Tujunga	0-4	1.0-5.0	---	6.1-7.3	0	0	0.0	0
	4-60	1.0-5.0	---	6.1-7.3	0	0	0.0	0
Unnamed, loamy coarse sand	---	---	---	---	---	---	---	---
Unnamed, compact substratum	---	---	---	---	---	---	---	---
Unnamed, flooded	---	---	---	---	---	---	---	---

Water Features

Eastern Fresno Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
TzbA:										
Tujunga	A	Very low	January	---	---	---	---	None	Brief	Occasional
			February	---	---	---	---	None	Brief	Occasional
			March	---	---	---	---	None	Brief	Occasional
			December	---	---	---	---	None	Brief	Occasional
Unnamed, loamy coarse sand	---	---	Jan-Dec			---	---	None	---	None
Unnamed, compact substratum	---	---	Jan-Dec			---	---	None	---	None
Unnamed, flooded	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Eastern Fresno Area, California

TzaA Tujunga sand, 0 to 3 percent slopes

Setting

Landscape: Valleys
Elevation: 180 to 400 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 62 to 64 degrees F
Frost-free period: 225 to 275 days

Composition

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

Description of Tujunga

Setting

Landform: Flood plains, alluvial fans
Landform position (two-dimensional): Footslope, toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Granitic alluvium

Properties and Qualities

Slope: 0 to 3 percent
Surface area covered with stones and boulders: 18.0 percent
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High or very high (5.95 to 19.98 in/hr)
Frequency of flooding: Frequent
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Available water capacity: Low (about 4.2 inches)

Interpretive Groups

Land capability classification (irrigated): 4s
Land capability (non irrigated): 4s
Ecological site: RIVERWASH (R017XE114CA)

Typical Profile

0 to 4 inches: sand
4 to 60 inches: stratified sand to loamy sand

Minor Components

Unnamed, fine sand

Percent of map unit: 10 percent
Landform: Alluvial fans, flood plains

Unnamed, cobbly surface

Percent of map unit: 5 percent
Landform: Alluvial fans, flood plains

Taxonomic Classification of the Soils

Eastern Fresno Area, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Tujunga	Mixed, thermic Typic Xeropsamments

Engineering Properties

Eastern Fresno Area, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
TzA:												
Tujunga	0-4	Sand	SM, SP-SM	A-1-b, A-2-4, A-3	0	0-5	90-100	75-95	40-70	5-25	0	NP
	4-60	Stratified sand to loamy sand	SM, SP-SM	A-1-b, A-2-4, A-3	0	0-5	90-100	75-95	40-70	5-25	0	NP
Unnamed, fine sand	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, cobbly surface	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
TzaA:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Tujunga	0-4	---	---	0-5	1.60-1.70	42.00-141.00	0.05-0.08	0.0-2.9	0.5-1.0	.17	.17	5	1	180
	4-60	---	---	0-5	1.60-1.70	42.00-141.00	0.05-0.08	0.0-2.9	0.0-0.5	.20	.20			
Unnamed, fine sand	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, cobbly surface	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Eastern Fresno Area, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
TzaA:		In	In		In	In			
Tujunga	---	---	---	---	0	0	None	Moderate	Low
Unnamed, fine sand	---	---	---	---	---	---	---	---	---
Unnamed, cobbly surface	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Eastern Fresno Area, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
TzaA:								
Tujunga	0-4	1.0-5.0	---	6.1-7.3	0	0	0.0	0
	4-60	1.0-5.0	---	6.1-7.3	0	0	0.0	0
Unnamed, fine sand	---	---	---	---	---	---	---	---
Unnamed, cobbly surface	---	---	---	---	---	---	---	---

Water Features

Eastern Fresno Area, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
TzaA:										
Tujunga	A	Very low	January	---	---	---	---	None	Brief	Frequent
			February	---	---	---	---	None	Brief	Frequent
			March	---	---	---	---	None	Brief	Frequent
			December	---	---	---	---	None	Brief	Frequent
Unnamed, fine sand	---	---	Jan-Dec			---	---	None	---	None
Unnamed, cobbly surface	---	---	Jan-Dec			---	---	None	---	None

Kings County | CA031

Map Unit Description

Kings County, California

104 Cajon sandy loam

Setting

Elevation: 320 to 400 feet
Mean annual precipitation: 5 to 7 inches
Mean annual air temperature: 61 to 70 degrees F
Frost-free period: 240 to 300 days

Composition

Cajon and similar soils: 85 percent
Cajon, calcareous: 4 percent
Kimberlina: 4 percent
Nord: 3 percent
Waslo: 1 percent
Lemoore: 1 percent
Unnamed, rare flooding: 1 percent
Unnamed: 1 percent

Description of Cajon

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous and sedimentary rock

Properties and Qualities

Slope: 0 to 1 percent
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Available water capacity: Low (about 5.1 inches)

Interpretive Groups

Land capability classification (irrigated): 3s
Land capability (non irrigated): 7s

Typical Profile

0 to 11 inches: sandy loam
11 to 60 inches: loamy sand
60 to 70 inches: stratified sand to loamy fine sand

Description of Cajon, calcareous

Description of Kimberlina

Description of Nord

Description of Waslo

Description of Lemoore

Setting

Landform: Alluvial fans

Description of Unnamed, rare flooding

Description of Unnamed

Setting

Landform: Sloughs

Map Unit Description

Kings County, California

Taxonomic Classification of the Soils

Kings County, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Cajon*	Mixed, thermic Typic Torripsamments

Engineering Properties

Kings County, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
104:	In				Pct	Pct					Pct	
Cajon	0-11	Sandy loam	SM	A-2	0	0	90-100	85-100	50-70	25-35	20-30	NP-5
	11-60	Loamy sand	SM	A-1, A-2	0	0	90-100	85-100	45-70	10-25	---	NP
	60-70	Stratified sand to loamy fine sand	SM, SP-SM	A-1, A-2, A-3	0	0	90-100	85-100	40-70	5-25	---	NP
Cajon, calcareous	---	---	---	---	---	---	---	---	---	---	---	---
Kimberlina	---	---	---	---	---	---	---	---	---	---	---	---
Nord	---	---	---	---	---	---	---	---	---	---	---	---
Lemoore	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, rare flooding	---	---	---	---	---	---	---	---	---	---	---	---
Waslo	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Kings County, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
104:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Cajon	0-11	---	---	8-18	1.55-1.65	14.00-42.00	0.09-0.12	0.0-2.9	0.5-1.0	.28	.28	2	3	86
	11-60	---	---	0-8	1.60-1.70	42.00-141.00	0.06-0.09	0.0-2.9	0.5	.15	.20			
	60-70	---	---	0-5	1.60-1.70	42.00-141.00	0.06-0.10	0.0-2.9	0.5	.15	.17			
Cajon, calcareous	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Kimberlina	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Nord	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Lemoore	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, rare flooding	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Waslo	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Kings County, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
104:		In	In		In	In			
Cajon	---	---	---	---	---	---	None	Moderate	Low
Cajon, calcareous	---	---	---	---	---	---	---	---	---
Kimberlina	---	---	---	---	---	---	---	---	---
Nord	---	---	---	---	---	---	---	---	---
Lemoore	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---
Unnamed, rare flooding	---	---	---	---	---	---	---	---	---
Waslo	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Kings County, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
104:								
Cajon	0-11	10-15	---	7.4-8.4	0	0	0.0-2.0	0
	11-60	2.0-5.0	---	7.4-8.4	0	0	0.0-2.0	0
	60-70	1.0-2.0	---	7.4-8.4	0	0	0.0-2.0	0
Cajon, calcareous	---	---	---	---	---	---	---	---
Kimberlina	---	---	---	---	---	---	---	---
Nord	---	---	---	---	---	---	---	---
Lemoore	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---
Unnamed, rare flooding	---	---	---	---	---	---	---	---
Waslo	---	---	---	---	---	---	---	---

Water Features

Kings County, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
104:										
Cajon	A	Very low	Jan-Dec			---	---	None	---	None
Cajon, calcareous	---	---	Jan-Dec			---	---	None	---	None
Kimberlina	---	---	Jan-Dec			---	---	None	---	None
Nord	---	---	Jan-Dec			---	---	None	---	None
Lemoore	---	---	Jan-Dec			---	---	None	---	None
Unnamed	---	---	Jan-Dec			---	---	None	---	None
Unnamed, rare flooding	---	---	Jan-Dec			---	---	None	---	None
Waslo	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Kings County, California

112 Excelsior sandy loam

Setting

Elevation: 200 to 280 feet
Mean annual precipitation: 5 to 8 inches
Mean annual air temperature: 63 to 64 degrees F
Frost-free period: 240 to 300 days

Composition

Excelsior and similar soils: 85 percent
Garces: 3 percent
Melga: 3 percent
Remndy: 3 percent
Yould: 2 percent
Kimberlina: 1 percent
Nord: 1 percent
Unnamed, rare flooding: 1 percent
Unnamed: 1 percent

Description of Excelsior

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Alluvium derived from igneous and sedimentary rock

Properties and Qualities

Slope: 0 to 1 percent
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low or moderately high (0.06 to 0.20 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 5 percent
Gypsum maximum: 0 percent
Salinity maximum: Non saline or moderately saline (2.0 to 16.0 mmhos/cm)
Sodium adsorption ratio maximum: 80.0
Available water capacity: Low (about 6.0 inches)

Interpretive Groups

Land capability classification (irrigated): 2s
Land capability (non irrigated): 6s

Typical Profile

0 to 8 inches: sandy loam
8 to 26 inches: stratified loamy sand to sandy loam
26 to 60 inches: stratified sandy loam to silt loam

Description of Garces

Description of Melga

Description of Remndy

Description of Yould

Description of Kimberlina

Description of Nord

Description of Unnamed, rare flooding

Description of Unnamed

Map Unit Description

Kings County, California

Setting

Landform: Sloughs

Taxonomic Classification of the Soils

Kings County, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Excelsior	Coarse-loamy, mixed (calcareous), thermic Typic Torrifuvents

Engineering Properties

Kings County, California

Absence of an entry indicates that the data were not estimated. The asterisk "*" denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
112:												
Excelsior	0-8	Sandy loam	SM	A-2, A-4	0	0	100	100	60-70	30-45	25-30	NP-5
	8-26	Stratified loamy sand to sandy loam	SM	A-2, A-4	0	0	100	100	50-70	30-50	25-30	NP-5
	26-60	Stratified sandy loam to silt loam	CL-ML, ML, SM	A-4	0	0	100	100	60-90	35-70	20-30	NP-10
Garces	---	---	---	---	---	---	---	---	---	---	---	---
Melga	---	---	---	---	---	---	---	---	---	---	---	---
Remndy	---	---	---	---	---	---	---	---	---	---	---	---
Yould	---	---	---	---	---	---	---	---	---	---	---	---
Kimberlina	---	---	---	---	---	---	---	---	---	---	---	---
Nord	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, rare flooding	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Kings County, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
112:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Excelsior	0-8	---	---	5-18	1.50-1.60	4.00-14.00	0.08-0.12	0.0-2.9	0.5-1.0	.24	.28	5	3	86
	8-26	---	---	5-18	1.60-1.70	4.00-14.00	0.08-0.12	0.0-2.9	0.5	.24	.24			
	26-60	---	---	8-18	1.45-1.60	0.42-1.40	0.05-0.15	0.0-2.9	0.5	.43	.43			
Garces	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Melga	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Remndy	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Yould	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Kimberlina	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Nord	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, rare flooding	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Kings County, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
112:		In	In		In	In			
Excelsior	---	---	---	---	---	---	None	High	High
Garces	---	---	---	---	---	---	---	---	---
Melga	---	---	---	---	---	---	---	---	---
Remndy	---	---	---	---	---	---	---	---	---
Yould	---	---	---	---	---	---	---	---	---
Kimberlina	---	---	---	---	---	---	---	---	---
Nord	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---
Unnamed, rare flooding	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Kings County, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
112:								
Excelsior	0-8	5.0-10	---	7.9-9.0	0	0	0.0-8.0	0
	8-26	5.0-10	---	8.4-9.6	1-5	0	0.0-8.0	0
	26-60	5.0-10	---	8.4-9.6	1-5	0	2.0-16.0	15-80
Garces	---	---	---	---	---	---	---	---
Melga	---	---	---	---	---	---	---	---
Remndy	---	---	---	---	---	---	---	---
Yould	---	---	---	---	---	---	---	---
Kimberlina	---	---	---	---	---	---	---	---
Nord	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---
Unnamed, rare flooding	---	---	---	---	---	---	---	---

Water Features

Kings County, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
112:										
Excelsior	D	Medium	Jan-Dec			---	---	None	---	None
Garces	---	---	Jan-Dec			---	---	None	---	None
Melga	---	---	Jan-Dec			---	---	None	---	None
Remndy	---	---	Jan-Dec			---	---	None	---	None
Yould	---	---	Jan-Dec			---	---	None	---	None
Kimberlina	---	---	Jan-Dec			---	---	None	---	None
Nord	---	---	Jan-Dec			---	---	None	---	None
Unnamed	---	---	Jan-Dec			---	---	None	---	None
Unnamed, rare flooding	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Kings County, California

130 Kimberlina fine sandy loam, saline-alkali

Setting

Elevation: 190 to 3500 feet
Mean annual precipitation: 4 to 8 inches
Mean annual air temperature: 61 to 64 degrees F
Frost-free period: 210 to 300 days

Composition

Kimberlina and similar soils: 85 percent
Kimberlina, sandy substratum: 2 percent
Nord: 2 percent
Wasco: 2 percent
Excelsior: 2 percent
Garces: 1 percent
Melga: 1 percent
Remnoy: 1 percent
Yound: 1 percent
Unnamed, rare flooding: 1 percent
Unnamed: 1 percent
Cajon: 1 percent

Description of Kimberlina

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous and sedimentary rock

Properties and Qualities

Slope: 0 to 2 percent
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 5 percent
Gypsum maximum: 0 percent
Salinity maximum: Very slightly saline or slightly saline (4.0 to 8.0 mmhos/cm)
Sodium adsorption ratio maximum: 25.0
Available water capacity: Very low (about 3.0 inches)

Interpretive Groups

Land capability classification (irrigated): 2s
Land capability (non irrigated): 7s

Typical Profile

0 to 8 inches: fine sandy loam
8 to 60 inches: fine sandy loam

Description of Kimberlina, sandy substratum

Description of Nord

Description of Wasco

Description of Excelsior

Description of Garces

Description of Melga

Description of Remnoy

Map Unit Description

Kings County, California

Description of Young

Description of Unnamed, rare flooding

Description of Unnamed

Setting

Landform: Sloughs

Description of Cajon

Taxonomic Classification of the Soils

Kings County, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Kimberlina	Coarse-loamy, mixed (calcareous), thermic Typic Torriorthents

Engineering Properties

Kings County, California

Absence of an entry indicates that the data were not estimated. The asterisk "*" denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
130:	In				Pct	Pct					Pct	
Kimberlina	0-8	Fine sandy loam	SM	A-2, A-4	0	0	80-100	75-100	40-70	25-50	20-30	NP-5
	8-60	Fine sandy loam, Sandy loam	SM	A-2, A-4	0	0	80-100	75-100	40-70	25-50	20-30	NP-5
Excelsior	---	---	---	---	---	---	---	---	---	---	---	---
Kimberlina, sandy substratum	---	---	---	---	---	---	---	---	---	---	---	---
Nord	---	---	---	---	---	---	---	---	---	---	---	---
Wasco	---	---	---	---	---	---	---	---	---	---	---	---
Cajon	---	---	---	---	---	---	---	---	---	---	---	---
Garces	---	---	---	---	---	---	---	---	---	---	---	---
Melga	---	---	---	---	---	---	---	---	---	---	---	---
Remnoy	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, rare flooding	---	---	---	---	---	---	---	---	---	---	---	---
Yound	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Kings County, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
130:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Kimberlina	0-8	---	---	6-18	1.50-1.60	14.00-42.00	0.02-0.08	0.0-2.9	0.5-1.0	.37	.43	5	3	86
	8-60	---	---	10-18	1.50-1.60	1.40-4.00	0.02-0.08	0.0-2.9	0.5	.37	.43			
Excelsior	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Kimberlina, sandy substratum	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Nord	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Wasco	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Cajon	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Garces	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Melga	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Remnoy	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, rare flooding	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Yound	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Kings County, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
130:									
Kimberlina	---	---	---	---	---	---	None	High	High
Excelsior	---	---	---	---	---	---	---	---	---
Kimberlina, sandy substratum	---	---	---	---	---	---	---	---	---
Nord	---	---	---	---	---	---	---	---	---
Wasco	---	---	---	---	---	---	---	---	---
Cajon	---	---	---	---	---	---	---	---	---
Garces	---	---	---	---	---	---	---	---	---
Melga	---	---	---	---	---	---	---	---	---
Remnoy	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---
Unnamed, rare flooding	---	---	---	---	---	---	---	---	---
Yound	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Kings County, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
130:								
Kimberlina	0-8	5.0-10	---	7.9-8.4	0-3	0	4.0-8.0	15-25
	8-60	5.0-10	---	7.9-8.4	1-5	0	4.0-8.0	15-25
Excelsior	---	---	---	---	---	---	---	---
Kimberlina, sandy substratum	---	---	---	---	---	---	---	---
Nord	---	---	---	---	---	---	---	---
Wasco	---	---	---	---	---	---	---	---
Cajon	---	---	---	---	---	---	---	---
Garces	---	---	---	---	---	---	---	---
Melga	---	---	---	---	---	---	---	---
Remnoy	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---
Unnamed, rare flooding	---	---	---	---	---	---	---	---
Yound	---	---	---	---	---	---	---	---

Water Features

Kings County, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
130:										
Kimberlina	C	Medium	Jan-Dec			---	---	None	---	None
Excelsior	---	---	Jan-Dec			---	---	None	---	None
Kimberlina, sandy substratum	---	---	Jan-Dec			---	---	None	---	None
Nord	---	---	Jan-Dec			---	---	None	---	None
Wasco	---	---	Jan-Dec			---	---	None	---	None
Cajon	---	---	Jan-Dec			---	---	None	---	None
Garces	---	---	Jan-Dec			---	---	None	---	None
Melga	---	---	Jan-Dec			---	---	None	---	None
Remnoy	---	---	Jan-Dec			---	---	None	---	None
Unnamed	---	---	Jan-Dec			---	---	None	---	None
Unnamed, rare flooding	---	---	Jan-Dec			---	---	None	---	None
Yound	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Kings County, California

132 Kimberlina saline alkali-Garces complex

Setting

Landscape: Basins
Elevation: 190 to 3500 feet
Mean annual precipitation: 4 to 8 inches
Mean annual air temperature: 61 to 64 degrees F
Frost-free period: 210 to 300 days

Composition

Kimberlina and similar soils: 50 percent
Garces and similar soils: 35 percent
Cajon: 4 percent
Goldberg: 3 percent
Lakeside: 3 percent
Lemoore: 2 percent
Nord: 1 percent
Unnamed, rare flooding: 1 percent
Unnamed: 1 percent

Description of Kimberlina

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous and sedimentary rock

Properties and Qualities

Slope: 0 to 2 percent
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 5 percent
Gypsum maximum: 0 percent
Salinity maximum: Very slightly saline or slightly saline (4.0 to 8.0 mmhos/cm)
Sodium adsorption ratio maximum: 25.0
Available water capacity: Very low (about 3.0 inches)

Interpretive Groups

Land capability classification (irrigated): 2s
Land capability (non irrigated): 7s

Typical Profile

0 to 8 inches: fine sandy loam
8 to 60 inches: fine sandy loam

Description of Garces

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous and sedimentary rock

Properties and Qualities

Slope: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low or moderately low (0.00 to 0.06 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 5 percent
Gypsum maximum: 0 percent

Map Unit Description

Kings County, California

Salinity maximum: Slightly saline or moderately saline (8.0 to 16.0 mmhos/cm)
Sodium adsorption ratio maximum: 30.0
Available water capacity: Very low (about 1.3 inches)

Interpretive Groups

Land capability classification (irrigated): 2s
Land capability (non irrigated): 7s

Typical Profile

0 to 9 inches: loam
9 to 17 inches: clay loam
17 to 22 inches: sandy clay loam
22 to 60 inches: stratified sandy loam to clay loam

Description of Cajon

Description of Goldberg

Setting
Landform: Alluvial flats

Description of Lakeside

Setting
Landform: Rims

Description of Lemoore

Setting
Landform: Alluvial flats

Description of Nord

Description of Unnamed, rare flooding

Description of Unnamed

Setting
Landform: Sloughs

Taxonomic Classification of the Soils

Kings County, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Garces	Fine-loamy, mixed, thermic Typic Natrargids
Kimberlina	Coarse-loamy, mixed (calcareous), thermic Typic Torriorthents

Engineering Properties

Kings County, California

Absence of an entry indicates that the data were not estimated. The asterisk "*" denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
132:	In				Pct	Pct					Pct	
Kimberlina	0-8	Fine sandy loam	SM	A-2, A-4	0	0	80-100	75-100	40-70	25-50	20-30	NP-5
	8-60	Fine sandy loam, Sandy loam	SM	A-2, A-4	0	0	80-100	75-100	40-70	25-50	20-30	NP-5
Garces	0-9	Loam	CL-ML	A-4	0	0	100	100	85-100	50-85	20-30	5-10
	9-17	Clay loam, Silty clay loam	CL	A-6	0	0	100	100	85-100	65-85	30-40	10-20
	17-22	Loam, Sandy clay loam	CL, SC	A-6	0	0	100	100	80-95	35-60	30-40	10-20
	22-60	Stratified sandy loam to clay loam	ML, SM	A-4	0	0	100	100	60-95	35-60	20-35	NP-10
Cajon	---	---	---	---	---	---	---	---	---	---	---	---
Goldberg	---	---	---	---	---	---	---	---	---	---	---	---
Lakeside	---	---	---	---	---	---	---	---	---	---	---	---
Lemoore	---	---	---	---	---	---	---	---	---	---	---	---
Nord	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, rare flooding	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Kings County, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
132:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Kimberlina	0-8	---	---	6-18	1.50-1.60	14.00-42.00	0.02-0.08	0.0-2.9	0.5-1.0	.37	.24	5	4L	86
	8-60	---	---	10-18	1.50-1.60	1.40-4.00	0.02-0.08	0.0-2.9	0.5	.37	.24			
Garces	0-9	---	---	10-18	1.45-1.55	1.40-4.00	0.11-0.16	0.0-2.9	0.5-1.0	.49	.49	5	4	86
	9-17	---	---	27-35	1.35-1.50	0.01-0.42	0.07-0.13	3.0-5.9	0.5-1.0	.43	.43			
	17-22	---	---	20-35	1.40-1.55	0.01-0.42	0.07-0.13	3.0-5.9	0.5	.43	.43			
	22-60	---	---	10-27	1.50-1.60	1.40-4.00	0.05-0.14	0.0-2.9	0.5	.43	.43			
Cajon	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Goldberg	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Lakeside	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Lemoore	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Nord	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, rare flooding	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Kings County, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
132:		In	In		In	In			
Kimberlina	---	---	---	---	---	---	None	High	High
Garces	Natric	---	---	Noncemented	---	---	None	High	Moderate
Cajon	---	---	---	---	---	---	---	---	---
Goldberg	---	---	---	---	---	---	---	---	---
Lakeside	---	---	---	---	---	---	---	---	---
Lemoore	---	---	---	---	---	---	---	---	---
Nord	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---
Unnamed, rare flooding	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Kings County, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
132:								
Kimberlina	0-8	5.0-10	---	7.9-8.4	0-3	0	4.0-8.0	15-25
	8-60	5.0-10	---	7.9-8.4	1-5	0	4.0-8.0	15-25
Garces	0-9	5.0-10	---	7.4-9.0	0-3	0	2.0-8.0	10-20
	9-17	15-20	---	8.4-9.6	1-5	0	8.0-16.0	15-30
	17-22	10-15	---	8.4-9.6	1-5	0	8.0-16.0	15-30
	22-60	10-15	---	8.4-9.6	1-5	0	4.0-16.0	10-30
Cajon	---	---	---	---	---	---	---	---
Goldberg	---	---	---	---	---	---	---	---
Lakeside	---	---	---	---	---	---	---	---
Lemoore	---	---	---	---	---	---	---	---
Nord	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---
Unnamed, rare flooding	---	---	---	---	---	---	---	---

Water Features

Kings County, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
132:										
Kimberlina	C	Medium	Jan-Dec			---	---	None	---	None
Garces	D	Very high	Jan-Dec			---	---	None	---	None
Cajon	---	---	Jan-Dec			---	---	None	---	None
Goldberg	---	---	Jan-Dec			---	---	None	---	None
Lakeside	---	---	Jan-Dec			---	---	None	---	None
Lemoore	---	---	Jan-Dec			---	---	None	---	None
Nord	---	---	Jan-Dec			---	---	None	---	None
Unnamed	---	---	Jan-Dec			---	---	None	---	None
Unnamed, rare flooding	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Kings County, California

135 Lakeside clay loam, drained

Setting

Landscape: Valleys
Elevation: 170 to 260 feet
Mean annual precipitation: 8 to 8 inches
Mean annual air temperature: 64 to 64 degrees F
Frost-free period: 260 to 275 days

Composition

Lakeside and similar soils: 85 percent
Grangeville: 3 percent
Excelsior: 3 percent
Garces: 2 percent
Kimberlina: 2 percent
Melga: 2 percent
Corona: 2 percent

Description of Lakeside

Setting

Landform: Rims on basin floors
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous and sedimentary rock

Properties and Qualities

Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 5 percent
Gypsum maximum: 0 percent
Salinity maximum: Very slightly saline or moderately saline (4.0 to 16.0 mmhos/cm)
Sodium adsorption ratio maximum: 35.0
Available water capacity: Moderate (about 7.0 inches)

Interpretive Groups

Land capability classification (irrigated): 2w
Land capability (non irrigated): 6w

Typical Profile

0 to 17 inches: loam
17 to 60 inches: stratified sandy loam to clay

Description of Grangeville

Setting

Landform: Alluvial fans

Description of Excelsior

Description of Garces

Description of Kimberlina

Description of Melga

Description of Corona

Taxonomic Classification of the Soils

Kings County, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Lakeside	Fine-loamy, mixed, thermic Fluvaquentic Haploxerolls

Engineering Properties

Kings County, California

Absence of an entry indicates that the data were not estimated. The asterisk "*" denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
135:												
Lakeside	0-17	Loam	ML	A-4	0	0	100	90-100	85-95	50-75	25-35	NP-10
	17-60	Stratified sandy loam to clay	CL, CL-ML	A-4, A-6, A-7	0	0	80-100	75-100	60-95	50-80	25-45	5-20
Excelsior	---	---	---	---	---	---	---	---	---	---	---	---
Grangeville	---	---	---	---	---	---	---	---	---	---	---	---
Corona	---	---	---	---	---	---	---	---	---	---	---	---
Garces	---	---	---	---	---	---	---	---	---	---	---	---
Kimberlina	---	---	---	---	---	---	---	---	---	---	---	---
Melga	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Kings County, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
135:														
Lakeside	0-17	---	---	10-27	1.45-1.55	1.40-4.00	0.08-0.14	0.0-2.9	1.0-2.0	.37	.37	5	6	48
	17-60	---	---	20-35	1.40-1.60	1.40-4.00	0.08-0.15	3.0-5.9	0.5	.37	.24			
Excelsior	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Grangeville	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Corona	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Garces	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Kimberlina	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Melga	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Kings County, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
135:		In	In		In	In			
Lakeside	---	---	---	---	---	---	None	High	High
Excelsior	---	---	---	---	---	---	---	---	---
Grangeville	---	---	---	---	---	---	---	---	---
Corona	---	---	---	---	---	---	---	---	---
Garces	---	---	---	---	---	---	---	---	---
Kimberlina	---	---	---	---	---	---	---	---	---
Melga	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Kings County, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
135:								
Lakeside	0-17	10-15	---	6.6-8.4	1-3	0	4.0-16.0	2-13
	17-60	15-20	---	7.4-9.0	1-5	0	4.0-16.0	10-35
Excelsior	---	---	---	---	---	---	---	---
Grangeville	---	---	---	---	---	---	---	---
Corona	---	---	---	---	---	---	---	---
Garces	---	---	---	---	---	---	---	---
Kimberlina	---	---	---	---	---	---	---	---
Melga	---	---	---	---	---	---	---	---

Water Features

Kings County, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
135:										
Lakeside	C	Medium	Jan-Dec			---	---	None	---	None
Excelsior	---	---	Jan-Dec			---	---	None	---	None
Grangeville	---	---	Jan-Dec			---	---	None	---	None
Corona	---	---	Jan-Dec			---	---	None	---	None
Garces	---	---	Jan-Dec			---	---	None	---	None
Kimberlina	---	---	Jan-Dec			---	---	None	---	None
Melga	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Kings County, California

147 Nord fine sandy loam

Setting

Landscape: Basins, valleys
Elevation: 210 to 290 feet
Mean annual precipitation: 8 to 9 inches
Mean annual air temperature: 61 to 62 degrees F
Frost-free period: 250 to 260 days

Composition

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

Description of Nord

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous rock; alluvium derived from sedimentary rock

Properties and Qualities

Slope: 0 to 1 percent
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high or high (0.57 to 1.98 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 5 percent
Gypsum maximum: 0 percent
Available water capacity: Moderate (about 7.6 inches)

Interpretive Groups

Land capability classification (irrigated): 1
Land capability (non irrigated): 4c

Typical Profile

0 to 18 inches: fine sandy loam
18 to 72 inches: stratified sandy loam to loam

Minor Components

Grangeville

Percent of map unit: 3 percent
Landform: Alluvial fans

Lakeside

Percent of map unit: 3 percent
Landform: Rims

Nord, saline-alkali

Percent of map unit: 2 percent

Cajon

Percent of map unit: 2 percent

Kimberlina

Percent of map unit: 2 percent

Unnamed, rare flooding

Percent of map unit: 1 percent

Unnamed

Percent of map unit: 1 percent
Landform: Sloughs

Whitewolf

Percent of map unit: 1 percent

Map Unit Description

Kings County, California

Taxonomic Classification of the Soils

Kings County, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Nord	Coarse-loamy, mixed, thermic Cumulic Haploxerolls

Engineering Properties

Kings County, California

Absence of an entry indicates that the data were not estimated. The asterisk "*" denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
147:												
Nord	0-18	Fine sandy loam	ML, SM	A-4	0	0	100	100	70-85	35-55	20-30	NP-5
	18-72	Stratified sandy loam to loam	CL-ML, ML, SC, SC-SM, SM	A-4	0	0	100	100	60-95	35-70	20-30	NP-10
Grangeville	---	---	---	---	---	---	---	---	---	---	---	---
Lakeside	---	---	---	---	---	---	---	---	---	---	---	---
Cajon	---	---	---	---	---	---	---	---	---	---	---	---
Kimberlina	---	---	---	---	---	---	---	---	---	---	---	---
Nord, saline-alkali	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, rare flooding	---	---	---	---	---	---	---	---	---	---	---	---
Whitewolf	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Kings County, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
147:														
Nord	0-18	---	---	10-18	1.50-1.60	4.00-14.00	0.10-0.13	0.0-2.9	1.0-2.0	.37	.37	5	3	86
	18-72	---	---	10-18	1.50-1.60	4.00-14.00	0.11-0.15	0.0-2.9	0.5	.43	.43			
Grangeville	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Lakeside	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Cajon	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Kimberlina	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Nord, saline-alkali	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, rare flooding	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Whitewolf	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Kings County, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
147:		In	In		In	In			
Nord	---	---	---	---	0	0	None	High	Low
Grangeville	---	---	---	---	---	---	---	---	---
Lakeside	---	---	---	---	---	---	---	---	---
Cajon	---	---	---	---	---	---	---	---	---
Kimberlina	---	---	---	---	---	---	---	---	---
Nord, saline-alkali	---	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---	---
Unnamed, rare flooding	---	---	---	---	---	---	---	---	---
Whitewolf	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Kings County, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
147:								
Nord	0-18	10-15	---	6.6-8.4	0-3	0	0.0-2.0	0
	18-72	5.0-10	---	7.4-8.4	0-5	0	0.0-2.0	0
Grangeville	---	---	---	---	---	---	---	---
Lakeside	---	---	---	---	---	---	---	---
Cajon	---	---	---	---	---	---	---	---
Kimberlina	---	---	---	---	---	---	---	---
Nord, saline-alkali	---	---	---	---	---	---	---	---
Unnamed	---	---	---	---	---	---	---	---
Unnamed, rare flooding	---	---	---	---	---	---	---	---
Whitewolf	---	---	---	---	---	---	---	---

Water Features

Kings County, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
147:										
Nord	B	Low	Jan-Dec			---	---	None	---	None
Grangeville	---	---	Jan-Dec			---	---	None	---	None
Lakeside	---	---	Jan-Dec			---	---	None	---	None
Cajon	---	---	Jan-Dec			---	---	None	---	None
Kimberlina	---	---	Jan-Dec			---	---	None	---	None
Nord, saline-alkali	---	---	Jan-Dec			---	---	None	---	None
Unnamed	---	---	Jan-Dec			---	---	None	---	None
Unnamed, rare flooding	---	---	Jan-Dec			---	---	None	---	None
Whitewolf	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Kings County, California

174 Wasco sandy loam, 0 to 5 percent slopes

Setting

Elevation: 250 to 3700 feet
Mean annual precipitation: 4 to 7 inches
Mean annual air temperature: 61 to 64 degrees F
Frost-free period: 210 to 275 days

Composition

Wasco and similar soils: 85 percent
Cantua: 3 percent
Kettleman: 3 percent
Kimberlina: 3 percent
Panoche: 2 percent
Avenal: 2 percent
Cajon: 2 percent

Description of Wasco

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sandstone

Properties and Qualities

Slope: 0 to 5 percent
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 5 percent
Gypsum maximum: 0 percent
Available water capacity: Moderate (about 6.4 inches)

Interpretive Groups

Land capability classification (irrigated): 2e
Land capability (non irrigated): 7e

Typical Profile

0 to 20 inches: sandy loam
20 to 60 inches: sandy loam

Description of Cantua

Description of Kettleman

Description of Kimberlina

Description of Panoche

Description of Avenal

Description of Cajon

Taxonomic Classification of the Soils

Kings County, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Wasco	Coarse-loamy, mixed, nonacid, thermic Typic Torriorthents

Engineering Properties

Kings County, California

Absence of an entry indicates that the data were not estimated. The asterisk "*" denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
174:												
Wasco	0-20	Sandy loam	SM	A-2, A-4	0	0	80-100	75-100	45-65	25-40	20-25	NP-5
	20-60	Fine sandy loam, Sandy loam	SM	A-2, A-4	0	0	80-100	75-100	45-80	25-50	20-25	NP-5
Cantua	---	---	---	---	---	---	---	---	---	---	---	---
Kettleman	---	---	---	---	---	---	---	---	---	---	---	---
Kimberlina	---	---	---	---	---	---	---	---	---	---	---	---
Avenal	---	---	---	---	---	---	---	---	---	---	---	---
Cajon	---	---	---	---	---	---	---	---	---	---	---	---
Panoche	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Kings County, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
174:														
Wasco	0-20	---	---	8-18	1.50-1.60	14.00-42.00	0.08-0.11	0.0-2.9	0.5-1.0	.32	.37	5	3	86
	20-60	---	---	8-18	1.50-1.60	14.00-42.00	0.08-0.13	0.0-2.9	0.5	.32	.37			
Cantua	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Kettleman	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Kimberlina	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Avenal	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Cajon	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Panoche	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Kings County, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
174:		In	In		In	In			
Wasco	---	---	---	---	---	---	None	High	Low
Cantua	---	---	---	---	---	---	---	---	---
Kettleman	---	---	---	---	---	---	---	---	---
Kimberlina	---	---	---	---	---	---	---	---	---
Avenal	---	---	---	---	---	---	---	---	---
Cajon	---	---	---	---	---	---	---	---	---
Panoche	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Kings County, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
174:								
Wasco	0-20	5.0-10	---	6.1-7.8	1-5	0	0.0-2.0	0
	20-60	5.0-10	---	6.6-8.4	1-3	0	0.0-2.0	0
Cantua	---	---	---	---	---	---	---	---
Kettleman	---	---	---	---	---	---	---	---
Kimberlina	---	---	---	---	---	---	---	---
Avenal	---	---	---	---	---	---	---	---
Cajon	---	---	---	---	---	---	---	---
Panoche	---	---	---	---	---	---	---	---

Water Features

Kings County, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
174:										
Wasco	A	Very low	Jan-Dec			---	---	None	---	None
Cantua	---	---	Jan-Dec			---	---	None	---	None
Kettleman	---	---	Jan-Dec			---	---	None	---	None
Kimberlina	---	---	Jan-Dec			---	---	None	---	None
Avenal	---	---	Jan-Dec			---	---	None	---	None
Cajon	---	---	Jan-Dec			---	---	None	---	None
Panoche	---	---	Jan-Dec			---	---	None	---	None

Tulare County, Western Part | CA659

Map Unit Description

Tulare County, Western Part, California

101 Akers-Akers, saline-Sodic, complex, 0 to 2 percent slopes

Setting

Landscape: Valleys
Elevation: 230 to 350 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 63 to 64 degrees F
Frost-free period: 225 to 300 days

Composition

Akers and similar soils: 60 percent
Akers, saline-sodic, and similar soils: 25 percent
Minor components: 15 percent

Description of Akers

Setting

Landform: Fan remnants
Landform position (two-dimensional): Shoulder
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granitic rock sources

Properties and Qualities

Slope: 0 to 2 percent
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high or high (0.60 to 2.00 in/hr)
Frequency of flooding: Very rare
Frequency of ponding: None
Calcium carbonate maximum: 10 percent
Gypsum maximum: 2 percent
Sodium adsorption ratio maximum: 12.0
Available water capacity: High (about 9.7 inches)

Interpretive Groups

Land capability classification (irrigated): 1
Land capability (non irrigated): 4c

Typical Profile

0 to 16 inches: fine sandy loam
16 to 60 inches: fine sandy loam

Description of Akers, saline-sodic

Setting

Landform: Fan remnants
Landform position (two-dimensional): Shoulder
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granitic rock sources

Properties and Qualities

Slope: 0 to 2 percent
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Frequency of flooding: Very rare
Frequency of ponding: None
Calcium carbonate maximum: 10 percent
Gypsum maximum: 2 percent
Salinity maximum: Very slightly saline or slightly saline (4.0 to 8.0 mmhos/cm)
Sodium adsorption ratio maximum: 30.0
Available water capacity: High (about 9.1 inches)

Interpretive Groups

Land capability classification (irrigated): 2s
Land capability (non irrigated): 4s

Map Unit Description

Tulare County, Western Part, California

Typical Profile

0 to 15 inches: fine sandy loam

15 to 60 inches: fine sandy loam

Minor Components

Tujunga soils

Percent of map unit: 3 percent

Landform: Flood plains

Colpien soils

Percent of map unit: 3 percent

Landform: Fan remnants

Yettem soils

Percent of map unit: 2 percent

Landform: Flood plains, alluvial fans

Tagus soils

Percent of map unit: 2 percent

Landform: Fan remnants

Grangeville soils

Percent of map unit: 2 percent

Landform: Flood plains, alluvial fans

Hanford soils

Percent of map unit: 2 percent

Landform: Flood plains, alluvial fans

Unnamed, ponded soils

Percent of map unit: 1 percent

Landform: Depressions

Taxonomic Classification of the Soils

Tulare County, Western Part, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Akers	Coarse-loamy, mixed, superactive, thermic Calcic Haploxerepts
Colpien	Fine-loamy, mixed, superactive, thermic Calcic Pachic Haploxerolls
Grangeville	Coarse-loamy, mixed, superactive, thermic Fluvaquentic Haploxerolls
Hanford	Coarse-loamy, mixed, superactive, nonacid, thermic Typic Xerorthents
Tagus	Coarse-loamy, mixed, superactive, thermic Calcic Haploxerolls
Tujunga	Mixed, thermic Typic Xeropsamments
Yettem	Coarse-loamy, mixed, superactive, thermic Entic Haploxerolls

Engineering Properties

Tulare County, Western Part, California

Absence of an entry indicates that the data were not estimated. The asterisk "*" denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
		In			Pct	Pct					Pct	
101:												
Akers	0-16	Fine sandy loam	ML, SM	A-4	0	0	100	100	70-85	40-55	20-30	NP-5
	16-60	Fine sandy loam, Loam, Silt loam	CL, CL-ML, ML	A-4	0	0	100	95-100	75-90	50-70	20-30	NP-10
Akers, saline-sodic	0-15	Fine sandy loam	ML, SM	A-4	0	0	100	100	70-85	40-55	20-30	NP-5
	15-60	Fine sandy loam, Loam, Silt loam	CL, ML	A-4	0	0	100	95-100	75-90	50-70	20-30	NP-10
Colpien	---	---	---	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---	---	---	---
Grangeville	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---
Tagus	---	---	---	---	---	---	---	---	---	---	---	---
Yettem	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, ponded	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Tulare County, Western Part, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
101:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Akers	0-16	---	---	8-18	1.50-1.70	14.11-42.34	0.13-0.15	0.0-2.9	0.5-1.0	.32	.32	5	3	86
	16-60	---	---	8-18	1.60-1.70	4.23-14.11	0.13-0.21	0.0-2.9	0.1-1.0	.37	.37			
Akers, saline-sodic	0-15	---	---	8-18	1.50-1.70	4.23-14.11	0.12-0.14	0.0-2.9	0.5-1.0	.32	.32	5	3	86
	15-60	---	---	8-18	1.60-1.70	1.41-4.23	0.12-0.20	0.0-2.9	0.1-1.0	.37	.37			
Colpien	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Grangeville	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Tagus	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Yettem	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, ponded	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Tulare County, Western Part, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
101:		In	In		In	In			
Akers	---	---	---	---	0	---	Low	High	Low
Akers, saline-sodic	---	---	---	---	0	---	Low	High	High
Colpien	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---
Grangeville	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---
Tagus	---	---	---	---	---	---	---	---	---
Yettem	---	---	---	---	---	---	---	---	---
Unnamed, ponded	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Tulare County, Western Part, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
101:								
Akers	0-16	5.0-15	---	7.4-8.4	1-10	0-2	0.0-4.0	1-5
	16-60	5.0-15	---	7.4-8.4	1-10	0-2	0.0-4.0	1-12
Akers, saline-sodic	0-15	5.0-15	---	7.4-8.4	1-10	0-2	2.0-8.0	1-13
	15-60	5.0-15	---	7.9-9.0	1-10	0-2	4.0-8.0	13-30
Colpien	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---
Grangeville	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---
Tagus	---	---	---	---	---	---	---	---
Yettem	---	---	---	---	---	---	---	---
Unnamed, ponded	---	---	---	---	---	---	---	---

Water Features

Tulare County, Western Part, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
101:										
Akers	B	Negligible	January	---	---	---	---	None	Brief	Very rare
			February	---	---	---	---	None	Brief	Very rare
			March	---	---	---	---	None	Brief	Very rare
			April	---	---	---	---	None	Brief	Very rare
			May	---	---	---	---	None	Brief	Very rare
			June	---	---	---	---	None	Brief	Very rare
			July	---	---	---	---	None	Brief	Very rare
			August	---	---	---	---	None	Brief	Very rare
			September	---	---	---	---	None	Brief	Very rare
			October	---	---	---	---	None	Brief	Very rare
			November	---	---	---	---	None	Brief	Very rare
			December	---	---	---	---	None	Brief	Very rare
Akers, saline-sodic	B	Negligible	January	---	---	---	---	None	Brief	Very rare
			February	---	---	---	---	None	Brief	Very rare
			March	---	---	---	---	None	Brief	Very rare
			April	---	---	---	---	None	Brief	Very rare
			May	---	---	---	---	None	Brief	Very rare
			June	---	---	---	---	None	Brief	Very rare
			July	---	---	---	---	None	Brief	Very rare
			August	---	---	---	---	None	Brief	Very rare
			September	---	---	---	---	None	Brief	Very rare
			October	---	---	---	---	None	Brief	Very rare
			November	---	---	---	---	None	Brief	Very rare
			December	---	---	---	---	None	Brief	Very rare
Colpien	---	---	Jan-Dec			---	---	None	---	None
Tujunga	---	---	Jan-Dec			---	---	None	---	None

Water Features

Tulare County, Western Part, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
101:										
Grangeville	---	---	Jan-Dec			---	---	None	---	None
Hanford	---	---	Jan-Dec			---	---	None	---	None
Tagus	---	---	Jan-Dec			---	---	None	---	None
Yettem	---	---	Jan-Dec			---	---	None	---	None
Unnamed, ponded	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Tulare County, Western Part, California

104 Biggriz-Biggriz, saline-Sodic, complex, 0 to 2 percent slopes

Setting

Landscape: Valleys
Elevation: 190 to 270 feet
Mean annual precipitation: 6 to 8 inches
Mean annual air temperature: 63 to 66 degrees F
Frost-free period: 250 to 300 days

Composition

Biggriz and similar soils: 55 percent
Biggriz, saline-sodic, and similar soils: 30 percent
Minor components: 15 percent

Description of Biggriz

Setting

Landform: Fan remnants
Landform position (two-dimensional): Shoulder
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granitic rock sources

Properties and Qualities

Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 10 percent
Gypsum maximum: 1 percent
Sodium adsorption ratio maximum: 13.0
Available water capacity: High (about 9.3 inches)

Interpretive Groups

Land capability classification (irrigated): 2s
Land capability (non irrigated): 6s

Typical Profile

0 to 14 inches: loam
14 to 50 inches: loam
50 to 65 inches: sandy loam

Description of Biggriz, saline-sodic

Setting

Landform: Fan remnants
Landform position (two-dimensional): Shoulder
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granitic rock sources

Properties and Qualities

Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 10 percent
Gypsum maximum: 1 percent
Salinity maximum: Very slightly saline or slightly saline (4.0 to 8.0 mmhos/cm)
Sodium adsorption ratio maximum: 200.0
Available water capacity: Moderate (about 7.2 inches)

Interpretive Groups

Land capability classification (irrigated): 3s
Land capability (non irrigated): 7s

Map Unit Description

Tulare County, Western Part, California

Typical Profile

0 to 14 inches: loam
14 to 50 inches: loam
50 to 65 inches: sandy loam

Minor Components

Nord soils

Percent of map unit: 3 percent
Landform: Flood plains, alluvial fans

Gambogy soils

Percent of map unit: 3 percent
Landform: Flood plains, alluvial fans

Tujunga soils

Percent of map unit: 2 percent
Landform: Flood plains

Lethent soils

Percent of map unit: 2 percent
Landform: Fan remnants

Colpien soils

Percent of map unit: 2 percent
Landform: Fan remnants

Garces soils

Percent of map unit: 2 percent
Landform: Fan remnants

Unnamed, ponded soils

Percent of map unit: 1 percent
Landform: Depressions

Taxonomic Classification of the Soils

Tulare County, Western Part, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Biggriz	Fine-loamy, mixed, superactive, thermic Aquic Haploxerepts
Colpien	Fine-loamy, mixed, superactive, thermic Calcic Pachic Haploxerolls
Gambogy	Fine-loamy, mixed, superactive, calcareous, thermic Cumulic Endoaquolls
Garces	Fine-loamy, mixed, superactive, thermic Typic Natrargids
Lethent	Fine, smectitic, thermic Typic Natrargids
Nord	Coarse-loamy, mixed, superactive, thermic Cumulic Haploxerolls
Tujunga	Mixed, thermic Typic Xeropsamments

Engineering Properties

Tulare County, Western Part, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
		In			Pct	Pct					Pct	
104:												
Biggriz	0-14	Loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	80-95	60-75	25-40	5-15
	14-50	Clay loam, Loam	CL, CL-ML	A-4, A-5, A-6, A-7	0	0	100	95-100	80-95	60-80	25-45	5-20
	50-65	Loam, Sandy clay loam, Sandy loam	CL, CL-ML, SC, SC-SM	A-4, A-5, A-6, A-7	0	0	100	95-100	75-95	40-75	25-45	5-20
Biggriz, saline-sodic	0-14	Loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	80-95	60-75	25-40	5-15
	14-50	Clay loam, Loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	80-95	60-80	25-40	5-20
	50-65	Loam, Sandy clay loam, Sandy loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0	100	95-100	75-95	40-75	25-40	5-20
Gambogy	---	---	---	---	---	---	---	---	---	---	---	---
Nord	---	---	---	---	---	---	---	---	---	---	---	---
Colpien	---	---	---	---	---	---	---	---	---	---	---	---
Garces	---	---	---	---	---	---	---	---	---	---	---	---
Lethent	---	---	---	---	---	---	---	---	---	---	---	---

Engineering Properties

Tulare County, Western Part, California

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
104: Tujunga	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, ponded	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Tulare County, Western Part, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
104:		In	In		In	In			
Biggriz	---	---	---	---	0	---	Low	High	Moderate
Biggriz, saline-sodic	---	---	---	---	0	---	Low	High	Moderate
Gambogy	---	---	---	---	---	---	---	---	---
Nord	---	---	---	---	---	---	---	---	---
Colpien	---	---	---	---	---	---	---	---	---
Garces	---	---	---	---	---	---	---	---	---
Lethent	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---
Unnamed, ponded	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Tulare County, Western Part, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
104:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Biggriz	0-14	---	---	18-27	1.45-1.55	4.23-14.11	0.13-0.16	0.0-2.9	0.3-1.0	.37	.37	5	4L	86
	14-50	---	---	18-33	1.40-1.55	1.41-4.23	0.14-0.17	3.0-5.9	0.3-1.0	.32	.32			
	50-65	---	---	18-33	1.45-1.55	1.41-4.23	0.12-0.17	3.0-5.9	0.3-1.0	.28	.28			
Biggriz, saline-sodic	0-14	---	---	18-27	1.45-1.55	4.23-14.11	0.11-0.13	0.0-2.9	0.3-1.0	.37	.37	5	4L	86
	14-50	---	---	18-33	1.40-1.55	1.41-4.23	0.11-0.13	3.0-5.9	0.3-1.0	.32	.32			
	50-65	---	---	18-33	1.45-1.55	1.41-4.23	0.10-0.13	3.0-5.9	0.3-1.0	.28	.28			
Gambogy	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Nord	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Colpien	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Garces	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Lethent	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, ponded	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Tulare County, Western Part, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
104:								
Biggriz	0-14	10-15	---	7.4-8.4	1-5	0-1	0.0-4.0	1-13
	14-50	10-20	---	7.4-8.4	2-10	0-1	0.0-4.0	1-13
	50-65	10-20	---	7.9-9.6	2-10	0-1	0.0-4.0	1-13
Biggriz, saline-sodic	0-14	10-15	---	7.9-9.0	1-5	0-1	4.0-8.0	13-50
	14-50	10-20	---	7.9-9.6	2-10	0-1	4.0-8.0	13-200
	50-65	10-20	---	8.5-9.6	2-10	0-1	4.0-8.0	13-100
Gambogy	---	---	---	---	---	---	---	---
Nord	---	---	---	---	---	---	---	---
Colpien	---	---	---	---	---	---	---	---
Garces	---	---	---	---	---	---	---	---
Lethent	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---
Unnamed, ponded	---	---	---	---	---	---	---	---

Water Features

Tulare County, Western Part, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
104:										
Biggriz	B	Negligible	January	---	---	---	---	None	Brief	Rare
			February	---	---	---	---	None	Brief	Rare
			March	---	---	---	---	None	Brief	Rare
			April	---	---	---	---	None	Brief	Rare
			May	---	---	---	---	None	Brief	Rare
			June	---	---	---	---	None	Brief	Rare
			July	---	---	---	---	None	Brief	Rare
			August	---	---	---	---	None	Brief	Rare
			September	---	---	---	---	None	Brief	Rare
			October	---	---	---	---	None	Brief	Rare
			November	---	---	---	---	None	Brief	Rare
			December	---	---	---	---	None	Brief	Rare
Biggriz, saline-sodic	B	Negligible	January	---	---	---	---	None	Brief	Rare
			February	---	---	---	---	None	Brief	Rare
			March	---	---	---	---	None	Brief	Rare
			April	---	---	---	---	None	Brief	Rare
			May	---	---	---	---	None	Brief	Rare
			June	---	---	---	---	None	Brief	Rare
			July	---	---	---	---	None	Brief	Rare
			August	---	---	---	---	None	Brief	Rare
			September	---	---	---	---	None	Brief	Rare
			October	---	---	---	---	None	Brief	Rare
			November	---	---	---	---	None	Brief	Rare
			December	---	---	---	---	None	Brief	Rare
Gambogy	---	---	Jan-Dec			---	---	None	---	None
Nord	---	---	Jan-Dec			---	---	None	---	None

Water Features

Tulare County, Western Part, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
104: Colpien	---	---	Jan-Dec			---	---	None	---	None
Garces	---	---	Jan-Dec			---	---	None	---	None
Lethent	---	---	Jan-Dec			---	---	None	---	None
Tujunga	---	---	Jan-Dec			---	---	None	---	None
Unnamed, ponded	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Tulare County, Western Part, California

105 Calgro-Calgro, saline-Sodic, complex, 0 to 2 percent slopes

Setting

Landscape: Valleys
Elevation: 250 to 480 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 62 to 65 degrees F
Frost-free period: 250 to 300 days

Composition

Calgro and similar soils: 60 percent
Calgro, saline-sodic, and similar soils: 25 percent
Minor components: 15 percent

Description of Calgro

Setting

Landform: Fan remnants
Landform position (two-dimensional): Shoulder
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granitic rock sources

Properties and Qualities

Slope: 0 to 2 percent
Surface area covered with stones and boulders: 0.0 percent
Depth to restrictive feature: 20 to 40 inches to Duripan
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Low or moderately high (0.01 to 0.20 in/hr)
Frequency of flooding: Very rare
Frequency of ponding: None
Calcium carbonate maximum: 2 percent
Gypsum maximum: 0 percent
Sodium adsorption ratio maximum: 12.0
Available water capacity: Low (about 3.6 inches)

Interpretive Groups

Land capability classification (irrigated): 3s
Land capability (non irrigated): 6s

Typical Profile

0 to 7 inches: sandy loam
7 to 25 inches: sandy loam
25 to 33 inches: cemented
33 to 53 inches: gravelly loamy sand
53 to 60 inches: cemented

Description of Calgro, saline-sodic

Setting

Landform: Fan remnants
Landform position (two-dimensional): Shoulder
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granitic rock sources

Properties and Qualities

Slope: 0 to 2 percent
Surface area covered with stones and boulders: 0.0 percent
Depth to restrictive feature: 20 to 40 inches to Duripan
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Low or moderately high (0.01 to 0.20 in/hr)
Frequency of flooding: Very rare
Frequency of ponding: None
Calcium carbonate maximum: 4 percent
Gypsum maximum: 0 percent
Salinity maximum: Very slightly saline or moderately saline (4.0 to 16.0 mmhos/cm)

Map Unit Description

Tulare County, Western Part, California

Sodium adsorption ratio maximum: 100.0
Available water capacity: Very low (about 3.0 inches)

Interpretive Groups

Land capability classification (irrigated): 4s
Land capability (non irrigated): 7s

Typical Profile

0 to 8 inches: sandy loam
8 to 24 inches: sandy loam
24 to 33 inches: cemented
33 to 52 inches: gravelly loamy sand
52 to 60 inches: cemented

Minor Components

Colpien soils

Percent of map unit: 5 percent
Landform: Fan remnants

Grangeville soils

Percent of map unit: 4 percent
Landform: Flood plains, alluvial fans

Tujunga soils

Percent of map unit: 3 percent
Landform: Flood plains

Exeter soils

Percent of map unit: 2 percent
Landform: Fan remnants

Unnamed, ponded soils

Percent of map unit: 1 percent
Landform: Depressions

Taxonomic Classification of the Soils

Tulare County, Western Part, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Calgro	Coarse-loamy, mixed, superactive, thermic Typic Durixerepts
Colpien	Fine-loamy, mixed, superactive, thermic Calcic Pachic Haploxerolls
Exeter	Fine-loamy, mixed, superactive, thermic Typic Durixeralfs
Grangeville	Coarse-loamy, mixed, superactive, thermic Fluvaquentic Haploxerolls
Tujunga	Mixed, thermic Typic Xeropsammments

Engineering Properties

Tulare County, Western Part, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
105:												
Calgro	0-7	Sandy loam	SC, SC-SM	A-2-4, A-4	0	0	100	90-100	55-70	25-40	15-25	5-10
	7-25	Fine sandy loam, Loam, Sandy loam	SC, SC-SM	A-2-4, A-4	0	0	100	90-100	55-80	25-50	15-25	5-10
	25-33	Cemented	---	---	---	---	---	---	---	---	---	---
	33-53	Gravelly loamy sand	SM, SW-SM	A-1-b	0	0	65-85	55-75	25-50	10-20	0	NP-5
	53-60	Cemented	---	---	---	---	---	---	---	---	---	---
Calgro, saline-sodic	0-8	Sandy loam	SC, SC-SM	A-2-4, A-4	0	0	100	90-100	55-70	25-40	15-25	5-10
	8-24	Fine sandy loam, Loam, Sandy loam	SC, SC-SM	A-2-4, A-4	0	0	100	90-100	55-80	25-50	15-25	5-10
	24-33	Cemented	---	---	---	---	---	---	---	---	---	---
	33-52	Gravelly loamy sand	SM, SW-SM	A-1-b	0	0	65-85	55-75	25-50	10-20	0	NP-5
	52-60	Cemented	---	---	---	---	---	---	---	---	---	---
Colpien	---	---	---	---	---	---	---	---	---	---	---	---
Grangeville	---	---	---	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---	---	---	---
Exeter	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, ponded	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Tulare County, Western Part, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
105:														
Calgro	0-7	---	---	8-18	1.30-1.50	14.11-42.34	0.11-0.13	0.0-2.9	0.4-1.0	.20	.20	2	3	86
	7-25	---	---	8-18	1.20-1.40	4.23-14.11	0.11-0.18	0.0-2.9	0.3-1.0	.32	.32			
	25-33	---	---	---	---	0.07-1.41	---	---	---	---	---			
	33-53	---	---	2-12	1.30-1.50	42.34-141.14	0.04-0.06	0.0-2.9	0.0-0.3	.10	.10			
	53-60	---	---	---	---	0.07-1.41	---	---	---	---	---			
Calgro, saline-sodic	0-8	---	---	8-18	1.30-1.50	4.23-14.11	0.09-0.12	0.0-2.9	0.4-1.0	.20	.20	2	3	86
	8-24	---	---	8-18	1.20-1.40	4.23-14.11	0.09-0.16	0.0-2.9	0.3-1.0	.32	.32			
	24-33	---	---	---	---	0.07-1.41	---	---	---	---	---			
	33-52	---	---	2-12	1.30-1.50	42.34-141.14	0.02-0.05	0.0-2.9	0.0-0.3	.10	.10			
	52-60	---	---	---	---	0.07-1.41	---	---	---	---	---			
Colpien	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Grangeville	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Exeter	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, ponded	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Tulare County, Western Part, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
105:		In	In		In	In			
Calgro	Duripan	20-40	---	Indurated	0	0	None	High	Low
Calgro, saline-sodic	Duripan	20-40	---	Moderately cemented	0	0	None	High	Low
Colpien	---	---	---	---	---	---	---	---	---
Grangeville	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---
Exeter	---	---	---	---	---	---	---	---	---
Unnamed, ponded	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Tulare County, Western Part, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
105:								
Calgro	0-7	5.0-15	---	7.4-8.4	0-2	0	0.0-4.0	1-12
	7-25	5.0-15	---	7.4-8.4	0-2	0	0.0-4.0	1-12
	25-33	---	---	---	---	---	---	---
	33-53	5.0-10	---	7.4-8.4	1-2	0	0.0-4.0	1-12
	53-60	---	---	---	---	---	---	---
Calgro, saline-sodic	0-8	5.0-15	---	7.9-11.0	1-4	0	2.0-8.0	13-100
	8-24	5.0-15	---	7.9-11.0	1-4	0	4.0-16.0	13-100
	24-33	---	---	---	---	---	---	---
	33-52	5.0-10	---	7.9-11.0	1-4	0	4.0-16.0	13-100
	52-60	---	---	---	---	---	---	---
Colpien	---	---	---	---	---	---	---	---
Grangeville	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---
Exeter	---	---	---	---	---	---	---	---
Unnamed, ponded	---	---	---	---	---	---	---	---

Water Features

Tulare County, Western Part, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
105:										
Calgro	C	Low	January	---	---	---	---	None	Brief	Very rare
			February	---	---	---	---	None	Brief	Very rare
			March	---	---	---	---	None	Brief	Very rare
			April	---	---	---	---	None	Brief	Very rare
			May	---	---	---	---	None	Brief	Very rare
			June	---	---	---	---	None	Brief	Very rare
			July	---	---	---	---	None	Brief	Very rare
			August	---	---	---	---	None	Brief	Very rare
			September	---	---	---	---	None	Brief	Very rare
			October	---	---	---	---	None	Brief	Very rare
			November	---	---	---	---	None	Brief	Very rare
			December	---	---	---	---	None	Brief	Very rare
Calgro, saline-sodic	C	Low	January	---	---	---	---	None	Brief	Very rare
			February	---	---	---	---	None	Brief	Very rare
			March	---	---	---	---	None	Brief	Very rare
			April	---	---	---	---	None	Brief	Very rare
			May	---	---	---	---	None	Brief	Very rare
			June	---	---	---	---	None	Brief	Very rare
			July	---	---	---	---	None	Brief	Very rare
			August	---	---	---	---	None	Brief	Very rare
			September	---	---	---	---	None	Brief	Very rare
			October	---	---	---	---	None	Brief	Very rare
			November	---	---	---	---	None	Brief	Very rare
			December	---	---	---	---	None	Brief	Very rare
Colpien	---	---	Jan-Dec			---	---	None	---	None
Grangeville	---	---	Jan-Dec			---	---	None	---	None

Water Features

Tulare County, Western Part, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
105:										
Tujunga	---	---	Jan-Dec			---	---	None	---	None
Exeter	---	---	Jan-Dec			---	---	None	---	None
Unnamed, ponded	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Tulare County, Western Part, California

108 Colpien loam, 0 to 2 percent slopes

Setting

Landscape: Valleys
Elevation: 220 to 550 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 63 to 64 degrees F
Frost-free period: 250 to 300 days

Composition

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

Description of Colpien

Setting

Landform: Fan remnants
Landform position (two-dimensional): Shoulder
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granitic rock sources

Properties and Qualities

Slope: 0 to 2 percent
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 5 percent
Gypsum maximum: 0 percent
Salinity maximum: Non saline or very slightly saline (0.5 to 4.0 mmhos/cm)
Sodium adsorption ratio maximum: 12.0
Available water capacity: High (about 10.7 inches)

Interpretive Groups

Land capability classification (irrigated): 1
Land capability (non irrigated): 4c

Typical Profile

0 to 6 inches: loam
6 to 24 inches: loam
24 to 60 inches: loam
60 to 65 inches: sandy loam

Minor Components

Hanford soils

Percent of map unit: 3 percent
Landform: Flood plains, alluvial fans

Biggriz soils

Percent of map unit: 3 percent
Landform: Fan remnants

Gambogy soils

Percent of map unit: 3 percent
Landform: Flood plains, alluvial fans

Tujunga soils

Percent of map unit: 2 percent
Landform: Flood plains

Nord soils

Percent of map unit: 2 percent
Landform: Flood plains, alluvial fans

Akers, saline-sodic soils

Map Unit Description

Tulare County, Western Part, California

Percent of map unit: 2 percent
Landform: Fan remnants

Taxonomic Classification of the Soils

Tulare County, Western Part, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Akers	Coarse-loamy, mixed, superactive, thermic Calcic Haploxerepts
Biggriz	Fine-loamy, mixed, superactive, thermic Aquic Haploxerepts
Colpien	Fine-loamy, mixed, superactive, thermic Calcic Pachic Haploxerolls
Gambogy	Fine-loamy, mixed, superactive, calcareous, thermic Cumulic Endoaquolls
Hanford	Coarse-loamy, mixed, superactive, nonacid, thermic Typic Xerorthents
Nord	Coarse-loamy, mixed, superactive, thermic Cumulic Haploxerolls
Tujunga	Mixed, thermic Typic Xeropsamments

Engineering Properties

Tulare County, Western Part, California

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
108:												
Colpien	0-6	Loam	CL-ML, ML	A-4	0	0	100	100	70-90	60-80	25-35	5-10
	6-24	Clay loam, Loam	CL-ML, ML	A-4	0	0	100	100	70-90	60-80	25-35	5-10
	24-60	Clay loam, Loam	CL-ML, ML	A-4	0	0	100	100	70-90	60-80	25-35	5-10
	60-65	Clay loam, Loam, Sandy loam	ML, SM	A-4	0	0	100	100	50-90	40-70	20-35	NP-10
Biggriz	---	---	---	---	---	---	---	---	---	---	---	---
Gambogy	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---
Akers, saline-sodic	---	---	---	---	---	---	---	---	---	---	---	---
Nord	---	---	---	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Tulare County, Western Part, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
108:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Colpien	0-6	---	---	18-27	1.40-1.50	4.23-14.11	0.14-0.18	0.0-2.9	1.0-3.0	.37	.37	5	5	56
	6-24	---	---	18-31	1.40-1.55	1.41-4.23	0.14-0.21	3.0-5.9	1.0-3.0	.32	.32			
	24-60	---	---	18-31	1.40-1.55	1.41-4.23	0.14-0.21	3.0-5.9	0.5-2.0	.32	.32			
	60-65	---	---	10-30	1.40-1.55	1.41-42.34	0.10-0.21	3.0-5.9	0.2-0.5	.28	.28			
Biggriz	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Gambogy	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Akers, saline-sodic	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Nord	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Tulare County, Western Part, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
108:		In	In		In	In			
Colpien	---	---	---	---	0	---	Low	High	Low
Biggriz	---	---	---	---	---	---	---	---	---
Gambogy	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---
Akers, saline-sodic	---	---	---	---	---	---	---	---	---
Nord	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Tulare County, Western Part, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
108:								
Colpien	0-6	10-20	---	6.6-8.4	0	0	0.5-4.0	1-12
	6-24	10-20	---	6.6-8.4	0-5	0	0.5-4.0	1-12
	24-60	10-20	---	6.6-8.4	1-5	0	0.5-4.0	1-12
	60-65	10-15	---	6.6-8.4	0-5	0	0.5-4.0	1-12
Biggriz	---	---	---	---	---	---	---	---
Gambogy	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---
Akers, saline-sodic	---	---	---	---	---	---	---	---
Nord	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---

Water Features

Tulare County, Western Part, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
108:										
Colpien	B	Low	January	---	---	---	---	None	Brief	Rare
			February	---	---	---	---	None	Brief	Rare
			March	---	---	---	---	None	Brief	Rare
			April	---	---	---	---	None	Brief	Rare
			May	---	---	---	---	None	Brief	Rare
			June	---	---	---	---	None	Brief	Rare
			July	---	---	---	---	None	Brief	Rare
			August	---	---	---	---	None	Brief	Rare
			September	---	---	---	---	None	Brief	Rare
			October	---	---	---	---	None	Brief	Rare
			November	---	---	---	---	None	Brief	Rare
			December	---	---	---	---	---	None	Brief
Biggriz	---	---	Jan-Dec			---	---	None	---	None
Gambogy	---	---	Jan-Dec			---	---	None	---	None
Hanford	---	---	Jan-Dec			---	---	None	---	None
Akers, saline-sodic	---	---	Jan-Dec			---	---	None	---	None
Nord	---	---	Jan-Dec			---	---	None	---	None
Tujunga	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Tulare County, Western Part, California

109 Crosscreek-Kai association, 0 to 2 percent slopes

Setting

Landscape: Valleys
Elevation: 230 to 400 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 63 to 64 degrees F
Frost-free period: 250 to 300 days

Composition

Crosscreek and similar soils: 70 percent
Kai and similar soils: 15 percent
Minor components: 15 percent

Description of Crosscreek

Setting

Landform: Fan remnants
Landform position (two-dimensional): Shoulder
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Formed by the chemical and mechanical alteration of the kai series which originally formed in alluvium derived from granitic rock

Properties and Qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 40 to 60 inches to Duripan
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Low or moderately low (0.01 to 0.06 in/hr)
Frequency of flooding: Very rare
Frequency of ponding: None
Calcium carbonate maximum: 10 percent
Gypsum maximum: 5 percent
Salinity maximum: Non saline or moderately saline (1.0 to 12.0 mmhos/cm)
Sodium adsorption ratio maximum: 13.0
Available water capacity: Moderate (about 7.8 inches)

Interpretive Groups

Land capability classification (irrigated): 2s
Land capability (non irrigated): 6s

Typical Profile

0 to 11 inches: loam
11 to 17 inches: sandy loam
17 to 55 inches: sandy loam
55 to 60 inches: cemented

Description of Kai

Setting

Landform: Fan remnants
Landform position (two-dimensional): Shoulder
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granitic rock sources

Properties and Qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 20 to 40 inches to Duripan; 4 to 12 inches to Natric
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Low or moderately low (0.01 to 0.06 in/hr)
Frequency of flooding: Very rare
Frequency of ponding: None
Calcium carbonate maximum: 10 percent
Gypsum maximum: 0 percent
Salinity maximum: Non saline or moderately saline (1.0 to 16.0 mmhos/cm)
Sodium adsorption ratio maximum: 80.0
Available water capacity: Very low (about 0.9 inches)

Map Unit Description

Tulare County, Western Part, California

Interpretive Groups

Land capability classification (irrigated): 3s

Land capability (non irrigated): 7s

Typical Profile

0 to 6 inches: loam

6 to 39 inches: loam

39 to 46 inches: cemented

46 to 65 inches: stratified sandy loam to silt loam

Minor Components

Quonal soils

Percent of map unit: 5 percent

Landform: Fan remnants

Exeter soils

Percent of map unit: 4 percent

Landform: Fan remnants

Calgro, saline-sodic soils

Percent of map unit: 3 percent

Landform: Fan remnants

Hanford soils

Percent of map unit: 2 percent

Landform: Flood plains, alluvial fans

Unnamed, ponded soils

Percent of map unit: 1 percent

Landform: Depressions

Taxonomic Classification of the Soils

Tulare County, Western Part, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Calgro	Coarse-loamy, mixed, superactive, thermic Typic Durixerepts
Crosscreek	Fine-loamy, mixed, superactive, calcareous, thermic Sodic Xerarents
Exeter	Fine-loamy, mixed, superactive, thermic Typic Durixeralfs
Hanford	Coarse-loamy, mixed, superactive, nonacid, thermic Typic Xerorthents
Kai	Fine-loamy, mixed, superactive, thermic Natric Durixeralfs
Quonal	Fine, smectitic, calcareous, thermic Sodic Xerarents

Engineering Properties

Tulare County, Western Part, California

Absence of an entry indicates that the data were not estimated. The asterisk "*" denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
109:												
Crosscreek	0-11	Loam	CL-ML, ML	A-4	0	0	85-100	75-100	65-90	50-70	20-35	5-10
	11-17	Gravelly loam, Loam, Sandy loam	CL, CL-ML, SC, SC-SM	A-2, A-4, A-6	0	0	60-100	50-100	35-80	20-60	20-40	5-15
	17-55	Loam, Sandy clay loam, Sandy loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0	85-100	75-100	50-80	35-60	20-40	5-15
	55-60	Cemented	---	---	---	---	---	---	---	---	---	---
Kai	0-6	Loam	CL-ML	A-4	0	0	100	100	60-90	55-85	20-30	5-10
	6-39	Clay loam, Loam, Silt loam	CL	A-6	0	0	100	100	65-100	60-90	25-35	10-20
	39-46	Cemented	---	---	---	---	---	---	---	---	---	---
	46-65	Stratified sandy loam to silt loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0	100	100	60-100	35-80	20-35	5-15
Quonal	---	---	---	---	---	---	---	---	---	---	---	---
Exeter	---	---	---	---	---	---	---	---	---	---	---	---
Calgro, saline-sodic	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, ponded	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Tulare County, Western Part, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
109:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Crosscreek	0-11	---	---	18-27	1.40-1.60	4.23-14.11	0.14-0.18	3.0-5.9	0.5-1.0	.32	.37	3	4L	86
	11-17	---	---	18-35	1.40-1.60	1.41-14.11	0.06-0.18	3.0-5.9	0.5-1.0	.15	.24			
	17-55	---	---	18-35	1.40-1.60	1.41-4.23	0.10-0.18	3.0-5.9	0.1-0.5	.20	.24			
	55-60	---	---	---	---	0.07-0.42	---	---	---	---	---			
Kai	0-6	---	---	8-18	1.45-1.55	4.23-14.11	0.14-0.18	0.0-2.9	0.4-0.8	.37	.37	2	5	56
	6-39	---	---	18-35	1.40-1.55	1.41-4.23	0.10-0.21	3.0-5.9	0.2-0.5	.32	.32			
	39-46	---	---	0	---	0.07-0.42	---	---	---	---	---			
	46-65	---	---	10-27	1.45-1.60	4.23-42.34	0.10-0.20	3.0-5.9	0.1-0.5	.24	.24			
Quonal	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Exeter	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Calgro, saline-sodic	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, ponded	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Tulare County, Western Part, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
109:								
Crosscreek	0-11	5.0-10	---	6.6-9.9	1-10	1-5	1.0-12.0	1-13
	11-17	5.0-10	---	6.6-9.9	1-10	1-5	1.0-12.0	1-13
	17-55	5.0-10	---	6.6-9.9	1-10	1-5	1.0-12.0	1-13
	55-60	---	---	---	---	---	---	---
Kai	0-6	5.0-15	---	6.6-8.4	0-5	0	0.0-8.0	13-20
	6-39	10-20	---	8.5-11.0	0-10	0	1.0-16.0	13-80
	39-46	---	---	---	---	---	---	---
	46-65	5.0-15	---	7.9-9.0	0-10	0	0.0-8.0	4-13
Quonal	---	---	---	---	---	---	---	
Exeter	---	---	---	---	---	---	---	
Calgro, saline-sodic	---	---	---	---	---	---	---	
Hanford	---	---	---	---	---	---	---	
Unnamed, ponded	---	---	---	---	---	---	---	

Soil Features

Tulare County, Western Part, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
109: Crosscreek	Duripan	40-60	---	Weakly cemented	0	---	Low	High	High
Kai	Natric	4-12	---	Noncemented	0	---	Low	High	Low
	Duripan	20-40	---	Strongly cemented					
Quonal	---	---	---	---	---	---	---	---	---
Exeter	---	---	---	---	---	---	---	---	---
Calgro, saline-sodic	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---
Unnamed, ponded	---	---	---	---	---	---	---	---	---

Water Features

Tulare County, Western Part, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
109:										
Crosscreek	B	Medium	January	---	---	---	---	None	Brief	Very rare
			February	---	---	---	---	None	Brief	Very rare
			March	---	---	---	---	None	Brief	Very rare
			April	---	---	---	---	None	Brief	Very rare
			May	---	---	---	---	None	Brief	Very rare
			June	---	---	---	---	None	Brief	Very rare
			July	---	---	---	---	None	Brief	Very rare
			August	---	---	---	---	None	Brief	Very rare
			September	---	---	---	---	None	Brief	Very rare
			October	---	---	---	---	None	Brief	Very rare
			November	---	---	---	---	None	Brief	Very rare
			December	---	---	---	---	None	Brief	Very rare
Kai	C	Medium	January	---	---	---	---	None	Brief	Very rare
			February	---	---	---	---	None	Brief	Very rare
			March	---	---	---	---	None	Brief	Very rare
			April	---	---	---	---	None	Brief	Very rare
			May	---	---	---	---	None	Brief	Very rare
			June	---	---	---	---	None	Brief	Very rare
			July	---	---	---	---	None	Brief	Very rare
			August	---	---	---	---	None	Brief	Very rare
			September	---	---	---	---	None	Brief	Very rare
			October	---	---	---	---	None	Brief	Very rare
			November	---	---	---	---	None	Brief	Very rare
			December	---	---	---	---	None	Brief	Very rare
Quonal	---	---	Jan-Dec	---	---	---	---	None	---	None
Exeter	---	---	Jan-Dec	---	---	---	---	None	---	None

Water Features

Tulare County, Western Part, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
109:										
Calgro, saline-sodic	---	---	Jan-Dec			---	---	None	---	None
Hanford	---	---	Jan-Dec			---	---	None	---	None
Unnamed, ponded	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Tulare County, Western Part, California

116 Flamen loam, 0 to 2 percent slopes

Setting

Landscape: Valleys
Elevation: 260 to 550 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 63 to 64 degrees F
Frost-free period: 250 to 300 days

Composition

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

Description of Flamen

Setting

Landform: Fan remnants
Landform position (two-dimensional): Shoulder
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granitic rock sources

Properties and Qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 40 to 60 inches to Duripan
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low or moderately high (0.06 to 0.20 in/hr)
Frequency of flooding: Very rare
Frequency of ponding: None
Calcium carbonate maximum: 2 percent
Gypsum maximum: 0 percent
Sodium adsorption ratio maximum: 12.0
Available water capacity: Moderate (about 6.6 inches)

Interpretive Groups

Land capability classification (irrigated): 2s
Land capability (non irrigated): 4e

Typical Profile

0 to 17 inches: loam
17 to 28 inches: loam
28 to 43 inches: loam
43 to 72 inches: cemented

Minor Components

Exeter soils

Percent of map unit: 3 percent
Landform: Fan remnants

San joaquin soils

Percent of map unit: 3 percent
Landform: Fan remnants

Hanford soils

Percent of map unit: 2 percent
Landform: Flood plains, alluvial fans

Calgro soils

Percent of map unit: 2 percent
Landform: Fan remnants

Colpien soils

Percent of map unit: 2 percent
Landform: Fan remnants

Centerville soils

Map Unit Description

Tulare County, Western Part, California

Percent of map unit: 2 percent
Landform: Fan remnants

Unnamed, ponded soils
Percent of map unit: 1 percent
Landform: Depressions

Taxonomic Classification of the Soils

Tulare County, Western Part, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Calgro	Coarse-loamy, mixed, superactive, thermic Typic Durixerpts
Centerville	Fine, smectitic, thermic Aridic Calcixererts
Colpien	Fine-loamy, mixed, superactive, thermic Calcic Pachic Haploxerolls
Exeter	Fine-loamy, mixed, superactive, thermic Typic Durixeralfs
Flamen	Fine-loamy, mixed, superactive, thermic Calcic Pachic Haploxerolls
Hanford	Coarse-loamy, mixed, superactive, nonacid, thermic Typic Xerorthents
San Joaquin*	Fine, mixed, active, thermic Typic Durixeralfs

Engineering Properties

Tulare County, Western Part, California

Absence of an entry indicates that the data were not estimated. The asterisk "*" denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
116:	In				Pct	Pct					Pct	
Flamen	0-17	Loam	CL, CL-ML, ML	A-4	0	0	85-100	75-100	65-90	55-80	25-35	5-10
	17-28	Clay loam, Loam, Sandy loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0	85-100	75-100	65-90	40-80	25-35	5-15
	28-43	Clay loam, Loam, Sandy loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0	85-100	75-100	65-90	40-80	25-35	5-15
	43-72	Cemented	---	---	---	---	---	---	---	---	---	---
Exeter	---	---	---	---	---	---	---	---	---	---	---	---
San Joaquin	---	---	---	---	---	---	---	---	---	---	---	---
Calgro	---	---	---	---	---	---	---	---	---	---	---	---
Centerville	---	---	---	---	---	---	---	---	---	---	---	---
Colpien	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, ponded	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Tulare County, Western Part, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
116:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Flamen	0-17	---	---	18-27	1.45-1.55	4.23-14.11	0.14-0.17	0.0-2.9	2.0-3.0	.32	.37	3	5	56
	17-28	---	---	18-30	1.40-1.60	4.23-14.11	0.10-0.19	3.0-5.9	2.0-3.0	.32	.37			
	28-43	---	---	18-30	1.40-1.60	4.23-14.11	0.10-0.19	3.0-5.9	1.0-2.0	.32	.37			
	43-72	---	---	---	1.60-1.90	0.42-1.41	---	---	---	---	---			
Exeter	---	---	---	---	---	---	---	---	---	---	---	---	---	---
San Joaquin	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Calgro	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Centerville	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Colpien	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, ponded	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Tulare County, Western Part, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
116:									
Flamen	Duripan	40-60	---	Strongly cemented	0	---	Low	High	Low
Exeter	---	---	---	---	---	---	---	---	---
San Joaquin	---	---	---	---	---	---	---	---	---
Calgro	---	---	---	---	---	---	---	---	---
Centerville	---	---	---	---	---	---	---	---	---
Colpien	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---
Unnamed, ponded	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Tulare County, Western Part, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
116:								
Flamen	0-17	10-20	---	6.1-7.3	0-2	0	0.0-2.0	1-12
	17-28	10-20	---	6.1-8.4	0-2	0	0.0-2.0	1-12
	28-43	10-20	---	6.1-8.4	0-2	0	0.0-2.0	1-12
	43-72	---	---	---	---	---	---	---
Exeter	---	---	---	---	---	---	---	---
San Joaquin	---	---	---	---	---	---	---	---
Calgro	---	---	---	---	---	---	---	---
Centerville	---	---	---	---	---	---	---	---
Colpien	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---
Unnamed, ponded	---	---	---	---	---	---	---	---

Water Features

Tulare County, Western Part, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
116:										
Flamen	C	Low	January	---	---	---	---	None	Brief	Very rare
			February	---	---	---	---	None	Brief	Very rare
			March	---	---	---	---	None	Brief	Very rare
			April	---	---	---	---	None	Brief	Very rare
			May	---	---	---	---	None	Brief	Very rare
			June	---	---	---	---	None	Brief	Very rare
			July	---	---	---	---	None	Brief	Very rare
			August	---	---	---	---	None	Brief	Very rare
			September	---	---	---	---	None	Brief	Very rare
			October	---	---	---	---	None	Brief	Very rare
			November	---	---	---	---	None	Brief	Very rare
			December	---	---	---	---	None	Brief	Very rare
Exeter	---	---	Jan-Dec			---	---	None	---	None
San Joaquin	---	---	Jan-Dec			---	---	None	---	None
Calgro	---	---	Jan-Dec			---	---	None	---	None
Centerville	---	---	Jan-Dec			---	---	None	---	None
Colpien	---	---	Jan-Dec			---	---	None	---	None
Hanford	---	---	Jan-Dec			---	---	None	---	None
Unnamed, ponded	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Tulare County, Western Part, California

118 Gambogy-Biggriz, saline-Sodic, association, drained, 0 to 2 percent slopes

Setting

Landscape: Valleys

Elevation: 190 to 270 feet

Mean annual precipitation: 6 to 8 inches

Mean annual air temperature: 63 to 66 degrees F

Frost-free period: 250 to 300 days

Composition

Gambogy and similar soils: 50 percent

Biggriz and similar soils: 35 percent

Minor components: 15 percent

Description of Gambogy

Setting

Landform: Flood plains, alluvial fans

Landform position (two-dimensional): Foothlope, toeslope

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from granitic rock sources

Properties and Qualities

Slope: 0 to 2 percent

Drainage class: Poorly drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)

Frequency of flooding: Rare

Frequency of ponding: None

Calcium carbonate maximum: 3 percent

Gypsum maximum: 1 percent

Sodium adsorption ratio maximum: 12.0

Available water capacity: Moderate (about 8.3 inches)

Interpretive Groups

Land capability classification (irrigated): 2s

Land capability (non irrigated): 4s

Typical Profile

0 to 6 inches: loam

6 to 19 inches: stratified loam to clay loam

19 to 47 inches: stratified sandy loam to clay loam

47 to 72 inches: stratified sandy loam to loam

Description of Biggriz

Setting

Landform: Fan remnants

Landform position (two-dimensional): Shoulder

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from granitic rock sources

Properties and Qualities

Slope: 0 to 2 percent

Drainage class: Somewhat poorly drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)

Frequency of flooding: Rare

Frequency of ponding: None

Calcium carbonate maximum: 10 percent

Gypsum maximum: 1 percent

Salinity maximum: Very slightly saline or slightly saline (4.0 to 8.0 mmhos/cm)

Sodium adsorption ratio maximum: 200.0

Available water capacity: Moderate (about 7.2 inches)

Interpretive Groups

Land capability classification (irrigated): 3s

Map Unit Description

Tulare County, Western Part, California

Land capability (non irrigated): 7s

Typical Profile

0 to 14 inches: loam

14 to 50 inches: loam

50 to 65 inches: sandy loam

Minor Components

Colpien soils

Percent of map unit: 5 percent

Landform: Fan remnants

Hanford soils

Percent of map unit: 4 percent

Landform: Flood plains, alluvial fans

Grangeville soils

Percent of map unit: 3 percent

Landform: Flood plains, alluvial fans

Unnamed, ponded soils

Percent of map unit: 1 percent

Landform: Depressions

Tujunga soils

Percent of map unit: 1 percent

Landform: Flood plains

Nord soils

Percent of map unit: 1 percent

Landform: Flood plains, alluvial fans

Taxonomic Classification of the Soils

Tulare County, Western Part, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Biggriz	Fine-loamy, mixed, superactive, thermic Aquic Haploxerepts
Colpien	Fine-loamy, mixed, superactive, thermic Calcic Pachic Haploxerolls
Gambogy	Fine-loamy, mixed, superactive, calcareous, thermic Cumulic Endoaquolls
Grangeville	Coarse-loamy, mixed, superactive, thermic Fluvaquentic Haploxerolls
Hanford	Coarse-loamy, mixed, superactive, nonacid, thermic Typic Xerorthents
Nord	Coarse-loamy, mixed, superactive, thermic Cumulic Haploxerolls
Tujunga	Mixed, thermic Typic Xeropsamments

Engineering Properties

Tulare County, Western Part, California

Absence of an entry indicates that the data were not estimated. The asterisk "*" denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
118:	In				Pct	Pct					Pct	
Gambogy	0-6	Loam	ML	A-4, A-6	0	0	95-100	90-100	75-90	55-75	30-40	5-15
	6-19	Stratified loam to clay loam	CL, ML	A-4, A-5, A-6, A-7	0	0	95-100	90-100	75-100	55-80	30-45	5-20
	19-47	Stratified sandy loam to clay loam	CL, ML, SC, SM	A-4, A-5, A-6, A-7	0	0	95-100	90-100	55-100	35-80	30-45	5-20
	47-72	Stratified sandy loam to loam	ML, SM	A-2, A-4	0	0	95-100	90-100	55-90	30-75	20-35	NP-10
Biggriz	0-14	Loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	80-95	60-75	25-40	5-15
	14-50	Clay loam, Loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	80-95	60-80	25-40	5-20
	50-65	Loam, Sandy clay loam, Sandy loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0	100	95-100	75-95	40-75	25-40	5-20
Colpien	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---
Grangeville	---	---	---	---	---	---	---	---	---	---	---	---
Nord	---	---	---	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---	---	---	---

Engineering Properties

Tulare County, Western Part, California

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
118:	In				Pct	Pct					Pct	
Unnamed, ponded	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Tulare County, Western Part, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
118:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Gambogy	0-6	---	---	18-27	1.45-1.60	4.23-14.11	0.13-0.16	0.0-2.9	1.0-3.0	.32	.32	5	4L	86
	6-19	---	---	18-35	1.45-1.55	1.41-4.23	0.13-0.17	3.0-5.9	1.0-3.0	.28	.28			
	19-47	---	---	18-35	1.45-1.55	4.23-14.11	0.11-0.16	0.0-2.9	1.0-2.0	.28	.28			
	47-72	---	---	8-20	1.45-1.60	14.11-42.34	0.10-0.14	0.0-2.9	0.5-1.0	.20	.20			
Biggriz	0-14	---	---	18-27	1.45-1.55	4.23-14.11	0.11-0.13	0.0-2.9	0.3-1.0	.37	.37	5	4L	86
	14-50	---	---	18-33	1.40-1.55	1.41-4.23	0.11-0.13	3.0-5.9	0.3-1.0	.32	.32			
	50-65	---	---	18-33	1.45-1.55	1.41-4.23	0.10-0.13	3.0-5.9	0.3-1.0	.28	.28			
Colpien	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Grangeville	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Nord	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, ponded	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Tulare County, Western Part, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
118:		In	In		In	In			
Gambogy	---	---	---	---	0	---	Low	High	Moderate
Biggriz	---	---	---	---	0	---	Low	High	Moderate
Colpien	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---
Grangeville	---	---	---	---	---	---	---	---	---
Nord	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---
Unnamed, ponded	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Tulare County, Western Part, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
118:								
Gambogy	0-6	10-20	---	7.4-8.4	0-3	0-1	0.0-4.0	1-12
	6-19	10-20	---	7.4-8.4	1-3	0-1	0.0-4.0	1-12
	19-47	5.0-20	---	7.4-8.4	1-3	0-1	0.0-4.0	1-12
	47-72	5.0-10	---	7.4-8.4	1-3	0-1	0.0-4.0	1-12
Biggriz	0-14	10-15	---	7.9-9.0	1-5	0-1	4.0-8.0	13-50
	14-50	10-20	---	7.9-9.6	2-10	0-1	4.0-8.0	13-200
	50-65	10-20	---	8.5-9.6	2-10	0-1	4.0-8.0	13-100
Colpien	---	---	---	---	---	---	---	
Hanford	---	---	---	---	---	---	---	
Grangeville	---	---	---	---	---	---	---	
Nord	---	---	---	---	---	---	---	
Tujunga	---	---	---	---	---	---	---	
Unnamed, ponded	---	---	---	---	---	---	---	

Water Features

Tulare County, Western Part, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
118:										
Gambogy	B	Low	January	---	---	---	---	None	Brief	Rare
			February	---	---	---	---	None	Brief	Rare
			March	---	---	---	---	None	Brief	Rare
			April	---	---	---	---	None	Brief	Rare
			May	---	---	---	---	None	Brief	Rare
			June	---	---	---	---	None	Brief	Rare
			July	---	---	---	---	None	Brief	Rare
			August	---	---	---	---	None	Brief	Rare
			September	---	---	---	---	None	Brief	Rare
			October	---	---	---	---	None	Brief	Rare
			November	---	---	---	---	None	Brief	Rare
			December	---	---	---	---	None	Brief	Rare
Biggriz	B	Negligible	January	---	---	---	---	None	Brief	Rare
			February	---	---	---	---	None	Brief	Rare
			March	---	---	---	---	None	Brief	Rare
			April	---	---	---	---	None	Brief	Rare
			May	---	---	---	---	None	Brief	Rare
			June	---	---	---	---	None	Brief	Rare
			July	---	---	---	---	None	Brief	Rare
			August	---	---	---	---	None	Brief	Rare
			September	---	---	---	---	None	Brief	Rare
			October	---	---	---	---	None	Brief	Rare
			November	---	---	---	---	None	Brief	Rare
			December	---	---	---	---	None	Brief	Rare
Colpien	---	---	Jan-Dec			---	---	None	---	None
Hanford	---	---	Jan-Dec			---	---	None	---	None

Water Features

Tulare County, Western Part, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
118:										
Grangeville	---	---	Jan-Dec			---	---	None	---	None
Nord	---	---	Jan-Dec			---	---	None	---	None
Tujunga	---	---	Jan-Dec			---	---	None	---	None
Unnamed, ponded	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Tulare County, Western Part, California

124 Hanford sandy loam, 0 to 2 percent slopes

Setting

Landscape: Valleys
Elevation: 220 to 490 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 63 to 64 degrees F
Frost-free period: 250 to 280 days

Composition

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

Description of Hanford

Setting

Landform: Flood plains, alluvial fans
Landform position (two-dimensional): Footslope, toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granitic rock sources

Properties and Qualities

Slope: 0 to 2 percent
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Frequency of flooding: Very rare
Frequency of ponding: None
Calcium carbonate maximum: 2 percent
Gypsum maximum: 0 percent
Sodium adsorption ratio maximum: 7.0
Available water capacity: Moderate (about 6.6 inches)

Interpretive Groups

Land capability classification (irrigated): 1
Land capability (non irrigated): 3c

Typical Profile

0 to 6 inches: sandy loam
6 to 30 inches: fine sandy loam
30 to 60 inches: sandy loam

Minor Components

Exeter soils

Percent of map unit: 5 percent
Landform: Fan remnants

Tujunga soils

Percent of map unit: 5 percent
Landform: Flood plains

Calgro soils

Percent of map unit: 3 percent
Landform: Fan remnants

Yettem soils

Percent of map unit: 2 percent
Landform: Flood plains, alluvial fans

Taxonomic Classification of the Soils

Tulare County, Western Part, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Calgro	Coarse-loamy, mixed, superactive, thermic Typic Durixerepts
Exeter	Fine-loamy, mixed, superactive, thermic Typic Durixeralfs
Hanford	Coarse-loamy, mixed, superactive, nonacid, thermic Typic Xerorthents
Tujunga	Mixed, thermic Typic Xeropsamments
Yettem	Coarse-loamy, mixed, superactive, thermic Entic Haploxerolls

Engineering Properties

Tulare County, Western Part, California

Absence of an entry indicates that the data were not estimated. The asterisk "*" denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
124:												
Hanford	0-6	Sandy loam	SM	A-4	0	0	95-100	90-100	50-75	35-50	20-30	NP-5
	6-30	Coarse sandy loam, Fine sandy loam, Sandy loam	SM	A-4	0	0	95-100	90-100	50-75	35-50	20-30	NP-5
	30-60	Coarse sandy loam, Loamy sand, Sandy loam	SM	A-1, A-2	0	0	85-100	75-100	40-60	15-35	---	NP
Exeter	---	---	---	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---	---	---	---
Calgro	---	---	---	---	---	---	---	---	---	---	---	---
Yettem	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Tulare County, Western Part, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
124:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Hanford	0-6	---	---	7-18	1.40-1.60	14.11-42.34	0.10-0.15	0.0-2.9	0.5-1.0	.32	.32	5	3	86
	6-30	---	---	7-18	1.40-1.60	14.11-42.34	0.10-0.15	0.0-2.9	0.1-0.5	.32	.32			
	30-60	---	---	5-15	1.40-1.60	42.34-141.14	0.07-0.10	0.0-2.9	0.1-0.5	.20	.24			
Exeter	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Calgro	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Yettem	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Tulare County, Western Part, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
124:		In	In		In	In			
Hanford	---	---	---	---	0	---	Low	Moderate	Moderate
Exeter	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---
Calgro	---	---	---	---	---	---	---	---	---
Yettem	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Tulare County, Western Part, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
124:								
Hanford	0-6	5.0-15	---	5.6-7.8	0-1	0	0.0-2.0	0-7
	6-30	5.0-15	---	5.6-7.8	0	0	0.0-2.0	0-7
	30-60	5.0-15	---	5.6-7.8	0-2	0	0.0-2.0	0-7
Exeter	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---
Calgro	---	---	---	---	---	---	---	---
Yettem	---	---	---	---	---	---	---	---

Water Features

Tulare County, Western Part, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
124:										
Hanford	B	Negligible	January	---	---	---	---	None	Brief	Very rare
			February	---	---	---	---	None	Brief	Very rare
			March	---	---	---	---	None	Brief	Very rare
			April	---	---	---	---	None	Brief	Very rare
			May	---	---	---	---	None	Brief	Very rare
			June	---	---	---	---	None	Brief	Very rare
			July	---	---	---	---	None	Brief	Very rare
			August	---	---	---	---	None	Brief	Very rare
			September	---	---	---	---	None	Brief	Very rare
			October	---	---	---	---	None	Brief	Very rare
			November	---	---	---	---	None	Brief	Very rare
			December	---	---	---	---	None	Brief	Very rare
Exeter	---	---	Jan-Dec			---	---	None	---	None
Tujunga	---	---	Jan-Dec			---	---	None	---	None
Calgro	---	---	Jan-Dec			---	---	None	---	None
Yetter	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Tulare County, Western Part, California

130 Nord fine sandy loam, 0 to 2 percent slopes

Setting

Landscape: Valleys
Elevation: 190 to 520 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 61 to 64 degrees F
Frost-free period: 250 to 275 days

Composition

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

Description of Nord

Setting

Landform: Flood plains, alluvial fans
Landform position (two-dimensional): Footslope, toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed

Properties and Qualities

Slope: 0 to 1 percent
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high or high (0.60 to 2.00 in/hr)
Frequency of flooding: Very rare
Frequency of ponding: None
Calcium carbonate maximum: 4 percent
Gypsum maximum: 0 percent
Sodium adsorption ratio maximum: 10.0
Available water capacity: Moderate (about 7.2 inches)

Interpretive Groups

Land capability classification (irrigated): 1
Land capability (non irrigated): 4c

Typical Profile

0 to 11 inches: fine sandy loam
11 to 38 inches: stratified sandy loam to loam
38 to 50 inches: stratified loamy coarse sand to coarse sandy loam
50 to 72 inches: stratified sandy loam to silt loam

Minor Components

Grangeville, saline-sodic soils
Percent of map unit: 3 percent
Landform: Flood plains, alluvial fans

Hanford soils
Percent of map unit: 3 percent
Landform: Flood plains, alluvial fans

Tujung soils
Percent of map unit: 3 percent
Landform: Flood plains

Tagus soils
Percent of map unit: 2 percent
Landform: Fan remnants

Akers soils
Percent of map unit: 2 percent
Landform: Fan remnants

Colpien soils
Percent of map unit: 2 percent

Map Unit Description

Tulare County, Western Part, California

Landform: Fan remnants

Taxonomic Classification of the Soils

Tulare County, Western Part, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Akers	Coarse-loamy, mixed, superactive, thermic Calcic Haploxerepts
Colpien	Fine-loamy, mixed, superactive, thermic Calcic Pachic Haploxerolls
Grangeville	Coarse-loamy, mixed, superactive, thermic Fluvaquentic Haploxerolls
Hanford	Coarse-loamy, mixed, superactive, nonacid, thermic Typic Xerorthents
Nord	Coarse-loamy, mixed, superactive, thermic Cumulic Haploxerolls
Tagus	Coarse-loamy, mixed, superactive, thermic Calcic Haploxerolls
Tujunga	Mixed, thermic Typic Xeropsamments

Engineering Properties

Tulare County, Western Part, California

Absence of an entry indicates that the data were not estimated. The asterisk "*" denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
130:												
Nord	0-11	Fine sandy loam	ML, SM	A-4	0	0	100	100	70-85	35-55	20-30	NP-5
	11-38	Stratified sandy loam to loam	CL-ML, ML, SC-SM, SM	A-4	0	0	100	100	60-95	35-70	20-30	NP-10
	38-50	Stratified loamy coarse sand to coarse sandy loam	SM	A-2	0	0	100	100	25-60	20-50	15-20	NP
	50-72	Stratified sandy loam to silt loam	CL-ML, ML, SC-SM, SM	A-4	0	0	100	100	60-95	35-70	20-30	NP-10
Grangeville, saline-sodic	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---	---	---	---
Akers	---	---	---	---	---	---	---	---	---	---	---	---
Colpien	---	---	---	---	---	---	---	---	---	---	---	---
Tagus	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Tulare County, Western Part, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
130:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Nord	0-11	---	---	10-18	1.50-1.60	4.23-14.11	0.10-0.13	0.0-2.9	1.0-2.0	.28	.28	5	3	86
	11-38	---	---	10-18	1.50-1.60	4.23-14.11	0.11-0.15	0.0-2.9	1.0-2.0	.37	.37			
	38-50	---	---	2-12	1.55-1.70	14.11-141.14	0.05-0.12	0.0-2.9	0.1-0.5	.17	.17			
	50-72	---	---	10-18	1.50-1.60	4.23-14.11	0.11-0.15	0.0-2.9	0.2-0.5	.37	.37			
Grangeville, saline-sodic	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Akers	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Colpien	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Tagus	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Tulare County, Western Part, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
130:		In	In		In	In			
Nord	---	---	---	---	0	---	Low	High	Low
Grangeville, saline-sodic	---	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---
Akers	---	---	---	---	---	---	---	---	---
Colpien	---	---	---	---	---	---	---	---	---
Tagus	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Tulare County, Western Part, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
130:								
Nord	0-11	5.0-15	---	6.6-8.4	0-4	0	0.0-2.0	2-10
	11-38	5.0-15	---	6.6-8.4	0-4	0	0.0-2.0	2-10
	38-50	5.0-15	---	6.6-8.4	0-4	0	0.0-2.0	2-10
	50-72	5.0-15	---	6.6-8.4	0-4	0	0.0-2.0	2-10
Grangeville, saline-sodic	---	---	---	---	---	---	---	---
Hanford	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---
Akers	---	---	---	---	---	---	---	---
Colpien	---	---	---	---	---	---	---	---
Tagus	---	---	---	---	---	---	---	---

Water Features

Tulare County, Western Part, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
130:										
Nord	B	Negligible	January	---	---	---	---	None	Brief	Very rare
			February	---	---	---	---	None	Brief	Very rare
			March	---	---	---	---	None	Brief	Very rare
			April	---	---	---	---	None	Brief	Very rare
			May	---	---	---	---	None	Brief	Very rare
			June	---	---	---	---	None	Brief	Very rare
			July	---	---	---	---	None	Brief	Very rare
			August	---	---	---	---	None	Brief	Very rare
			September	---	---	---	---	None	Brief	Very rare
			October	---	---	---	---	None	Brief	Very rare
			November	---	---	---	---	None	Brief	Very rare
			December	---	---	---	---	None	Brief	Very rare
Grangeville, saline-sodic	---	---	Jan-Dec			---	---	None	---	None
Hanford	---	---	Jan-Dec			---	---	None	---	None
Tujunga	---	---	Jan-Dec			---	---	None	---	None
Akers	---	---	Jan-Dec			---	---	None	---	None
Colpien	---	---	Jan-Dec			---	---	None	---	None
Tagus	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Tulare County, Western Part, California

132 Quonal-Lewis association, 0 to 2 percent slopes

Setting

Landscape: Valleys
Elevation: 280 to 400 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 63 to 64 degrees F
Frost-free period: 250 to 300 days

Composition

Quonal and similar soils: 70 percent
Lewis and similar soils: 15 percent
Minor components: 15 percent

Description of Quonal

Setting

Landform: Fan remnants
Landform position (two-dimensional): Shoulder
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Formed by the chemical and mechanical alteration of the Lewis series which originally formed in alluvium from mixed rock sources

Properties and Qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 40 to 60 inches to Duripan
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Low or moderately low (0.01 to 0.06 in/hr)
Frequency of flooding: Very rare
Frequency of ponding: None
Calcium carbonate maximum: 10 percent
Gypsum maximum: 5 percent
Sodium adsorption ratio maximum: 50.0
Available water capacity: Low (about 5.4 inches)

Interpretive Groups

Land capability classification (irrigated): 3s
Land capability (non irrigated): 6s

Typical Profile

0 to 7 inches: silty clay
7 to 16 inches: silty clay
16 to 41 inches: silty clay
41 to 44 inches: duripan
44 to 62 inches: stratified sandy loam to silty clay loam

Description of Lewis

Setting

Landform: Fan remnants
Landform position (two-dimensional): Shoulder
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed

Properties and Qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 2 to 6 inches to Natric; 20 to 40 inches to Duripan
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Low or moderately low (0.01 to 0.06 in/hr)
Frequency of flooding: Very rare
Frequency of ponding: None
Calcium carbonate maximum: 8 percent
Gypsum maximum: 0 percent
Salinity maximum: Slightly saline or strongly saline (8.0 to 40.0 mmhos/cm)
Sodium adsorption ratio maximum: 100.0

Map Unit Description

Tulare County, Western Part, California

Available water capacity: Very low (about 0.9 inches)

Interpretive Groups

Land capability classification (irrigated): 6s

Land capability (non irrigated): 7s

Typical Profile

0 to 5 inches: silty clay loam

5 to 25 inches: clay loam, clay

25 to 39 inches: cemented

39 to 60 inches: stratified sandy loam to clay loam

Minor Components

Exeter soils

Percent of map unit: 4 percent

Landform: Fan remnants

Colpien soils

Percent of map unit: 3 percent

Landform: Fan remnants

Flamen soils

Percent of map unit: 3 percent

Landform: Fan remnants

Tujunga soils

Percent of map unit: 2 percent

Landform: Flood plains

San joaquin soils

Percent of map unit: 2 percent

Landform: Fan remnants

Unnamed, ponded soils

Percent of map unit: 1 percent

Landform: Depressions

Taxonomic Classification of the Soils

Tulare County, Western Part, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Colpien	Fine-loamy, mixed, superactive, thermic Calcic Pachic Haploxerolls
Exeter	Fine-loamy, mixed, superactive, thermic Typic Durixeralfs
Flamen	Fine-loamy, mixed, superactive, thermic Calcic Pachic Haploxerolls
Lewis	Fine, smectitic, thermic Natric Durixeralfs
Quonal	Fine, smectitic, calcareous, thermic Sodic Xerarents
San Joaquin*	Fine, mixed, active, thermic Typic Durixeralfs
Tujunga	Mixed, thermic Typic Xeropsamments

Engineering Properties

Tulare County, Western Part, California

Absence of an entry indicates that the data were not estimated. The asterisk "*" denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
132:												
Quonal	0-7	Silty clay	CH	A-7	0	0	85-100	75-100	70-100	65-100	50-55	25-30
	7-16	Clay, Gravelly clay, Silty clay	CH, GC	A-7	0	0	60-100	50-100	45-100	40-100	50-55	25-30
	16-41	Clay, Gravelly clay, Silty clay	CH, GC	A-7	0	0	60-100	50-100	45-100	40-100	50-55	25-30
	41-44	Duripan	---	---	---	---	---	---	---	---	---	---
	44-62	Stratified sandy loam to silty clay loam	CL, SC	A-6	0	0	85-100	75-100	65-90	40-80	25-40	10-20
Lewis	0-5	Silty clay loam	CL	A-6, A-7	0	0	100	95-100	90-100	65-80	30-45	10-20
	5-25	Clay, Clay loam	CH, CL	A-7	0	0	100	100	90-100	75-95	40-60	20-30
	25-39	Cemented	---	---	---	---	---	---	---	---	---	---
	39-60	Stratified sandy loam to clay loam	CL-ML	A-4	0	0	100	95-100	60-90	50-60	20-30	5-10
Exeter	---	---	---	---	---	---	---	---	---	---	---	---
Colpien	---	---	---	---	---	---	---	---	---	---	---	---
Flamen	---	---	---	---	---	---	---	---	---	---	---	---
San Joaquin	---	---	---	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, ponded	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Tulare County, Western Part, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
132:														
Quonal	0-7	---	---	40-50	1.40-1.50	0.42-1.41	0.11-0.17	6.0-8.9	0.5-1.0	.32	.32	3	4	86
	7-16	---	---	40-50	1.25-1.50	0.42-1.41	0.09-0.16	6.0-8.9	0.5-1.0	.28	.24			
	16-41	---	---	40-50	1.25-1.50	0.07-0.42	0.09-0.16	6.0-8.9	0.5-0.8	.28	.24			
	41-44	---	---	---	---	0.07-0.42	---	---	---	---	---			
	44-62	---	---	18-35	1.40-1.60	1.41-42.34	0.08-0.16	3.0-5.9	0.1-0.5	.28	.28			
Lewis	0-5	---	---	27-30	1.40-1.50	1.41-4.23	0.15-0.18	3.0-5.9	0.5-1.0	.43	.43	2	6	48
	5-25	---	---	35-60	1.40-1.55	0.42-1.40	0.06-0.13	6.0-8.9	0.3-1.0	.32	.32			
	25-39	---	---	---	---	0.07-0.42	---	---	---	---	---			
	39-60	---	---	15-30	1.50-1.60	1.41-4.23	0.06-0.09	3.0-5.9	0.1-0.3	.32	.32			
Exeter	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Colpien	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Flamen	---	---	---	---	---	---	---	---	---	---	---	---	---	---
San Joaquin	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, ponded	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Tulare County, Western Part, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
132: Quonal	Duripan	40-60	---	Strongly cemented	0	---	Low	High	High
Lewis	Natric Duripan	2-6 20-40	---	Noncemented Strongly cemented	0	---	Low	High	High
Exeter	---	---	---	---	---	---	---	---	---
Colpien	---	---	---	---	---	---	---	---	---
Flamen	---	---	---	---	---	---	---	---	---
San Joaquin	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---
Unnamed, ponded	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Tulare County, Western Part, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
132:								
Quonal	0-7	30-40	---	7.4-9.6	1-10	1-5	0.0-8.0	0-4
	7-16	30-40	---	7.4-9.6	1-10	1-5	0.0-8.0	0-13
	16-41	30-40	---	7.4-9.6	1-10	1-5	0.0-8.0	13-50
	41-44	---	---	---	---	---	---	---
	44-62	15-20	---	7.9-9.6	5-10	1-5	0.0-8.0	13-50
Lewis	0-5	10-20	---	7.9-9.6	1-4	0	4.0-16.0	13-100
	5-25	10-20	---	8.5-9.6	1-8	0	8.0-40.0	13-100
	25-39	---	---	---	---	---	---	---
	39-60	10-20	---	7.9-9.6	1-8	0	8.0-40.0	13-100
Exeter	---	---	---	---	---	---	---	
Colpien	---	---	---	---	---	---	---	
Flamen	---	---	---	---	---	---	---	
San Joaquin	---	---	---	---	---	---	---	
Tujunga	---	---	---	---	---	---	---	
Unnamed, ponded	---	---	---	---	---	---	---	

Water Features

Tulare County, Western Part, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
132:										
Quonal	B	High	January	---	---	---	---	None	Brief	Very rare
			February	---	---	---	---	None	Brief	Very rare
			March	---	---	---	---	None	Brief	Very rare
			April	---	---	---	---	None	Brief	Very rare
			May	---	---	---	---	None	Brief	Very rare
			June	---	---	---	---	None	Brief	Very rare
			July	---	---	---	---	None	Brief	Very rare
			August	---	---	---	---	None	Brief	Very rare
			September	---	---	---	---	None	Brief	Very rare
			October	---	---	---	---	None	Brief	Very rare
			November	---	---	---	---	None	Brief	Very rare
			December	---	---	---	---	None	Brief	Very rare
Lewis	D	Medium	January	---	---	---	---	None	Brief	Very rare
			February	---	---	---	---	None	Brief	Very rare
			March	---	---	---	---	None	Brief	Very rare
			April	---	---	---	---	None	Brief	Very rare
			May	---	---	---	---	None	Brief	Very rare
			June	---	---	---	---	None	Brief	Very rare
			July	---	---	---	---	None	Brief	Very rare
			August	---	---	---	---	None	Brief	Very rare
			September	---	---	---	---	None	Brief	Very rare
			October	---	---	---	---	None	Brief	Very rare
			November	---	---	---	---	None	Brief	Very rare
			December	---	---	---	---	None	Brief	Very rare
Exeter	---	---	Jan-Dec			---	---	None	---	None
Colpien	---	---	Jan-Dec			---	---	None	---	None

Water Features

Tulare County, Western Part, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
132:										
Flamen	---	---	Jan-Dec			---	---	None	---	None
San Joaquin	---	---	Jan-Dec			---	---	None	---	None
Tujunga	---	---	Jan-Dec			---	---	None	---	None
Unnamed, ponded	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Tulare County, Western Part, California

137 Tagus loam, 0 to 2 percent slopes

Setting

Landscape: Valleys
Elevation: 230 to 400 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 63 to 64 degrees F
Frost-free period: 250 to 300 days

Composition

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

Description of Tagus

Setting

Landform: Fan remnants
Landform position (two-dimensional): Shoulder
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granitic rock sources

Properties and Qualities

Slope: 0 to 2 percent
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high or high (0.60 to 2.00 in/hr)
Frequency of flooding: Very rare
Frequency of ponding: None
Calcium carbonate maximum: 10 percent
Gypsum maximum: 0 percent
Sodium adsorption ratio maximum: 12.0
Available water capacity: Moderate (about 8.4 inches)

Interpretive Groups

Land capability classification (irrigated): 1
Land capability (non irrigated): 4c

Typical Profile

0 to 17 inches: loam
17 to 40 inches: loam
40 to 63 inches: loam

Minor Components

Tujunga soils

Percent of map unit: 5 percent
Landform: Flood plains

Hanford soils

Percent of map unit: 5 percent
Landform: Flood plains, alluvial fans

Grangeville soils

Percent of map unit: 3 percent
Landform: Flood plains, alluvial fans

Colpien soils

Percent of map unit: 2 percent
Landform: Fan remnants

Taxonomic Classification of the Soils

Tulare County, Western Part, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Akers	Coarse-loamy, mixed, superactive, thermic Calcic Haploxerepts
Colpien	Fine-loamy, mixed, superactive, thermic Calcic Pachic Haploxerolls
Grangeville	Coarse-loamy, mixed, superactive, thermic Fluvaquentic Haploxerolls
Hanford	Coarse-loamy, mixed, superactive, nonacid, thermic Typic Xerorthents
Tagus	Coarse-loamy, mixed, superactive, thermic Calcic Haploxerolls
Tujunga	Mixed, thermic Typic Xeropsamments
Yettem	Coarse-loamy, mixed, superactive, thermic Entic Haploxerolls

Engineering Properties

Tulare County, Western Part, California

Absence of an entry indicates that the data were not estimated. The asterisk "*" denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
137:												
Tagus	0-17	Loam	ML	A-4	0	0	100	100	70-85	50-65	20-30	NP-5
	17-40	Fine sandy loam, Loam, Sandy loam	ML, SM	A-4	0	0	100	100	70-90	40-65	20-30	NP-5
	40-63	Fine sandy loam, Loam, Sandy loam	ML, SM	A-4	0	0	100	100	60-85	35-55	20-30	NP-5
Hanford	---	---	---	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---	---	---	---
Grangeville	---	---	---	---	---	---	---	---	---	---	---	---
Colpien	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Tulare County, Western Part, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
137:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Tagus	0-17	---	---	10-18	1.50-1.65	14.11-42.34	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	5	5	56
	17-40	---	---	10-18	1.60-1.70	4.23-14.11	0.13-0.15	0.0-2.9	0.2-0.6	.37	.37			
	40-63	---	---	10-18	1.50-1.70	14.11-42.34	0.12-0.15	0.0-2.9	0.1-0.5	.37	.37			
Hanford	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Grangeville	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Colpien	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Tulare County, Western Part, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
137:		In	In		In	In			
Tagus	---	---	---	---	0	---	Low	High	Low
Hanford	---	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---	---
Grangeville	---	---	---	---	---	---	---	---	---
Colpien	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Tulare County, Western Part, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
137:								
Tagus	0-17	5.0-15	---	7.4-7.8	0-1	0	0.0-2.0	0-5
	17-40	5.0-15	---	7.9-8.4	6-10	0	0.0-2.0	0-12
	40-63	5.0-15	---	7.9-9.0	1-3	0	0.0-2.0	0-12
Hanford	---	---	---	---	---	---	---	---
Tujunga	---	---	---	---	---	---	---	---
Grangeville	---	---	---	---	---	---	---	---
Colpien	---	---	---	---	---	---	---	---

Water Features

Tulare County, Western Part, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
137:										
Tagus	B	Low	January	---	---	---	---	None	Brief	Very rare
			February	---	---	---	---	None	Brief	Very rare
			March	---	---	---	---	None	Brief	Very rare
			April	---	---	---	---	None	Brief	Very rare
			May	---	---	---	---	None	Brief	Very rare
			June	---	---	---	---	None	Brief	Very rare
			July	---	---	---	---	None	Brief	Very rare
			August	---	---	---	---	None	Brief	Very rare
			September	---	---	---	---	None	Brief	Very rare
			October	---	---	---	---	None	Brief	Very rare
			November	---	---	---	---	None	Brief	Very rare
			December	---	---	---	---	None	Brief	Very rare
Hanford	---	---	Jan-Dec			---	---	None	---	None
Tujunga	---	---	Jan-Dec			---	---	None	---	None
Grangeville	---	---	Jan-Dec			---	---	None	---	None
Colpien	---	---	Jan-Dec			---	---	None	---	None

Map Unit Description

Tulare County, Western Part, California

138 Tujunga loamy sand, 0 to 2 percent slopes

Setting

Landscape: Valleys
Elevation: 210 to 520 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 63 to 64 degrees F
Frost-free period: 250 to 300 days

Composition

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

Description of Tujunga

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and Qualities

Slope: 0 to 2 percent
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High or very high (6.00 to 20.00 in/hr)
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 0 percent
Gypsum maximum: 0 percent
Available water capacity: Low (about 3.1 inches)

Interpretive Groups

Land capability classification (irrigated): 3s
Land capability (non irrigated): 6e

Typical Profile

0 to 14 inches: loamy sand
14 to 70 inches: stratified coarse sand to loamy sand

Minor Components

Grangeville soils

Percent of map unit: 5 percent
Landform: Flood plains, alluvial fans

Yettem soils

Percent of map unit: 4 percent
Landform: Flood plains, alluvial fans

Akers, saline-sodic soils

Percent of map unit: 3 percent
Landform: Fan remnants

Akers soils

Percent of map unit: 3 percent
Landform: Fan remnants

Taxonomic Classification of the Soils

Tulare County, Western Part, California

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Akers	Coarse-loamy, mixed, superactive, thermic Calcic Haploxerepts
Grangeville	Coarse-loamy, mixed, superactive, thermic Fluvaquentic Haploxerolls
Tujunga	Mixed, thermic Typic Xeropsamments
Yettem	Coarse-loamy, mixed, superactive, thermic Entic Haploxerolls

Engineering Properties

Tulare County, Western Part, California

Absence of an entry indicates that the data were not estimated. The asterisk "*" denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
138:												
Tujunga	0-14	Loamy sand	SM	A-2	0	0	100	85-95	35-50	10-25	0-19	NP-2
	14-70	Stratified coarse sand to loamy sand	SM	A-2	0	0-5	90-100	75-95	35-50	10-25	0-19	NP-2
Grangeville	---	---	---	---	---	---	---	---	---	---	---	---
Yettem	---	---	---	---	---	---	---	---	---	---	---	---
Akers, saline-sodic	---	---	---	---	---	---	---	---	---	---	---	---
Akers	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Tulare County, Western Part, California

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
138:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Tujunga	0-14	---	---	0-5	1.55-1.65	42.34-141.14	0.03-0.08	0.0-2.9	0.5-0.8	.17	.17	5	2	134
	14-70	---	---	0-5	1.55-1.65	42.34-141.14	0.02-0.08	0.0-2.9	0.1-0.4	.20	.20			
Grangeville	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Yettem	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Akers, saline-sodic	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Akers	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Tulare County, Western Part, California

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
138:		In	In		In	In			
Tujunga	---	---	---	---	0	---	Low	Moderate	Low
Grangeville	---	---	---	---	---	---	---	---	---
Yettem	---	---	---	---	---	---	---	---	---
Akers, saline-sodic	---	---	---	---	---	---	---	---	---
Akers	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Tulare County, Western Part, California

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
138:								
Tujunga	0-14	0.0-5.0	---	6.1-7.3	0	0	0.0	0
	14-70	0.0-5.0	---	6.1-7.3	0	0	0.0	0
Grangeville	---	---	---	---	---	---	---	---
Yettem	---	---	---	---	---	---	---	---
Akers, saline-sodic	---	---	---	---	---	---	---	---
Akers	---	---	---	---	---	---	---	---

Water Features

Tulare County, Western Part, California

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
138:										
Tujunga	A	Negligible	January	---	---	---	---	None	Brief	Rare
			February	---	---	---	---	None	Brief	Rare
			March	---	---	---	---	None	Brief	Rare
			April	---	---	---	---	None	Brief	Rare
			May	---	---	---	---	None	Brief	Rare
			June	---	---	---	---	None	Brief	Rare
			July	---	---	---	---	None	Brief	Rare
			August	---	---	---	---	None	Brief	Rare
			September	---	---	---	---	None	Brief	Rare
			October	---	---	---	---	None	Brief	Rare
			November	---	---	---	---	None	Brief	Rare
			December	---	---	---	---	None	Brief	Rare
Grangeville	---	---	Jan-Dec			---	---	None	---	None
Yettum	---	---	Jan-Dec			---	---	None	---	None
Akers, saline-sodic	---	---	Jan-Dec			---	---	None	---	None
Akers	---	---	Jan-Dec			---	---	None	---	None

Kern County, Southwest Part | CA691

Map Unit Description

Kern County, California, Southwest Part

101 Bakersfield fine sandy loam, drained, 0 to 1 percent slopes

Setting

Landscape: Valleys
Elevation: 290 to 410 feet
Mean annual precipitation: 5 to 6 inches
Mean annual air temperature: 62 to 65 degrees F
Frost-free period: 250 to 300 days

Composition

Bakersfield, drained, and similar soils: 80 percent
Minor components: 20 percent

Description of Bakersfield, drained

Setting

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granitoid

Properties and Qualities

Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high or high (0.57 to 1.98 in/hr)
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 3 percent
Gypsum maximum: 0 percent
Salinity maximum: Non saline or slightly saline (1.0 to 5.0 mmhos/cm)
Sodium adsorption ratio maximum: 12.0
Available water capacity: High (about 9.9 inches)

Interpretive Groups

Land capability classification (irrigated): 2s
Land capability (non irrigated): 7e

Typical Profile

0 to 3 inches: fine sandy loam
3 to 10 inches: fine sandy loam
10 to 16 inches: fine sandy loam
16 to 29 inches: stratified sand to loam
29 to 45 inches: stratified sand to loam
45 to 51 inches: loam
51 to 58 inches: stratified sandy loam to silt loam
58 to 66 inches: stratified sand to loam

Minor Components

Bakersfield, saline-sodic soils

Percent of map unit: 4 percent
Landform: Flood plains

Oldriver soils

Percent of map unit: 4 percent
Landform: Flood plains

Vineland soils

Percent of map unit: 4 percent
Landform: Flood plains

Granoso, overwash soils

Percent of map unit: 4 percent
Landform: Flood plains

Granoso soils

Percent of map unit: 4 percent

Map Unit Description

Kern County, California, Southwest Part

Landform: Flood plains

Taxonomic Classification of the Soils

Kern County, California, Southwest Part

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Bakersfield	Coarse-loamy, mixed, superactive, thermic Torrifuventic Haploxerolls
Granoso	Mixed, thermic Typic Torripsamments
Oldriver	Fine-loamy, mixed, superactive, thermic Torrifuventic Haploxerolls
Vineland	Sandy, mixed, thermic Typic Torrifuvents

Engineering Properties

Kern County, California, Southwest Part

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
101:												
Bakersfield, drained	0-3	Fine sandy loam	SC, SM	A-2-4, A-4, A-6	0	0	100	95-100	78-95	29-43	18-33	2-11
	3-10	Fine sandy loam	SC, SM	A-2-4, A-4, A-6	0	0	100	95-100	78-95	29-43	18-30	2-11
	10-16	Fine sandy loam	SC, SM	A-2-4, A-4, A-6	0	0	100	95-100	77-94	27-42	18-30	2-15
	16-29	Stratified sand to loam	SC, SC-SM, SM	A-2-4, A-4, A-6	0	0	100	95-100	64-82	27-44	0-29	NP-12
	29-45	Stratified sand to loam	CL, SM	A-4, A-6	0	0	100	95-100	71-90	37-54	0-28	NP-12
	45-51	Loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	75-92	53-69	22-35	7-17
	51-58	Stratified sandy loam to silt loam	CL	A-6	0	0	100	95-100	87-100	80-93	28-36	12-18
	58-66	Stratified sand to loam	SM	A-2-4	0	0	100	95-100	89-97	17-21	0-16	NP-2
Bakersfield, saline-sodic	---	---	---	---	---	---	---	---	---	---	---	---
Granoso, overwash	---	---	---	---	---	---	---	---	---	---	---	---
Granoso	---	---	---	---	---	---	---	---	---	---	---	---
Oldriver	---	---	---	---	---	---	---	---	---	---	---	---
Vineland	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Kern County, California, Southwest Part

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
101:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Bakersfield, drained	0-3	---	---	5-18	1.50-1.60	4.00-14.00	0.16-0.18	0.6-2.2	1.0-3.0	.24	.24	3	3	86
	3-10	---	---	5-18	1.50-1.60	4.00-14.00	0.15-0.17	0.6-2.2	1.0-2.0	.24	.24			
	10-16	---	---	5-18	1.50-1.60	4.00-14.00	0.11-0.13	0.6-2.2	0.5-2.0	.24	.24			
	16-29	---	---	3-18	1.50-1.60	14.00-42.00	0.11-0.13	0.4-2.2	0.3-0.6	.24	.24			
	29-45	---	---	3-18	1.50-1.60	4.00-14.00	0.19-0.22	0.4-2.6	0.1-0.5	.37	.37			
	45-51	---	---	12-25	1.45-1.55	14.00-42.00	0.17-0.19	1.8-3.4	0.3-0.8	.37	.37			
	51-58	---	---	18-27	1.45-1.55	4.00-14.00	0.19-0.22	2.7-3.9	0.3-0.8	.49	.49			
	58-66	---	---	2-8	1.60-1.70	141.00-282.00	0.05-0.07	0.3-0.7	0.1-0.2	.17	.17			
Bakersfield, saline-sodic	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Granoso, overwash	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Granoso	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Oldriver	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Vineland	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Kern County, California, Southwest Part

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
101:		In	In		In	In			
Bakersfield, drained	---	---	---	---	---	---	None	Moderate	Low
Bakersfield, saline-sodic	---	---	---	---	---	---	---	---	---
Granoso, overwash	---	---	---	---	---	---	---	---	---
Granoso	---	---	---	---	---	---	---	---	---
Oldriver	---	---	---	---	---	---	---	---	---
Vineland	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Kern County, California, Southwest Part

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
101:								
Bakersfield, drained	0-3	4.8-16	---	6.1-6.5	0-2	0	0.5-3.0	2-12
	3-10	4.8-16	---	6.1-6.5	0-2	0	0.5-3.0	2-12
	10-16	4.6-16	---	6.6-7.3	0-2	0	0.5-3.0	2-12
	16-29	2.9-15	---	7.9-8.4	0-3	0	1.0-4.0	2-12
	29-45	2.7-15	---	7.9-8.4	0-3	0	1.0-4.0	2-12
	45-51	9.9-20	---	7.9-8.4	0-3	0	1.0-5.0	2-12
	51-58	14-22	---	7.9-8.4	0-3	0	1.0-5.0	2-12
	58-66	1.8-6.8	---	7.9-8.4	0-3	0	1.0-5.0	2-12
Bakersfield, saline-sodic	---	---	---	---	---	---	---	---
Granoso, overwash	---	---	---	---	---	---	---	---
Granoso	---	---	---	---	---	---	---	---
Oldriver	---	---	---	---	---	---	---	---
Vineland	---	---	---	---	---	---	---	---

Water Features

Kern County, California, Southwest Part

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
101:										
Bakersfield, drained	B	Negligible	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare
			Bakersfield, saline-sodic	---	---	January	---	---	---	---
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			June	---	---	---	---	None	---	Rare
			July	---	---	---	---	None	---	Rare
			August	---	---	---	---	None	---	Rare
			September	---	---	---	---	None	---	Rare
			October	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare
Granoso, overwash	---	---	Jan-Dec			---	---	None	---	None
Granoso	---	---	Jan-Dec			---	---	None	---	None

Water Features

Kern County, California, Southwest Part

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
101:										
Oldriver	---	---	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			June	---	---	---	---	None	---	Rare
			July	---	---	---	---	None	---	Rare
			August	---	---	---	---	None	---	Rare
			September	---	---	---	---	None	---	Rare
			October	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare
Vineland	---	---	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			June	---	---	---	---	None	---	Rare
			July	---	---	---	---	None	---	Rare
			August	---	---	---	---	None	---	Rare
			September	---	---	---	---	None	---	Rare
			October	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare

Map Unit Description

Kern County, California, Southwest Part

102 Bakersfield sandy loam, partially drained, 0 to 1 percent slopes

Setting

Landscape: Valleys

Elevation: 290 to 370 feet

Mean annual precipitation: 5 to 6 inches

Mean annual air temperature: 62 to 65 degrees F

Frost-free period: 250 to 300 days

Composition

Bakersfield, partially drained, and similar soils: 85 percent

Minor components: 15 percent

Description of Bakersfield, partially drained

Setting

Landform: Flood plains

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from granitoid

Properties and Qualities

Slope: 0 to 1 percent

Drainage class: Somewhat poorly drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high or high (0.57 to 1.98 in/hr)

Depth to water table: About 48 to 72 inches

Frequency of flooding: Rare

Frequency of ponding: None

Calcium carbonate maximum: 3 percent

Gypsum maximum: 0 percent

Salinity maximum: Slightly saline or moderately saline (8.0 to 10.0 mmhos/cm)

Sodium adsorption ratio maximum: 80.0

Available water capacity: High (about 9.9 inches)

Interpretive Groups

Land capability classification (irrigated): 3s

Land capability (non irrigated): 7s

Typical Profile

0 to 3 inches: fine sandy loam

3 to 10 inches: fine sandy loam

10 to 16 inches: fine sandy loam

16 to 29 inches: stratified sand to loam

29 to 45 inches: stratified sand to loam

45 to 51 inches: loam

51 to 58 inches: stratified sandy loam to silt loam

58 to 66 inches: stratified sand to loam

Minor Components

Oldriver, saline-sodic soils

Percent of map unit: 3 percent

Landform: Flood plains

Vineland soils

Percent of map unit: 3 percent

Landform: Flood plains

Excelsior, saline-sodic soils

Percent of map unit: 3 percent

Landform: Alluvial fans

Granoso soils

Percent of map unit: 3 percent

Landform: Flood plains

Bakersfield, saline-sodic soils

Taxonomic Classification of the Soils

Kern County, California, Southwest Part

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Bakersfield	Coarse-loamy, mixed, superactive, thermic Torrifuventic Haploxerolls
Excelsior	Coarse-loamy, mixed, superactive, calcareous, thermic Typic Torrifuvents
Granoso	Mixed, thermic Typic Torrripsamments
Oldriver	Fine-loamy, mixed, superactive, thermic Torrifuventic Haploxerolls
Vineland	Sandy, mixed, thermic Typic Torrifuvents

Engineering Properties

Kern County, California, Southwest Part

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
		In			Pct	Pct					Pct	
102:												
Bakersfield, partially drained	0-3	Fine sandy loam	SC, SM	A-2-4, A-4, A-6	0	0	100	95-100	78-95	29-43	18-33	2-11
	3-10	Fine sandy loam	SC, SM	A-2-4, A-4, A-6	0	0	100	95-100	78-95	29-43	18-30	2-11
	10-16	Fine sandy loam	SC, SM	A-2-4, A-4, A-6	0	0	100	95-100	77-94	27-42	18-30	2-15
	16-29	Stratified sand to loam	SC, SC-SM, SM	A-2-4, A-4, A-6	0	0	100	95-100	64-82	27-44	0-29	NP-12
	29-45	Stratified sand to loam	CL, SM	A-4, A-6	0	0	100	95-100	71-90	37-54	0-28	NP-12
	45-51	Loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	75-92	53-69	22-35	7-17
	51-58	Stratified sandy loam to silt loam	CL	A-6	0	0	100	95-100	87-100	80-93	28-36	12-18
	58-66	Stratified sand to loam	SM	A-2-4	0	0	100	95-100	89-97	17-21	0-16	NP-2
Bakersfield, saline-sodic	---	---	---	---	---	---	---	---	---	---	---	---
Excelsior, saline-sodic	---	---	---	---	---	---	---	---	---	---	---	---
Granoso	---	---	---	---	---	---	---	---	---	---	---	---
Oldriver, saline-sodic	---	---	---	---	---	---	---	---	---	---	---	---
Vineland	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Kern County, California, Southwest Part

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
102:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Bakersfield, partially drained	0-3	---	---	5-18	1.50-1.60	4.00-14.00	0.16-0.18	0.6-2.2	1.0-3.0	.24	.24	5	3	86
	3-10	---	---	5-18	1.50-1.60	4.00-14.00	0.15-0.17	0.6-2.2	1.0-2.0	.24	.24			
	10-16	---	---	5-18	1.50-1.60	4.00-14.00	0.11-0.13	0.6-2.2	0.5-2.0	.24	.24			
	16-29	---	---	3-18	1.50-1.60	14.00-42.00	0.11-0.13	0.4-2.2	0.3-0.6	.28	.28			
	29-45	---	---	3-18	1.50-1.60	4.00-14.00	0.19-0.22	0.4-2.6	0.1-0.5	.37	.37			
	45-51	---	---	12-25	1.45-1.55	14.00-42.00	0.17-0.19	1.8-3.4	0.3-0.8	.43	.43			
	51-58	---	---	18-27	1.45-1.55	4.00-14.00	0.19-0.22	2.7-3.9	0.3-0.8	.49	.49			
	58-66	---	---	2-8	1.60-1.70	141.00-282.00	0.05-0.07	0.3-0.7	0.1-0.2	.17	.17			
Bakersfield, saline-sodic	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Excelsior, saline-sodic	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Granoso	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Oldriver, saline-sodic	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Vineland	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Kern County, California, Southwest Part

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
102: Bakersfield, partially drained	---	---	---	---	---	---	None	Moderate	Low
Bakersfield, saline-sodic	---	---	---	---	---	---	---	---	---
Excelsior, saline-sodic	---	---	---	---	---	---	---	---	---
Granoso	---	---	---	---	---	---	---	---	---
Oldriver, saline-sodic	---	---	---	---	---	---	---	---	---
Vineland	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Kern County, California, Southwest Part

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
102:								
Bakersfield, partially drained	0-3	4.8-16	---	6.1-6.5	0-2	0	1.0-5.0	5-15
	3-10	4.8-16	---	6.1-6.5	0-2	0	1.0-5.0	5-15
	10-16	4.6-16	---	6.6-7.8	0-2	0	1.0-8.0	30-80
	16-29	2.9-15	---	7.9-8.4	0-3	0	3.0-8.0	30-80
	29-45	2.7-15	---	7.9-8.4	0-3	0	5.0-10.0	30-80
	45-51	9.9-20	---	7.9-8.4	0-3	0	5.0-10.0	30-80
	51-58	14-22	---	7.9-8.4	0-3	0	8.0-10.0	30-80
	58-66	1.8-6.8	---	7.9-8.4	0-3	0	8.0-10.0	30-80
Bakersfield, saline-sodic	---	---	---	---	---	---	---	---
Excelsior, saline-sodic	---	---	---	---	---	---	---	---
Granoso	---	---	---	---	---	---	---	---
Oldriver, saline-sodic	---	---	---	---	---	---	---	---
Vineland	---	---	---	---	---	---	---	---

Water Features

Kern County, California, Southwest Part

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding				
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency			
				Ft	Ft	Ft							
102:													
Bakersfield, partially drained	C	Negligible	January	---	---	---	---	None	---	Rare			
			February	---	---	---	---	None	---	Rare			
			March	4.0->6.0	>6.0	---	---	None	---	Rare			
			April	4.0->6.0	>6.0	---	---	None	---	Rare			
			May	4.0->6.0	>6.0	---	---	None	---	Rare			
			June	4.0->6.0	>6.0	---	---	None	---	None			
			July	4.0->6.0	>6.0	---	---	None	---	None			
			August	4.0->6.0	>6.0	---	---	None	---	None			
			November	---	---	---	---	None	---	Rare			
			December	---	---	---	---	None	---	Rare			
			Bakersfield, saline-sodic	---	---	January	---	---	---	---	None	---	Rare
						February	---	---	---	---	None	---	Rare
March	---	---				---	---	None	---	Rare			
April	---	---				---	---	None	---	Rare			
May	---	---				---	---	None	---	Rare			
June	---	---				---	---	None	---	Rare			
July	---	---				---	---	None	---	Rare			
August	---	---				---	---	None	---	Rare			
September	---	---				---	---	None	---	Rare			
October	---	---				---	---	None	---	Rare			
November	---	---				---	---	None	---	Rare			
December	---	---				---	---	None	---	Rare			
Excelsior, saline-sodic	---	---	Jan-Dec	---	---	---	---	None	---	None			
Granoso	---	---	Jan-Dec	---	---	---	---	None	---	None			

Water Features

Kern County, California, Southwest Part

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
102:										
Oldriver, saline-sodic	---	---	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			June	---	---	---	---	None	---	Rare
			July	---	---	---	---	None	---	Rare
			August	---	---	---	---	None	---	Rare
			September	---	---	---	---	None	---	Rare
			October	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare
Vineland	---	---	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			June	---	---	---	---	None	---	Rare
			July	---	---	---	---	None	---	Rare
			August	---	---	---	---	None	---	Rare
			September	---	---	---	---	None	---	Rare
			October	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare

Map Unit Description

Kern County, California, Southwest Part

123 Granoso sandy loam, 0 to 2 percent slopes, overwash

Setting

Landscape: Valleys
Elevation: 300 to 490 feet
Mean annual precipitation: 5 to 7 inches
Mean annual air temperature: 62 to 65 degrees F
Frost-free period: 250 to 300 days

Composition

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

Description of Granoso

Setting

Landform: Alluvial fans, flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed

Properties and Qualities

Slope: 0 to 2 percent
Surface area covered with stones and boulders: 0.0 percent
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate maximum: 3 percent
Gypsum maximum: 0 percent
Salinity maximum: Non saline (0.1 to 2.0 mmhos/cm)
Sodium adsorption ratio maximum: 4.0
Available water capacity: Low (about 4.9 inches)

Interpretive Groups

Land capability classification (irrigated): 3s
Land capability (non irrigated): 7s

Typical Profile

0 to 10 inches: sandy loam
10 to 20 inches: loamy sand
20 to 36 inches: sand
36 to 62 inches: sand

Minor Components

Excelsior soils

Percent of map unit: 3 percent
Landform: Alluvial fans, flood plains

Bakersfield soils

Percent of map unit: 3 percent
Landform: Alluvial fans, flood plains

Kimberlina soils

Percent of map unit: 3 percent
Landform: Alluvial fans, flood plains

Milagro, fine sandy loam soils

Percent of map unit: 3 percent
Landform: Alluvial fans, fan skirts

Wasco soils

Percent of map unit: 2 percent
Landform: Alluvial fans, flood plains

Unnamed, slough

Map Unit Description

Kern County, California, Southwest Part

Percent of map unit: 1 percent
Landform: Sloughs

Taxonomic Classification of the Soils

Kern County, California, Southwest Part

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Bakersfield	Coarse-loamy, mixed, superactive, thermic Torrifuventic Haploxerolls
Excelsior	Coarse-loamy, mixed, superactive, calcareous, thermic Typic Torrifuvents
Granoso	Mixed, thermic Typic Torripsamments
Kimberlina	Coarse-loamy, mixed, superactive, calcareous, thermic Typic Torriorthents
Milagro	Coarse-loamy, mixed, superactive, nonacid, thermic Typic Torrifuvents
Wasco	Coarse-loamy, mixed, superactive, nonacid, thermic Typic Torriorthents

Engineering Properties

Kern County, California, Southwest Part

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
123:												
Granoso	0-10	Loamy sand, Sandy loam	SC-SM, SM	A-2-4, A-4	0	0-1	85-100	85-100	61-79	29-42	17-26	1-7
	10-20	Loamy sand, Sandy loam	SC-SM, SM	A-2-4	0	0-1	85-100	85-100	65-84	17-28	16-25	1-7
	20-36	Fine sand, Loamy sand, Sand	SC-SM, SM, SP-SM	A-2-4	0	0-1	85-100	85-100	66-86	9-19	16-24	1-7
	36-62	Fine sand, Loamy sand, Sand	SC-SM, SP-SM	A-2-4	0	0-1	85-100	85-100	65-85	8-17	16-24	1-7
Bakersfield	---	---	---	---	---	---	---	---	---	---	---	---
Excelsior	---	---	---	---	---	---	---	---	---	---	---	---
Kimberlina	---	---	---	---	---	---	---	---	---	---	---	---
Milagro, fine sandy loam	---	---	---	---	---	---	---	---	---	---	---	---
Wasco	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, slough	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Kern County, California, Southwest Part

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
123:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Granoso	0-10	---	---	4-12	1.50-1.70	14.00-42.00	0.09-0.15	1.0-3.0	0.5-0.9	.28	.28	5	3	86
	10-20	---	---	4-12	1.50-1.70	14.00-42.00	0.08-0.14	1.0-3.0	0.2-0.4	.17	.17			
	20-36	---	---	4-12	1.50-1.70	141. 00-282.00	0.05-0.11	1.0-3.0	0.1-0.3	.10	.10			
	36-62	---	---	4-12	1.50-1.70	141. 00-282.00	0.04-0.10	1.0-3.0	0.1-0.2	.10	.10			
Bakersfield	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Excelsior	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Kimberlina	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Milagro, fine sandy loam	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Wasco	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unnamed, slough	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Kern County, California, Southwest Part

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
123:		In	In		In	In			
Granoso	---	---	---	---	---	---	None	Low	Low
Bakersfield	---	---	---	---	---	---	---	---	---
Excelsior	---	---	---	---	---	---	---	---	---
Kimberlina	---	---	---	---	---	---	---	---	---
Milagro, fine sandy loam	---	---	---	---	---	---	---	---	---
Wasco	---	---	---	---	---	---	---	---	---
Unnamed, slough	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Kern County, California, Southwest Part

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
123:								
Granoso	0-10	3.3-9.1	---	7.4-8.4	0-3	0	0.1-2.0	1-4
	10-20	3.1-8.5	---	7.4-8.4	0-3	0	0.1-2.0	1-4
	20-36	2.9-8.3	---	7.4-8.4	0-3	0	0.1-2.0	1-4
	36-62	2.8-8.0	---	7.4-8.4	0-3	0	0.1-2.0	1-4
Bakersfield	---	---	---	---	---	---	---	---
Excelsior	---	---	---	---	---	---	---	---
Kimberlina	---	---	---	---	---	---	---	---
Milagro, fine sandy loam	---	---	---	---	---	---	---	---
Wasco	---	---	---	---	---	---	---	---
Unnamed, slough	---	---	---	---	---	---	---	---

Water Features

Kern County, California, Southwest Part

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
123:										
Granoso	A	Very low	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare
			Bakersfield	---	---	January	---	---	---	---
February	---	---				---	---	None	---	Rare
March	---	---				---	---	None	---	Rare
April	---	---				---	---	None	---	Rare
May	---	---				---	---	None	---	Rare
June	---	---				---	---	None	---	Rare
July	---	---				---	---	None	---	Rare
August	---	---				---	---	None	---	Rare
September	---	---				---	---	None	---	Rare
October	---	---				---	---	None	---	Rare
November	---	---				---	---	None	---	Rare
December	---	---				---	---	None	---	Rare

Water Features

Kern County, California, Southwest Part

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
123:										
Excelsior	---	---	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			June	---	---	---	---	None	---	Rare
			July	---	---	---	---	None	---	Rare
			August	---	---	---	---	None	---	Rare
			September	---	---	---	---	None	---	Rare
			October	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare
Kimberlina	---	---	Jan-Dec			---	---	None	---	None
Milagro, fine sandy loam	---	---	Jan-Dec			---	---	None	---	None
Wasco	---	---	Jan-Dec			---	---	None	---	None

Water Features

Kern County, California, Southwest Part

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding		
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency	
				Ft	Ft	Ft					
123:											
Unnamed, slough	---	---	January	3.3->6.0	>6.0	---	---	Rare	---	None	
			February	0.0-0.5	1.6->6.0	---	---	Rare	---	None	
				3.3->6.0	>6.0						
			March	0.0-0.5	1.6->6.0	---	---	Rare	---	None	
				3.3->6.0	>6.0						
			April	0.0-0.5	1.6->6.0	---	---	Rare	---	None	
				3.3->6.0	>6.0						
			May	0.0-0.5	1.6->6.0	---	---	Rare	---	None	
				3.3->6.0	>6.0						
			June	---	---	---	---	Rare	---	None	
			July	---	---	---	---	Rare	---	None	
			August	---	---	---	---	Rare	---	None	
September	---	---	---	---	Rare	---	None				
October	---	---	---	---	Rare	---	None				
November	---	---	---	---	Rare	---	None				
December	---	---	---	---	Rare	---	None				

Map Unit Description

Kern County, California, Southwest Part

251 Oldriver loam, partially drained, sodic, 0 to 1 percent slopes

Setting

Landscape: Valleys

Elevation: 280 to 360 feet

Mean annual precipitation: 5 to 7 inches

Mean annual air temperature: 62 to 65 degrees F

Frost-free period: 250 to 300 days

Composition

Oldriver, partially drained, sodic, and similar soils: 85 percent

Minor components: 15 percent

Description of Oldriver, partially drained, sodic

Setting

Landform: Flood plains

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from granitoid rock

Properties and Qualities

Slope: 0 to 1 percent

Drainage class: Somewhat poorly drained

Capacity of the most limiting layer to transmit water (Ksat): Low or high (0.01 to 1.98 in/hr)

Frequency of flooding: Rare

Frequency of ponding: None

Calcium carbonate maximum: 4 percent

Gypsum maximum: 5 percent

Salinity maximum: Non saline or moderately saline (2.0 to 15.0 mmhos/cm)

Sodium adsorption ratio maximum: 30.0

Available water capacity: Moderate (about 7.9 inches)

Interpretive Groups

Land capability classification (irrigated): 2w

Land capability (non irrigated): 7w

Typical Profile

0 to 11 inches: loam

11 to 16 inches: stratified fine sandy loam to silt loam

16 to 22 inches: stratified fine sandy loam to silt loam

22 to 30 inches: clay

30 to 39 inches: stratified fine sandy loam to silty clay

39 to 49 inches: stratified fine sandy loam to silty clay

49 to 63 inches: silty clay

Minor Components

Bakersfield soils

Percent of map unit: 5 percent

Landform: Flood plains

Vineland soils

Percent of map unit: 5 percent

Landform: Flood plains

Granoso soils

Percent of map unit: 5 percent

Landform: Flood plains

Taxonomic Classification of the Soils

Kern County, California, Southwest Part

[An asterisk by the soil name indicates a taxadjunct to the series]

Soil name	Family or higher taxonomic classification
Bakersfield	Coarse-loamy, mixed, superactive, thermic Torrifuventic Haploxerolls
Granoso	Mixed, thermic Typic Torripsamments
Oldriver	Fine-loamy, mixed, superactive, thermic Torrifuventic Haploxerolls
Vineland	Sandy, mixed, thermic Typic Torrifuvents

Engineering Properties

Kern County, California, Southwest Part

Absence of an entry indicates that the data were not estimated. The asterisk "*" denotes the representative texture; other possible textures follow the dash.

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
251:												
Oldriver, partially drained, sodic	0-11	Loam	CL, ML	A-6, A-7-6	0	0	100	91-100	76-92	56-70	31-47	12-19
	11-16	Stratified fine sandy loam to silt loam	CH, SC-SM, SM	A-2-4, A-4, A-7-6	0	0	100	91-100	79-100	30-77	19-59	3-36
	16-22	Stratified fine sandy loam to silt loam	CH, SC, SM	A-2-4, A-6, A-7-6	0	0	100	91-100	75-100	27-74	18-58	3-36
	22-30	Clay	CH, CL, ML	A-4, A-6, A-7-6	0	0	100	91-100	54-100	37-85	19-59	3-36
	30-39	Stratified fine sandy loam to silty clay	CH, SC, SM	A-2-4, A-4, A-7-6	0	0	100	91-100	77-100	29-76	18-57	3-36
	39-49	Stratified fine sandy loam to silty clay	CH, SC-SM, SM	A-2-4, A-4, A-7-6	0	0	100	91-100	81-100	35-83	18-57	3-36
	49-63	Silty clay	CH, SM	A-4, A-7-6	0	0	100	91-100	52-100	49-98	20-60	3-37
Bakersfield	---	---	---	---	---	---	---	---	---	---	---	---
Granoso	---	---	---	---	---	---	---	---	---	---	---	---
Vineland	---	---	---	---	---	---	---	---	---	---	---	---

Physical Soil Properties

Kern County, California, Southwest Part

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
251:	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Oldriver, partially drained, sodic	0-11	---	---	18-27	1.45-1.55	4.00-14.11	0.19-0.22	3.0-6.0	1.0-4.0	.28	.28	3	6	48
	11-16	---	---	6-50	1.40-1.65	14.00-42.00	0.09-0.19	1.0-3.0	0.8-1.5	.32	.32			
	16-22	---	---	6-50	1.40-1.65	4.00-14.00	0.06-0.13	1.0-3.0	0.5-1.0	.28	.28			
	22-30	---	---	6-50	1.40-1.65	4.00-14.00	0.06-0.13	3.0-6.0	0.3-0.5	.24	.24			
	30-39	---	---	6-50	1.40-1.65	4.00-42.00	0.06-0.13	1.0-3.0	0.2-0.6	.32	.32			
	39-49	---	---	6-50	1.40-1.65	14.00-141.00	0.06-0.13	1.0-3.0	0.1-0.3	.43	.43			
	49-63	---	---	6-50	1.40-1.65	0.04-42.00	0.08-0.19	6.0-9.0	0.1-0.2	.32	.32			
Bakersfield	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Granoso	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Vineland	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Soil Features

Kern County, California, Southwest Part

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
251:		In	In		In	In			
Oldriver, partially drained, sodic	---	---	---	---	---	---	None	High	Low
Bakersfield	---	---	---	---	---	---	---	---	---
Granoso	---	---	---	---	---	---	---	---	---
Vineland	---	---	---	---	---	---	---	---	---

Chemical Soil Properties

Kern County, California, Southwest Part

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
251:								
Oldriver, partially drained, sodic	0-11	15-23	---	7.4-8.4	0-4	0-3	2.0-8.0	2-15
	11-16	5.5-39	---	7.9-9.0	0-4	0-3	2.0-8.0	5-15
	16-22	5.5-38	---	7.9-9.0	0-4	0-5	2.0-15.0	10-20
	22-30	5.4-37	---	7.9-9.0	0-4	0-5	2.0-15.0	10-25
	30-39	5.3-37	---	7.9-9.0	0-4	0-5	2.0-15.0	10-25
	39-49	5.1-36	---	7.9-9.0	0-4	0-5	2.0-15.0	10-30
	49-63	5.0-36	---	7.9-9.0	0-4	0-5	2.0-10.0	5-20
Bakersfield	---	---	---	---	---	---	---	---
Granoso	---	---	---	---	---	---	---	---
Vineland	---	---	---	---	---	---	---	---

Water Features

Kern County, California, Southwest Part

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
251:										
Oldriver, partially drained, sodic	C	Negligible	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare
Bakersfield	---	---	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			June	---	---	---	---	None	---	Rare
			July	---	---	---	---	None	---	Rare
			August	---	---	---	---	None	---	Rare
			September	---	---	---	---	None	---	Rare
			October	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare
Granoso	---	---	Jan-Dec	---	---	---	---	None	---	None

Water Features

Kern County, California, Southwest Part

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
251:										
Vineland	---	---	January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			June	---	---	---	---	None	---	Rare
			July	---	---	---	---	None	---	Rare
			August	---	---	---	---	None	---	Rare
			September	---	---	---	---	None	---	Rare
			October	---	---	---	---	None	---	Rare
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare