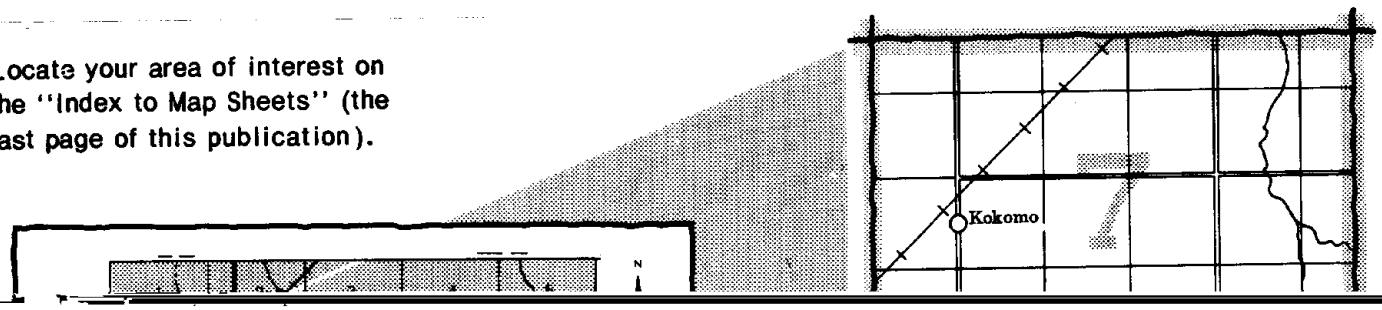
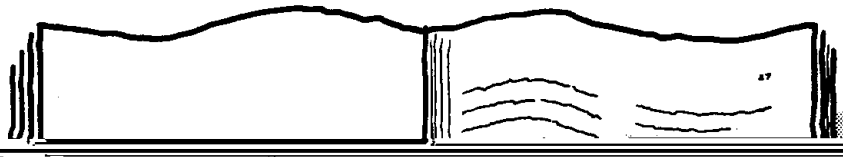
HOW TO USE

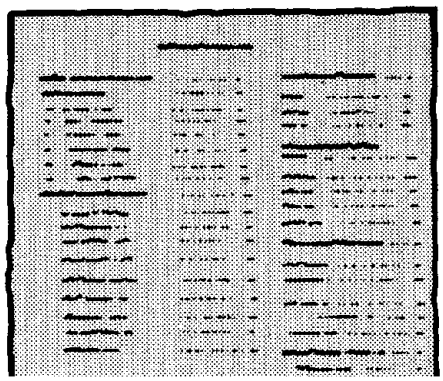
1. Locate your area of interest on the "Index to Map Sheets" (the last page of this publication).



THIS SOIL SURVEY

5. Turn to "Index to Soil Map Units" which lists the name of each map unit and the page where that map unit is described.





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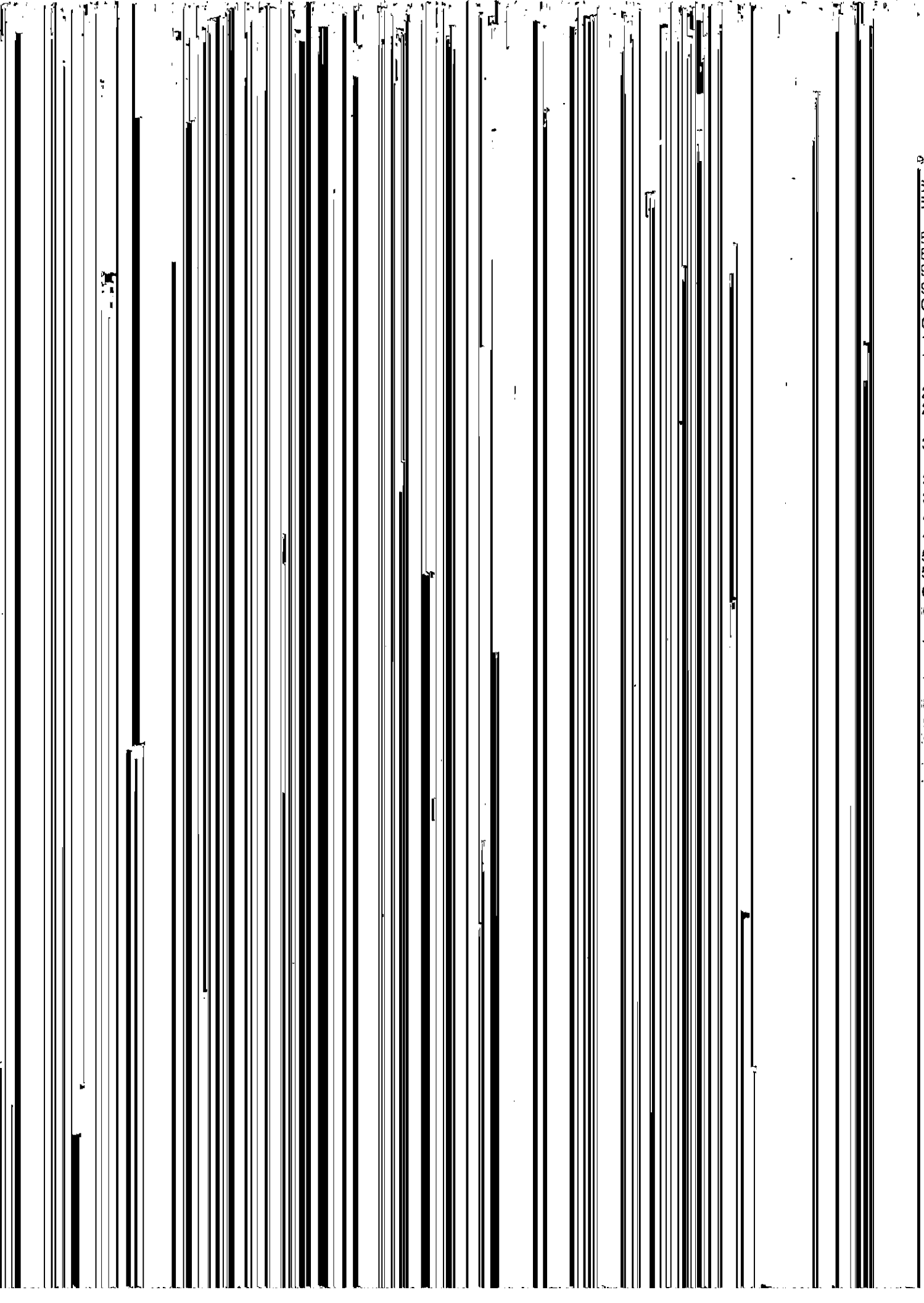

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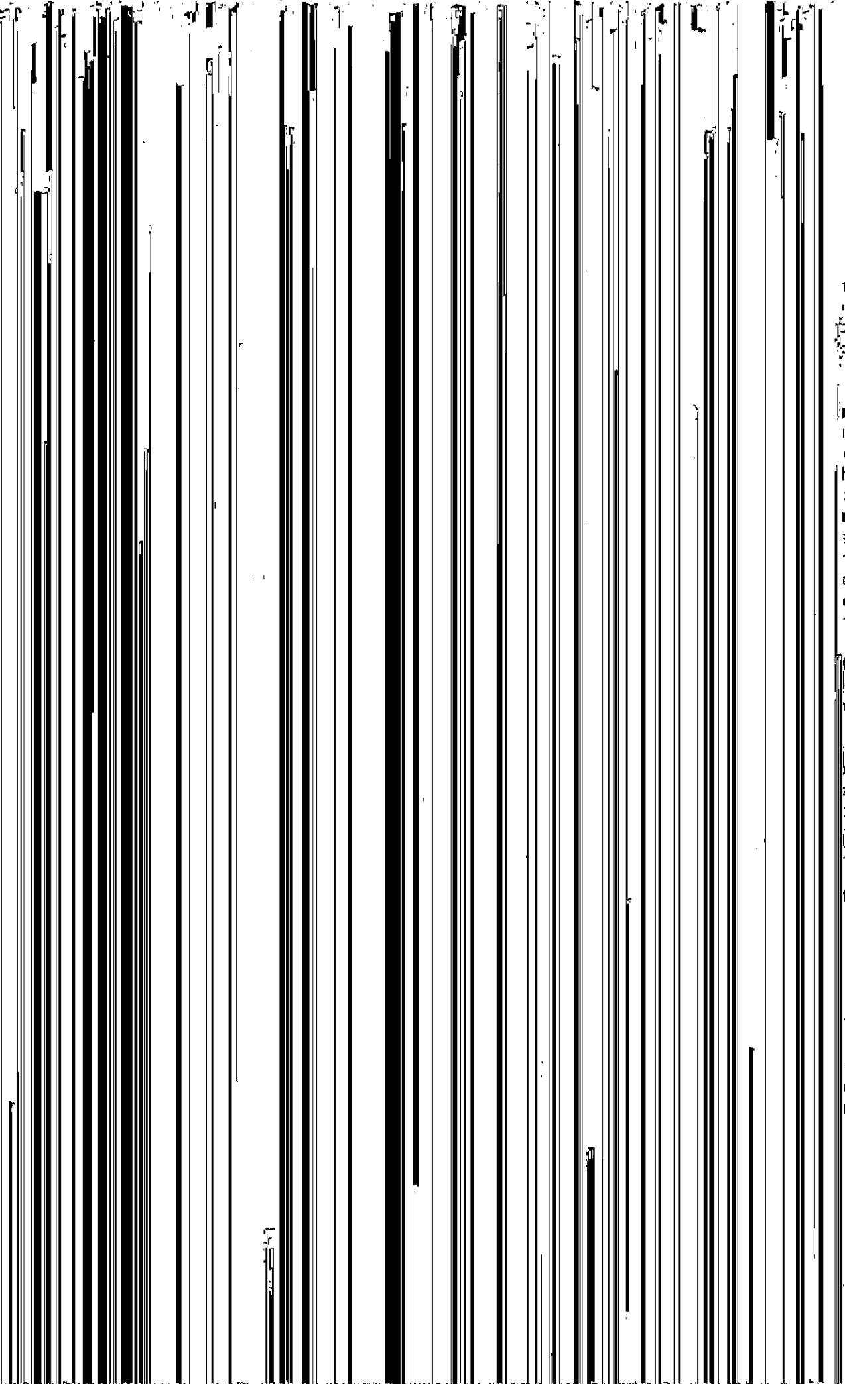

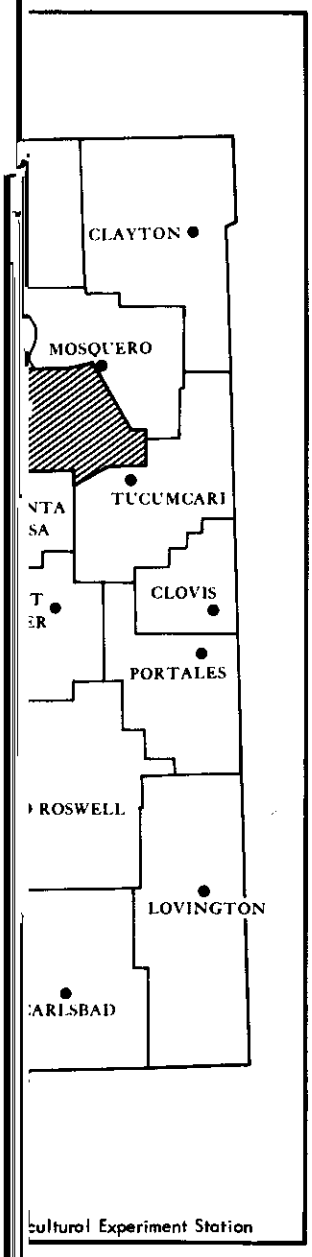

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vn on a soil map are called soil map
units are made up of one kind of soil,
up of two or more kinds of soil, and a
no soil material at all. Map units are
sections "General soil map for broad
g" and "Soil maps for detailed plan-

vey is in progress, samples of soils are
for laboratory measurements and for
(*13*). The soils are field tested, and
their behavior are modified as neces-
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eet local needs, mainly through field
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seeking recreation.

l map for broad land use

il map at the back of this publication
he map units for broad land use plan-
this survey (*7*). Each unit is a unique
that has a distinct pattern of soils and
nage features. A unit typically consists

of one or more soils of major extent and some soils of minor extent. It is named for the major soils. The kinds of soil in one unit can occur in other units, but in a different pattern.

The map provides a broad perspective of the soils and landscapes in the survey area. It provides a basis for comparing the potential of large areas for general kinds of land use. Areas that are generally suitable for certain kinds of farming or other land uses can be identified on the map. Likewise, areas of soils having properties that are distinctly unfavorable for certain land uses can be

adjacent survey areas. Differences in the maps have resulted from the differences in the occurrence of soil patterns and from recent advances in classification.

The 10 map units in this survey area are described in the following pages.

1. Rocio-Stout

Very shallow, shallow, and deep, gently sloping to very steep, well drained soils that formed in alluvium, colluvium, and residuum; on mountains

is dominantly 0 to 5 percent. Elevation is 5,300 to 7,200 feet. The average annual precipitation is about 16

This unit is used for livestock grazing and wildlife habi-

Tuloso soils are shallow and well drained. They formed in material weathered from sandstone on ridges. Typically, the surface layer is light brown stony sandy loam. The subsoil is yellowish red very stony loam. Sandstone is at a depth of about 11 inches.

Sombordoro soils are very shallow and shallow and well drained. They formed in material weathered from

This unit provides valuable habitat for mule deer and turkey. It also provides habitat for wood rat, pinyon mouse, pinyon jay, and plains pit mouse.

6. Rock outcrop-Ustorthents

Rock outcrop, and very shallow to deep, very steep, well

Rock outcrop consists of

Redona soils are deep and well drained. They formed in material weathered fro[illegible]

This unit is used for livestock grazing and wildlife habi-

egetation on this unit is mainly grass and scat-
ands of pinyon and juniper.
unit is used for livestock grazing, firewood pro-
and wildlife habitat.
reas of pinyon and juniper support few resident
of wildlife, but they provide important seasonal
for birds and winter protection for cottontail and
eer. With proper management of livestock, the
s potential for providing a moderate amount of
habitat.

maps for detailed planning

kinds of map units shown on the detailed soil
t the back of this publication are described in this
The descriptions together with the soil maps can
ful in determining the potential of a soil and in
ng it for food and fiber production; in planning
e and developing soil resources; and in enhanc-
otecting, and preserving the environment. More
tion for each soil is given in the section "Use and
ement of the soils."
ding the name of each map unit is the symbol
ntifies the unit on the detailed soil map. Each
it description includes general facts about the soil
rief description of the soil profile. In each descrip-
e principal hazards and limitations are indicated
management concerns and practices needed
ussed.
p unit represents an area on the landscape made
tly of the soil or soils for which the unit is named.
the delineations shown on the detailed soil map
back of this publication are phases of soil series.
that have profiles that are almost alike make up
eries. Except for allowable differences in texture
surface layer or of the substratum, all the soils of
have major horizons that are similar in composi-
ickness, and arrangement in the profile. A soil
commonly is named for a town or geographic
near the place where a soil of that series was
served and mapped. All the soils in the United
having the same series name have essentially the
roperties that affect their use and their response
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management practices such as mechanical seeding and mechanical brush management are not suited to this unit, because of the cobbly and stony surface.

BA—Badland. Badland consists of dissected areas on uplands. These areas consist of material derived dominantly from sandstone and shale. Slope is 0 to 65 percent. The vegetation is mainly sparse grass. Elevation is 3,800 to 7,200 feet. The average annual precipitation is about 14 inches, the average annual air temperature is about 60 degrees F, and the average frost-free period is 150 to 200 days.

Included in this unit are small areas of Lacita soils on fans, Latom soils on benches, Montoya soils on erosional remnants, and soils that are similar to San Jose soils but that are less than 20 inches thick and are in streambeds. Included areas make up about 20 percent of the total acreage.

This unit is used for wildlife habitat.

Be—Bernal loam, 3 to 5 percent slopes. This very shallow and shallow, well drained soil is on uplands. It formed in material derived dominantly from sandstone. The vegetation is mainly grass. Elevation is 5,300 to 7,000 feet. The average annual precipitation is about 16 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 150 to 175 days.

Typically, the surface layer is brown loam about 6 inches thick. The subsoil is reddish brown sandy clay loam about 13 inches thick. Sandstone is at a depth of 19 inches.

Included in this unit are small areas of Carnero soils that occur throughout the map unit, Tuloso soils on ridges and slopes that lead to drainageways, and Rock outcrop on ridges and slopes that lead to drainageways. Included areas make up about 10 percent of the total acreage.

Permeability of the Bernal soil is moderate. Available water capacity is low. Effective rooting depth is 8 to 20 inches. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

This unit is used for livestock grazing and for wildlife habitat.

The potential plant community is mainly sideoats grama, blue grama, little bluestem, and New Mexico feathergrass. As the range deteriorates, the proportion of the preferred forage plants decreases and the proportion of broom snakeweed and threeawn increases. Grazing management should be designed to increase the productivity and reproduction of sideoats grama, little bluestem, and New Mexico feathergrass. Suitability of this unit for range improvement practices is limited by very shallow and shallow depth.

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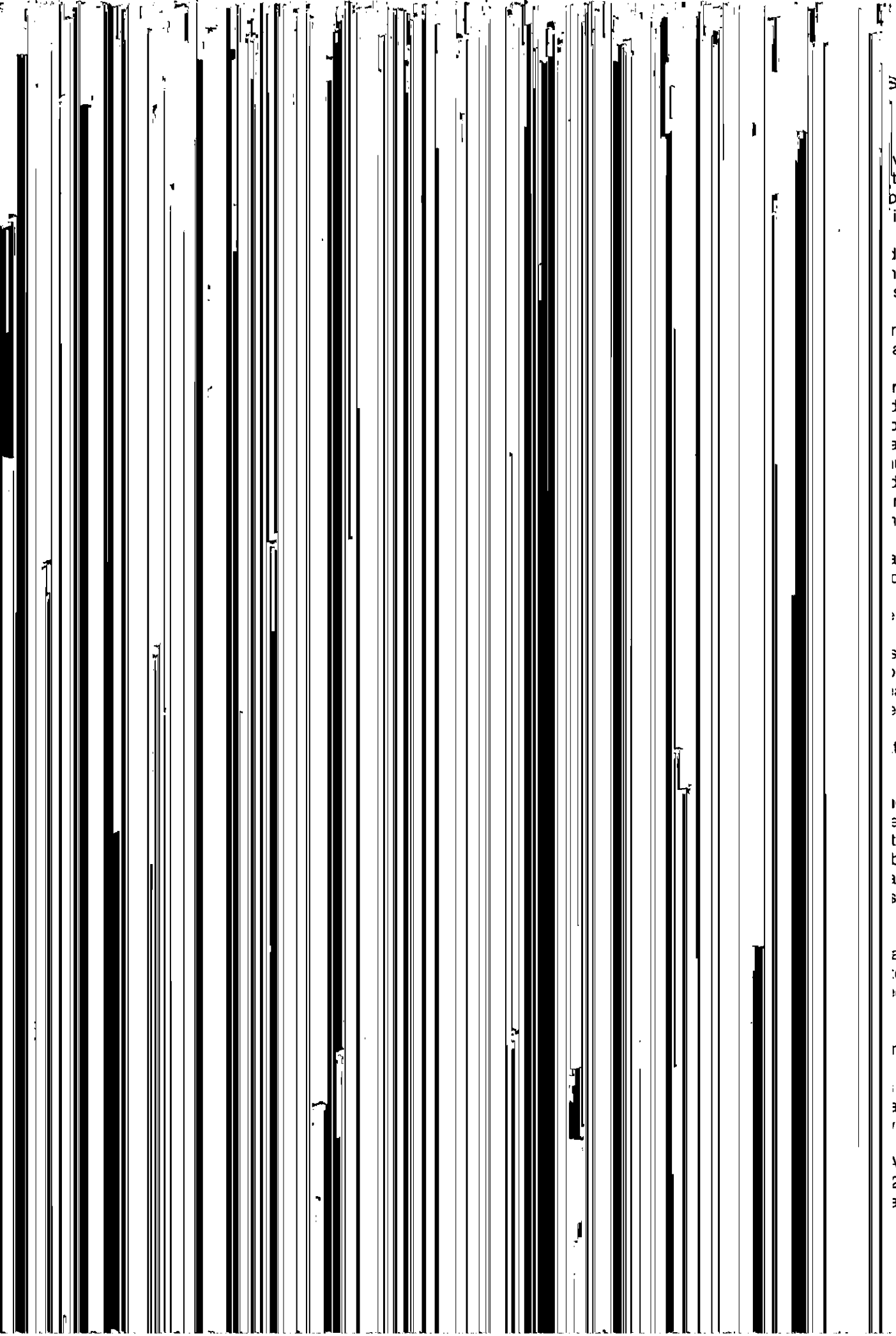

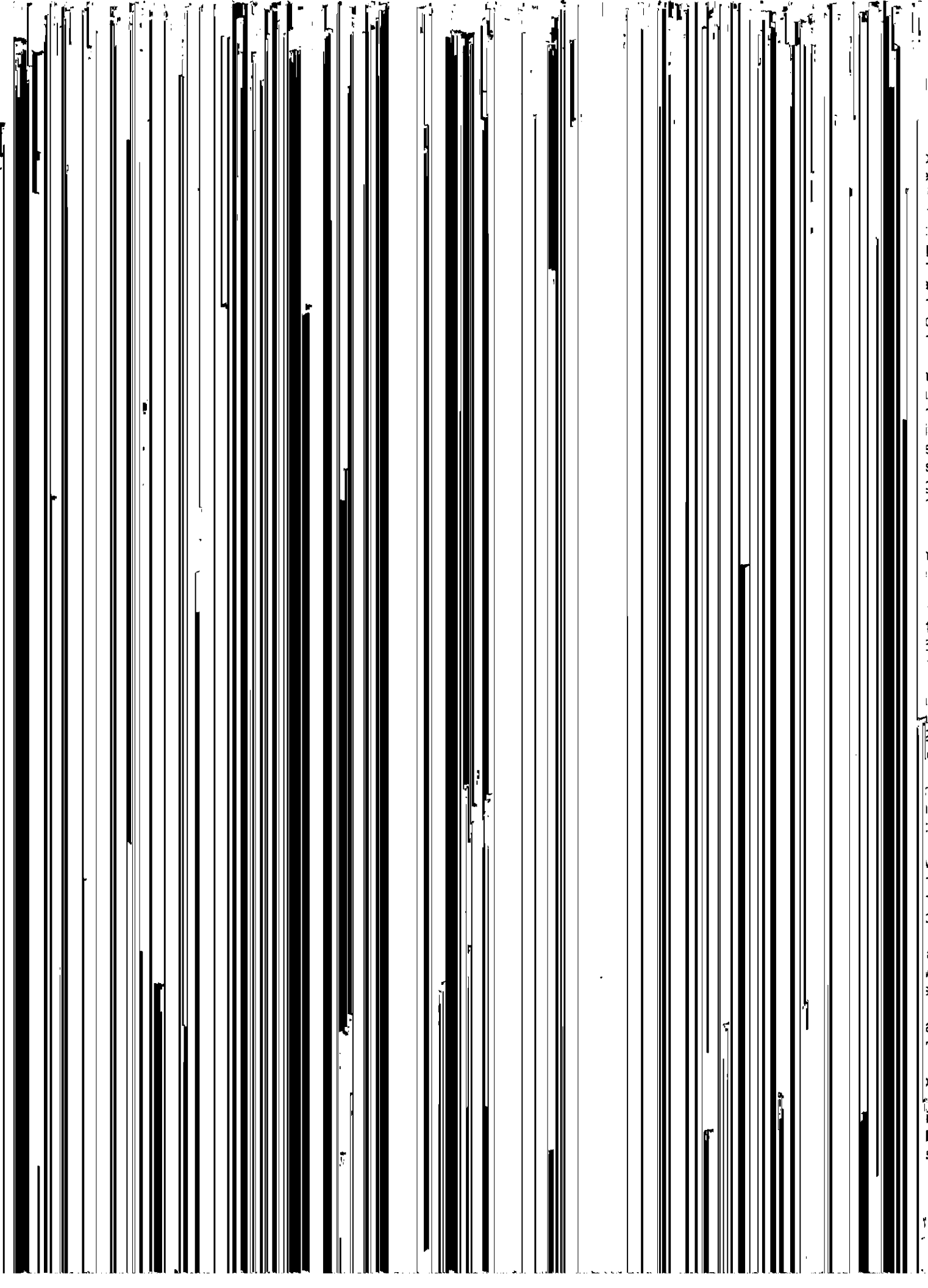

Yield of crops can be maintained or increased by applying fertilizer. Most crops, except for legumes, respond to nitrogen. Legumes respond to phosphate. Timely harvesting of crops improves their quality. Rotation grazing helps to maintain the quality and quantity of forage. Soil blowing can be reduced by using all crop residue and practicing minimum tillage.

The potential plant community on this unit is mainly blue grama, western wheatgrass, wolftail, and sideoats grama. As the range deteriorates, western wheatgrass decreases and a dense, low turf of blue grama and ring muhly that is low in productivity develops. Grazing management should be designed to increase the productivity and reproduction of western wheatgrass and sideoats grama. This unit is suited to such range management practices as mechanical treatment and earthen ponds.

CH—Colmor silt loam, undulating. This deep, well drained soil is on uplands. It formed in material derived dominantly from shale. The vegetation is mainly grass. Elevation is 5,300 to 7,200 feet. The average annual precipitation is about 16 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 150 to 175 days.

Typically, the surface layer is brown silt loam and silty clay loam about 12 inches thick. The subsoil is brown and light yellowish brown, calcareous silty clay loam about 20 inches thick. The substratum to a depth of 60 inches or more is light yellowish brown and very pale brown, calcareous loam.

Included in this unit are small areas of Litle, Mion, and Penrose soils in slightly higher areas throughout the unit. Included areas make up about 10 percent of the total acreage.

Permeability of this Colmor soil is moderately slow. Available water capacity is very high. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is high.

This unit is used for livestock grazing and for wildlife habitat.

The potential plant community on this unit is mainly blue grama, western wheatgrass, wolftail, and sideoats grama. As the range deteriorates, the western wheatgrass decreases and a dense, low turf of blue grama and ring muhly that is low in productivity develops. Grazing management should be designed to increase the productivity and reproduction of western wheatgrass and sideoats grama. This unit is suited to such range improvement practices as mechanical treatment and earthen ponds.

CK—Conchas-Latom association, undulating. This map unit is on uplands. Slope is 1 to 9 percent. The vegetation is mainly grass. Elevation is 3,800 to 5,300 feet. The average annual precipitation is about 16 inches, the average annual air temperature is about 60 degrees F, and the average frost-free period is 175 to 200 days.

This unit is 45 percent Conchas loam and 40 percent Latorn fine sandy loam.

Included in this unit are small areas of Canez soils on fans; Newkirk, Redona, and Walkon soils in nearly level depressional areas; Quay soils in areas throughout the unit; and Rock outcrop on low ridges. Included areas make up about 15 percent of the total acreage.

The Conchas soil is moderately deep and well drained. It formed in material derived dominantly from sandstone and shale. Slope is 1 to 5 percent. Typically, the surface layer is brown, calcareous loam about 2 inches thick. The subsoil is reddish brown, calcareous loam and clay loam about 28 inches thick. Sandstone is at a depth of 30 inches.

Permeability of the Conchas soil is moderately slow. Available water capacity is moderate. Effective rooting depth is 20 to 40 inches. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

The Latom soil is very shallow and shallow and well drained. It formed in calcareous material derived dominantly from sandstone. Slope is 2 to 9 percent. Typically, the surface layer is brown, calcareous fine sandy loam about 10 inches thick. Sandstone is at a depth of 10 inches.

Permeability of the Latom soil is moderate. Available water capacity is very low. Effective rooting depth is 8 to 20 inches. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is high.

This unit is used for livestock grazing and for wildlife habitat.

The potential plant community on the Conchas soil is mainly blue grama, black grama, galleta, and sideoats grama. The potential plant community on the Latom soil is mainly sideoats grama, blue grama, black grama, and little bluestem.

As the range deteriorates, the desirable forage plants decrease. Oneseed juniper and cholla cactus invade and ring muhly, threeawn, broom snakeweed, and yucca increase. Grazing management should be designed to increase the productivity and reproduction of sideoats grama, blue grama, black grama, and little bluestem.

The Conchas soil is suited to such range improvement practices as cholla and juniper management. Suitability of the Latom soil for range management practices such as mechanical treatment, earthen ponds, and fences is limited by shallow depth.

CT—Crews-Tricon association, undulating. This map unit is on uplands. Slope is 0 to 5 percent. The vegetation is mainly grass. Elevation is 5,300 to 7,200 feet. The average annual precipitation is about 16 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 150 to 175 days.

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tion is about 14 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 150 to 175 days.

This unit is 60 percent Dioxice loam and 25 percent Dean loam. The Dioxice soil is on fans, and the Dean soil is on ridges.

Included in this unit are small areas of Carnero and Tricon soils on uplands throughout the unit and Tuloso soils on ridges. Also included are small areas of a soil that is similar to the Dioxice soil but is structureless below the surface layer; this soil is on fans. Included areas make up about 15 percent of the total acreage.

The Dioxice soil is deep and well drained. It formed in alluvial and eolian material derived from mixed sources. Slope is 0 to 5 percent. Typically, the surface layer is brown loam about 4 inches thick. The subsoil is brown and pinkish gray, calcareous loam and clay loam about 20 inches thick. The substratum to a depth of 60 inches or more is pink and pinkish white, calcareous loam.

Permeability of the Dioxice soil is moderately slow. Available water capacity is high. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is high.

The Dean soil is deep and well drained. It formed in material derived dominantly from limestone. Slope is 0 to 9 percent. Typically, the surface layer is brown, calcareous loam about 8 inches thick. The next layer is light grayish brown, calcareous loam about 6 inches thick. The underlying material to a depth of 60 inches or more is light brown loam and gravelly loam over weakly cemented caliche fragments.

Permeability of the Dean soil is slow. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is high.

Some areas of this unit are used for dryland crops, mainly small grain. Among the other crops grown are grain sorghum. Some areas are used for livestock grazing and for wildlife habitat.

The Dioxice soil is well suited to dryland crops. The main limitations are the moderate hazard of water erosion and the high hazard of soil blowing. Leaving crop residue on or near the surface helps to conserve moisture, maintain tilth, and control erosion. Keeping tillage to a minimum helps to control soil blowing. Terracing and farming on the contour reduce runoff and the risk of erosion and help to conserve moisture.

The Dean soil is poorly suited to dryland crops because of the moderate hazard of water erosion, high hazard of soil blowing, and low available water capacity.

The potential plant community on the Dioxice soil is mainly blue grama, western wheatgrass, sideoats grama, and buffalograss. The potential plant community on the Dean soil is mainly black grama, blue grama, sideoats grama, and needleandthread. As the range deteriorates, these species decrease and a dense, low turf of ring

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KR—Kiln-Rock outcrop complex, hilly. This map unit is on hills. Slope is 10 to 35 percent. The vegetation is mainly conifers, brush, and some grass. Elevation is 7,000 to 8,000 feet. The average annual precipitation is about 20 inches, the average annual air temperature is about 45 degrees F, and the average frost-free period is 110 to 140 days.

This unit is 50 percent Kiln stony loam and 25 percent Rock outcrop.

Included in this unit are small areas of Brycan soils in drainageways and Dargol, Rocio, and Stout soils on hills. Included areas make up about 25 percent of the total acreage.

The Kiln soil is shallow and well drained. It formed in material derived dominantly from limestone and shale. Typically, the surface is covered with a layer of decomposing forest litter about 1 inch thick. The surface layer is dark grayish brown stony loam about 4 inches thick. The subsoil is reddish brown stony clay loam about 10 inches thick. Limestone is at a depth of 14 inches.

Permeability of the Kiln soil is moderate. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

Rock outcrop consists of exposures of limestone. It occurs as ledges and low escarpments.

This unit is used for livestock grazing, woodland, and wildlife habitat.

The potential plant community on the Kiln soil is mainly ponderosa pine and an understory of Arizona fescue, mountain muhly, and blue grama. Grazing management should be designed to increase the productivity and reproduction of Arizona fescue, mountain muhly, and blue grama. Range management practices such as mechanical treatment and earthen ponds are limited by the shallow depth of the Kiln soil and the areas of Rock outcrop.

This unit is suited to the production of ponderosa pine. It is capable of producing 40 cubic feet, or 105 board feet (Scribner rule), per acre per year at culmination of mean annual increment. Stands should be maintained by thinning and selective cutting of mature trees. Management that minimizes the risk of erosion is essential in harvesting timber.

La—La Brier silty clay loam, 0 to 3 percent slopes. This deep, well drained soil is in swales. It formed in alluvium derived from mixed sources. The vegetation in areas not cultivated is mainly grass. Elevation is 5,300 to 7,200 feet. The average annual precipitation is about 16 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 150 to 175 days.

Typically, the surface layer is grayish brown silty clay loam about 4 inches thick. The subsoil is dark grayish brown, brown, and grayish brown silty clay loam and clay about 36 inches thick. The substratum to a depth of 60 inches or more is grayish brown, calcareous clay loam.

Included in this unit are small areas of Carnero and Partri soils near the edges of mapped areas and Tricon soils in slightly lower areas throughout the unit. Included areas make up about 15 percent of the total acreage.

Permeability of the La Brier soil is very slow. Available water capacity is high. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate. The soil is subject to rare flooding.

This unit is used for irrigated crops, mainly alfalfa and small grain. Among the other crops grown are corn, grain sorghum, and legumes. It is also used for livestock grazing and for wildlife habitat.

If this unit is used for irrigated crops, the main limitations are very slow permeability, gentle slopes, and moderate hazards of water erosion and soil blowing.

Furrow, border, corrugation, and sprinkler irrigation systems are suited to this unit. The method used generally is governed by the crop. Water should be applied in amounts sufficient to wet the root zone but in amounts small enough to minimize the leaching of plant nutrients.

Yield of crops can be maintained or increased by applying fertilizer. Most crops, except legumes, respond to nitrogen. Legumes respond to phosphate. Timely harvesting of crops improves their quality. Rotation grazing helps to maintain the quality and quantity of forage. Soil blowing can be reduced by using all crop residue and practicing minimum tillage.

The potential plant community is mainly western wheatgrass, blue grama, vine-mesquite, and galleta. As the range deteriorates, the desirable species decrease and a dense, low turf of blue grama that is low in productivity develops. Grazing management should be designed to increase the productivity and reproduction of western wheatgrass, vine-mesquite, and alkali sacaton.

This unit receives extra water from adjoining areas, which increases the production and palatability of forage. Consequently, the unit is often heavily grazed. It is suited to such range improvement practices as mechanical treatment, earthen ponds, and seeding.

LB—Lacita-San Jose association, gently sloping. This map unit is on flood plains. Slope is 0 to 3 percent. The vegetation is mainly grass. Elevation is 3,800 to 5,300 feet. The average annual precipitation is about 15 inches, the average annual air temperature is about 60 degrees F, and the average frost-free period is 175 to 200 days.

This unit is 45 percent Lacita silty clay loam and 30 percent San Jose fine sandy loam. The Lacita soil is in the slightly higher areas on flood plains, and the San Jose soil is in the lower areas.

Included in this unit are small areas of Ustifluvents on streambeds, La Lande soils in the slightly higher areas, Ima soils on the downwind side of the beds of intermit-

mapped areas, and Tucumcari soils in the less sloping areas throughout the unit. Included areas make up about 15 percent of the total acreage.

The La Lande soil is deep and well drained. It formed in alluvium derived dominantly from sandstone and shale. Slope is 3 to 7 percent. Typically, the surface layer is reddish brown sandy loam about 3 inches thick. The subsoil is reddish brown loam and sandy clay loam about 28 inches thick. The substratum to a depth of 60 inches or more is reddish brown sandy clay loam.

Permeability of the La Lande soil is moderate. Available water capacity is high. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

The Redona soil is deep and well drained. It formed in alluvium derived dominantly from sandstone and shale. Slope is 3 to 5 percent. Typically, the surface layer is reddish brown loam about 5 inches thick. The subsoil to a depth of 60 inches or more is reddish brown clay loam.

Permeability of the Redona soil is moderate. Available water capacity is very high. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

This unit is used for livestock grazing and for wildlife habitat.

The potential plant community on the La Lande soil is mainly blue grama, little bluestem, black grama, and sand dropseed. The potential plant community on the Redona soil is mainly blue grama, yucca, galleta, and sideoats grama. As the range deteriorates, the proportion of these forage plants decreases and the proportion of yucca, threeawn, sand dropseed, and broom snakeweed increases. Mesquite and cholla invade. Grazing management should be designed to increase the productivity and reproduction of black grama, blue grama, and little bluestem. This unit is suited to such range improvement practices as brush management and earthen ponds.

LE—Laporte-Escabosa association, hilly. This map unit is on hills, ridges, and fans. Slope is 3 to 15 percent. The vegetation is mainly pinyon pine, juniper, and grass. Elevation is 6,000 to 7,200 feet. The average annual precipitation is about 18 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 140 to 165 days.

This unit is 40 percent Laporte channery loam and 30 percent Escabosa channery loam. The Laporte soil is on ridges and hills, and the Escabosa soil is on fans.

Included in this unit are small areas of Dean soils on erosional remnants, Manzano soils in drainageways, Sombordoro and Tuloso soils on hills, and Rock outcrop on ridges and hills. Included areas make up about 30 percent of the total acreage.

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this unit are small areas of Conchas soils ans, Quay soils on low ridges, and Redona soils in nearly level areas. Included areas ut 10 percent of the total acreage.

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irk soil is very shallow and shallow and well rmed in material derived dominantly from lope is 1 to 10 percent. Typically, the sur- reddish brown sandy loam about 4 inches subsoil is reddish brown sandy clay loam nes thick. Sandstone is at a depth of 13

ty of the Newkirk soil is moderate. Available ty is very low. Effective rooting depth is 8 to unoff is medium, and the hazard of water oderate. The hazard of soil blowing is high.

rop consists of areas of exposed sandstone. escarpments, ridges, and sheets.

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tial plant community on this unit is mainly ima, black grama, blue grama, and little s the range deteriorates, the proportion of plants decreases and the proportion of less nts increases. Grazing management should to increase the productivity and reproduc- ats grama, black grama, and little bluestem.

is not suited to such range improvement mechanical treatment and earthen ponds, very shallow and shallow depth and the ck outcrop. Suitability of this unit for such ement practices as fences is limited by very shallow depth and the areas of Rock out-

s poorly suited to homesite development. itations are very shallow and shallow depth, Rock outcrop, and slope.

clay loam, 1 to 3 percent slopes. This leep, well drained soil is on uplands. It aterial derived dominantly from shale and ie native vegetation is mainly grass. Eleva- to 7,200 feet. The average annual precipita- 15 inches, the average annual air tempera- ture is about 50 degrees F, and the average frost-free period is 150 to 175 days.

Typically, the surface layer is grayish brown clay loam about 5 inches thick. The subsoil is grayish brown clay about 18 inches thick. Shale is at a depth of 23 inches.

Included in this unit are small areas of Colmor soils on fans, Mion and Penrose soils in the slightly higher areas, and Vermejo soils in swales. Included areas make up about 10 percent of the total acreage.

Permeability of the Litle soil is very slow. Available water capacity is very low. Effective rooting depth is 20 to 40 inches. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is high.

This unit is used for livestock grazing, urban development, and wildlife habitat.

The potential plant community is mainly blue grama, western wheatgrass, sideoats grama, and galleta. As the range deteriorates, the proportion of these forage plants decreases, the proportion of ring muhly and threeawn increases, and blue grama forms a dense turf that is low in productivity. Grazing management should be designed to increase the productivity and reproduction of western wheatgrass, vine-mesquite, and fourwing saltbush.

This unit is suited to such range management practices as mechanical treatment and range seeding. Suitability of this unit for such range improvement practices as earthen ponds is limited by moderate depth.

This unit is poorly suited to urban development. The main limitations are high shrink-swell potential, low strength, and moderate depth to rock.

Lp—Litle clay loam, 3 to 5 percent slopes. This moderately deep, well drained soil is on uplands. It formed in material derived dominantly from shale and limestone. The vegetation is mainly grass. Elevation is 5,300 to 7,200 feet. The average annual precipitation is about 15 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 150 to 175 days.

Typically, the surface layer is grayish brown clay loam about 5 inches thick. The subsoil is grayish brown clay about 18 inches thick. Shale is at a depth of 23 inches.

Included in this unit are small areas of Vermejo soils in swales and Mion and Penrose soils on ridges. Included areas make up about 10 percent of the total acreage.

Permeability of this Litle soil is very slow. Available water capacity is very low. Effective rooting depth is 20 to 40 inches. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is high.

This unit is used for livestock grazing, urban development, and wildlife habitat.

The potential plant community is mainly blue grama, western wheatgrass, sideoats grama, and galleta. As the range deteriorates, the proportion of these forage plants decreases, the proportion of ring muhly and threeawn increases, and blue grama forms a dense turf that is low in productivity. Grazing management should be designed

Typically, the surface layer is dark grayish brown fine sandy loam and loam about 10 inches thick. The subsoil is dark grayish brown and grayish brown loam about 50 inches thick.

Included in this unit are small areas of La Brier soils in oxbows, Manzano loam on terraces, and Ustifluvents adjacent to stream channels. Included areas make up about 10 percent of the total acreage.

Permeability of this Manzano soil is moderately slow. Available water capacity is very high. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is high.

This unit is used for irrigated crops, mainly alfalfa, pasture, and small grain. Among the other crops grown are corn, grain sorghum, and legumes. The unit is also used for livestock grazing and for wildlife habitat.

If this unit is used for irrigated crops, the main limitations are high hazard of soil blowing, moderately slow permeability, and moderate hazard of water erosion.

Furrow, border, corrugation, and sprinkler irrigation systems are suited to this unit. The method used generally is governed by the crop. Water should be applied in amounts sufficient to wet the root zone but in amounts small enough to minimize the leaching of plant nutrients.

Soil blowing can be reduced by using all crop residue and practicing minimum tillage. Yield can be maintained or increased by applying fertilizer. Most crops, except for legumes, respond to nitrogen. Legumes respond to phosphate. Rotation grazing helps to maintain the quality and quantity of forage. Timely harvesting of crops improves their quality.

The potential plant community is mainly blue grama, western wheatgrass, alkali sacaton, and vine-mesquite. As the range deteriorates, the proportion of the desired forage plants decreases and the proportion of galleta, ring muhly, and sleepygrass increases. Grazing management should be designed to increase the productivity and reproduction of western wheatgrass, blue grama, and buffalograss. This unit is suited to such range improvement practices as mechanical treatment, earthen ponds, and seeding.

MC—Manzano loam, gently sloping. This deep, well drained soil is in valleys and swales. It formed in alluvium derived from mixed sources. The vegetation is mainly grass. Elevation is 5,300 to 7,200 feet. The average annual precipitation is about 16 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 140 to 175 days.

Typically, the surface layer is dark grayish brown loam about 3 inches thick. The subsoil is dark grayish brown loam about 33 inches thick. The substratum to a depth of 60 inches or more is light brownish gray loam.

Included in this unit are small areas of La Brier and Vermejo soils in the slightly lower areas and Ustifluvents

cent to stream channels. Included areas make up ut 10 percent of the total acreage.
ermeability of this Manzano soil is moderately slow. ilable water capacity is very high. Effective rooting th is 60 inches or more. Runoff is medium, and the ard of water erosion is moderate. The hazard of soil wing is moderate. The soil is subject to rare flooding. his unit is used for livestock grazing and for wildlife itat.
he potential plant community is mainly blue grama, tern wheatgrass, galleta, and buffalograss. As the ge deteriorates, the proportion of the preferred forage its decreases and the proportion of galleta, ring ly, and sleepygrass increases. Grazing management uld be designed to increase the productivity and re- duction of western wheatgrass, vine-mesquite, blue na, and alkali sacaton. Forage production is reduced reas where gullies have formed.
his unit is suited to such range improvement prac- s as mechanical treatment, earthen ponds, and seed-

ld—Manzano clay loam, 1 to 3 percent slopes. deep, well drained soil is on fans and flood plains. It ned in alluvium derived from mixed sources. The etation in areas not cultivated is mainly grass. Eleva- is 5,300 to 7,200 feet. The average annual precipita- is about 15 inches, the average annual air tempera- is about 50 degrees F, and the average frost-free od is 140 to 175 days.
ypically, the surface layer is grayish brown clay loam ut 11 inches thick. The subsoil is dark grayish brown n about 49 inches thick.
cluded in this unit are small areas of La Brier soils in ows and swales and Ustifluvents adjacent to stream nnels. Included areas make up about 10 percent of total acreage.
ermeability of this Manzano soil is moderately slow. ilable water capacity is very high. Effective rooting th is 60 inches or more. Runoff is medium, and the ard of water erosion is moderate. The hazard of soil wing is moderate.
his unit is used for irrigated crops, mainly alfalfa, ll grain, vegetables, and orchards. Among the other s grown are corn, grain sorghum, and legumes. This is also used for livestock grazing and for wildlife tat.
this unit is used for irrigated crops, the main limita- s are moderately slow permeability and moderate ards of soil blowing and water erosion.
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The potential plant community on the Manzano soil is mainly western wheatgrass, blue grama, alkali sacaton, and vine-mesquite. As the range deteriorates, the proportion of these forage plants decreases and the proportion of galleta, ring muhly, and broom snakeweed increases. Grazing management should be designed to increase the productivity and reproduction of western wheatgrass, blue grama, and buffalograss. Forage production is reduced in areas where gullies have formed.

This unit is suited to such range improvement practices as mechanical treatment, earthen ponds, and seeding.

ME—Mion-Penrose association, hilly. This map unit is on ridges and on slopes that lead to drainageways. Slope is 3 to 25 percent. The vegetation is mainly grass. Elevation is 6,000 to 7,200 feet. The average annual precipitation is about 16 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 150 to 175 days.

This unit is 30 percent Mion silty clay loam, 20 percent Penrose channery loam, 15 percent Rock outcrop, and 15 percent Litle clay loam. The Mion soil is on ridges and on slopes that lead to drainageways, the Penrose soil is on ridges, and the Litle soil is on fans.

Included in this unit are small areas of Colmor soils on fans and La Brier and Vemejo soils in swales. Included areas make up about 20 percent of the total acreage.

The Mion soil is shallow and well drained. It formed in material derived dominantly from shale. Slope is 5 to 25 percent. Typically, the surface layer is dark grayish brown silty clay loam about 4 inches thick. Below this is dark grayish brown clay about 8 inches thick. Shale is at a depth of 12 inches.

Permeability of the Mion soil is very slow. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is moderate.

The Penrose soil is shallow and well drained. It formed in material derived dominantly from limestone. Slope is 5 to 8 percent. Typically, the surface layer is grayish brown channery silt loam about 4 inches thick. The subsoil is grayish brown channery clay loam about 10 inches thick. Limestone is at a depth of 14 inches.

Permeability of the Penrose soil is moderate. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Litle soil is moderately deep and well drained. It formed in material derived dominantly from shale. Slope is 3 to 8 percent. Typically, the surface layer is grayish

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rose-Litle-Mion association, undulating.
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e vegetation is mainly grass. Elevation is
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is 45 percent Penrose channery silt loam, 25
e clay, and 15 percent Mion clay loam. The
l is on the tops of low, smooth hills, the Litle
ns, and the Mion soil is on the sides of low,
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in this unit are small areas of Colmor soils on
ejo soils in swales, and Rock outcrop on
lead to drainageways. Included areas make
percent of the total acreage.

ose soil is shallow and well drained. It formed
derived dominantly from limestone. Slope is 0
t. Typically, the surface layer is grayish brown
lt loam about 4 inches thick. The substratum
of 14 inches is grayish brown clay loam.
s at a depth of 14 inches.

lity of the Penrose soil is moderate. Available
city is very low. Effective rooting depth is 10
s. Runoff is medium, and the hazard of water
noderate. The hazard of soil blowing is slight.

soil is moderately deep and well drained. It
naterial derived dominantly from shale. Slope
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about 5 inches thick. The subsoil is grayish
light brownish gray clay about 18 inches
is at a depth of 23 inches.

lity of the Litle soil is very slow. Available
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noderate. The hazard of soil blowing is high.

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ypically, the surface layer is dark grayish
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rk grayish brown silty clay about 8 inches
is at a depth of 12 inches.

lity of the Mion soil is very slow. Available
city is very low. Effective rooting depth is 10
s. Runoff is medium, and the hazard of water
noderate. The hazard of soil blowing is mod-

is used for livestock grazing and for wildlife

E—Redona-Quay association, undulating. This
unit is on fans and uplands. Slope is 0 to 5 percent.
vegetation is mainly grass. Elevation is 3,800 to
0 feet. The average annual precipitation is about 14
es, the average annual air temperature is about 60
rees F, and the average frost-free period is 175 to
days.

his unit is 55 percent Redona loam and 25 percent
y loam. The Redona soil is on fans, and the Quay
is on fans and low ridges.

ncluded in this unit are small areas of Conchas soils
e slightly higher areas, Lacita soils on fans, Montoya
Tucumcari soils in swales, and Walkon soils in areas
he Redona soil. Included areas make up about 20
cent of the total acreage.

he Redona soil is deep and well drained. It formed in
erial derived dominantly from sandstone and shale.
pe is 0 to 5 percent. Typically, the surface layer is
dish brown loam about 5 inches thick. The subsoil is
dish brown and light reddish brown, calcareous clay
n about 32 inches thick. The substratum to a depth
0 inches or more is reddish brown, calcareous sandy
loam.

ermeability of the Redona soil is moderate. Available
er capacity is very high. Effective rooting depth is 60
es or more. Runoff is medium, and the hazard of
er erosion is moderate. The hazard of soil blowing is
derate.

he Quay soil is deep and well drained. It formed in
vium derived dominantly from sandstone and shale.
pe is 0 to 5 percent. Typically, the surface layer is
t brown, calcareous loam about 6 inches thick. The
soil is light reddish brown and pink, calcareous clay
n about 20 inches thick. The substratum to a depth
0 inches or more is pink and light brown, calcareous
clay loam.

ermeability of the Quay soil is moderate. Available
er capacity is very high. Effective rooting depth is 60
es or more. Runoff is medium, and the hazard of
er erosion is moderate. The hazard of soil blowing is
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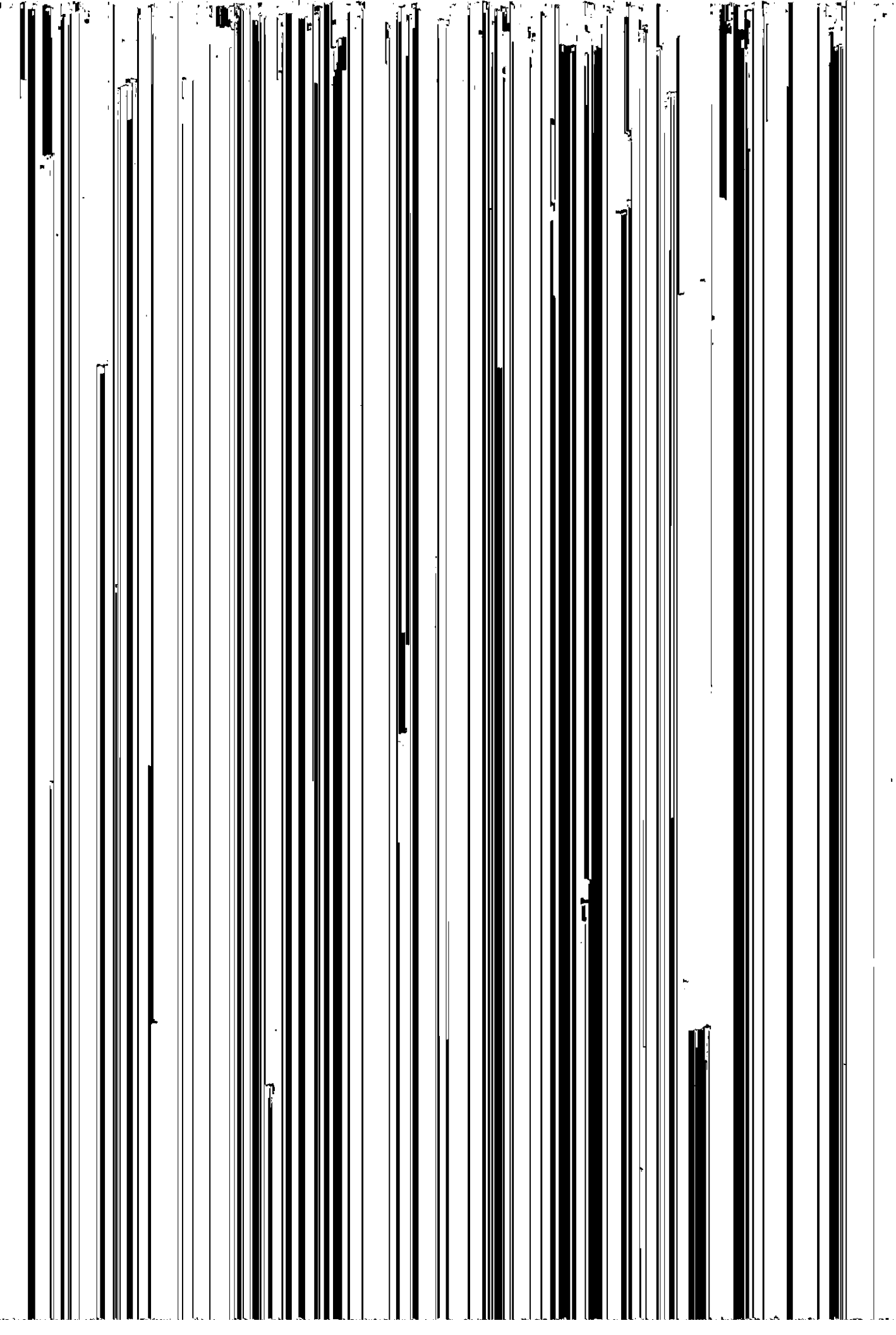
his unit is used for livestock grazing and for wildlife
itat.

he potential plant community on the Redona soil is
nly blue grama, yucca, galleta, and vine-mesquite.
potential plant community on the Quay soil is mainly
grama, galleta, black grama, and western wheat-
s.

s the range deteriorates, the proportion of the pro-
tive forage plants decreases and the proportion of
eta, ring muhly, and broom snakeweed increases.
quite and cholla invade. Grazing management
ld be designed to increase the productivity and re-
luction of blue grama, black grama, sideoats grama,
western wheatgrass.

is unit is suited to such range improvement prac-
as mechanical treatment and earthen ponds.



air temperature is about 45 degrees F,
e frost-free period is 100 to 140 days.
0 percent Rock outcrop and 40 percent

is unit are small areas of Bernal, Mion,
s on the lower edges of mapped areas;
d Rocio soils on west-facing slopes; and
idges. Included areas make up about 10
otal acreage.
consists of exposed areas of sandstone,
shale. It occurs as sheets, ridges, and

are cold soils that have a dark colored
hese soils are highly variable in proper-

ed for wildlife habitat.
plant community on the Haploborolls is
pak, and ponderosa pine and an under-

utcrop-Torriorthents complex, very
p unit is on escarpments. Slope is 15 to
e vegetation is mainly grass. Elevation is
feet. The average annual precipitation is
s, the average annual air temperature is
es F, and the average frost-free period is

0 percent Rock outcrop and 20 percent

is unit are small areas of La Lande and
hear the edges of mapped areas and
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otal acreage.
consists of exposed areas of sandstone

are stony soils that are variable in depth,
er properties.
ed for wildlife habitat.
plant community on Torriorthents is
estem, sideoats grama, blue grama, and

ocio-Dargol association, very steep.
on mountains. Slope is 9 to 65 percent.
is mainly conifers and an understory of
is 7,000 to 9,000 feet. The average
tion is about 25 inches, the average
erature is about 40 degrees F, and the
e period is 100 to 140 days.
) percent Stout cobbly fine sandy loam,
o gravelly loam, and 15 percent Dargol
Stout soil is on ridges, the Rocio soil is
of mountainsides, and the Dargol soil is
of mountainsides.
his unit are areas of Rock outcrop of
l areas of Moreno soils on fans; small
n ridges, that are similar to the Stout soil

but are moderately deep; and small areas of soils, on long mountainsides, that are similar to the Rocio soil but do not have a dark-colored surface layer. Included areas make up about 35 percent of the total acreage.

The Stout soil is very shallow and shallow and well drained. It formed in material derived dominantly from sandstone. Slope is 9 to 30 percent. Typically, the surface layer is grayish brown cobbly fine sandy loam about 4 inches thick. The substratum to a depth of 10 inches is light yellowish brown cobbly sandy loam. Sandstone is at a depth of 10 inches.

Permeability of the Stout soil is rapid. Available water capacity is very low. Effective rooting depth is 6 to 20 inches. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is high.

The Rocio soil is deep and well drained. It formed in alluvium and colluvium derived dominantly from sandstone and shale. Slope is 45 to 65 percent. Typically, the surface is covered with a mat of decomposing forest litter about 1 inch thick. The surface layer is dark grayish brown gravelly loam about 5 inches thick. The subsurface layer is pale brown gravelly fine sandy loam about 13 inches thick. The subsoil to a depth of 60 inches or more is brown and light brown clay.

Permeability of the Rocio soil is slow. Available water capacity is high. Effective rooting depth is 60 inches or more. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is moderate.

The Dargol soil is moderately deep and well drained. It formed in residuum derived dominantly from sandstone and shale. Slope is 25 to 45 percent. Typically, the surface layer is dark gray stony loam about 3 inches thick. The next layer is very pale brown loam about 9 inches thick. The subsoil is pale brown gravelly clay loam about 10 inches thick. Sandstone is at a depth of 22 inches.

Permeability of the Dargol soil is very slow. Available water capacity is very low. Effective rooting depth is 20 to 40 inches. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is moderate.

This unit is used for livestock grazing, woodland, homesite development, and wildlife habitat.

The present vegetation in most areas is mainly Arizona fescue, mountain muhly, bluegrass, and ponderosa pine. Grazing management should be designed to increase the productivity and reproduction of Arizona fescue, mountain muhly, and bluegrass. Management practices such as mechanical treatment and earthen ponds are limited by steep to extremely steep slopes, the cobbly and stony surface layer, and very shallow depth.

This unit is suited to the production of ponderosa pine. It can produce about 3,150 cubic feet, or 7,630 board feet (International rule) of merchantable timber per acre from a fully stocked stand of even-aged trees 80 years old. Stands should be maintained by thinning and selective cutting of mature trees. Management that minimizes the risk of erosion is essential in harvesting timber.

This unit is poorly suited to homesite development. If the Stout soil is used for homesite development, the main limitations are very shallow and shallow depth and moderate slope. If the Rocio soil is used for homesite development, the main limitations are high shrink-swell potential, low strength, and extremely steep slopes. If the Dargol soil is used for homesite development, the main limitations are high shrink-swell potential, low strength, moderate depth, and very steep slopes.

Sites for recreational homes on this unit should be carefully selected.

SW—Swastika silt loam, undulating. This deep, well drained soil is on uplands. It formed in material derived dominantly from shale. The native vegetation is mainly grass. Elevation is 5,300 to 7,200 feet. The average annual precipitation is about 16 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 150 to 175 days.

Typically, the surface layer is dark grayish brown silt loam about 2 inches thick. The subsoil is brown and yellowish brown clay loam and clay about 28 inches thick. The substratum to a depth of 60 inches or more is light yellowish brown and very pale brown, calcareous silty clay loam.

Included in this unit are small areas of Colmor soils on fans, La Brier soils in swales, and Vermejo soils on lakebeds. Included areas make up about 15 percent of the total acreage.

Permeability of this Swastika soil is slow. Available water capacity is very high. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

This unit is used for livestock grazing, urban development, and wildlife habitat.

The potential plant community is mainly blue grama, western wheatgrass, wolftail, and galleta. As the range deteriorates, the western wheatgrass decreases and a dense, low turf of blue grama and ring muhly that is low in productivity develops. Grazing management should be designed to increase the productivity and reproduction of western wheatgrass, blue grama, and sideoats grama.

This unit is suited to such range improvement practices as mechanical treatment, earthen ponds, and range seeding.

This unit is poorly suited to urban development. The main limitations are high shrink-swell potential, low strength, and slow permeability.

Sx—Swastika clay loam, 1 to 3 percent slopes. This deep, well drained soil is on uplands. It formed in material derived dominantly from shale. The vegetation in areas not cultivated is mainly grass. Elevation is 6,000 to 6,300 feet. The average annual precipitaion is about 16 inches, the average annual air temperature is about 50

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Typically, the surface layer is dark grayish brown clay loam about 2 inches thick. The subsoil is brown and yellowish brown clay and clay loam about 28 inches thick. The substratum to a depth of 60 inches or more is very pale brown, calcareous silty clay loam.

Included in this unit are small areas of Colmor and Carnero soils near the edge of mapped areas, other Swastika soils throughout mapped areas, and La Brier and Vermejo soils in swales. Included areas make up about 10 percent of the total acreage.

Permeability of this Swastika soil is slow. Available water capacity is very high. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

This unit is used for irrigated crops, mainly alfalfa, pasture, and small grain. Among the other crops grown are legumes. It is also used for livestock grazing, urban development, and wildlife habitat.

If this unit is used for irrigated crops, the main limitations are slow permeability and moderate hazards of water erosion and soil blowing. Furrow, border, corrugation, and sprinkler irrigation systems are suitable. The method used generally is governed by the crop. Water should be applied in amounts sufficient to wet the root zone but in amounts small enough to minimize the leaching of plant nutrients.

Soil blowing can be reduced by using all crop residue and practicing minimum tillage. Yield of crops can be maintained or increased by applying fertilizer. Most crops, except for legumes, respond to nitrogen. Legumes respond to phosphate. Timely harvesting of crops improves their quality. Rotation grazing helps to maintain the quality and quantity of forage.

The potential plant community is mainly blue grama, western wheatgrass, wolftail, and galleta. As the range deteriorates, the western wheatgrass decreases and a dense, low turf of ring muhly and blue grama that is low in productivity develops. Grazing management should be designed to increase the productivity and reproduction of western wheatgrass, blue grama, and sideoats grama.

This unit is suited to such range improvement practices as mechanical treatment, earthen ponds, and range seeding.

This unit is poorly suited to urban development. The main limitations are high shrink-swell potential, low strength, and slow permeability.

TD—Tapia-Dean association, undulating. This map unit is on mesas and fans. Slope is 1 to 5 percent. The vegetation is mainly grass and scattered pinyon and juniper. Elevation is 6,000 to 7,200 feet. The average annual precipitation is about 18 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 140 to 165 days.

This unit is 45 percent Tapia loam and 35 percent Dean loam. The Tapia soil is on mesas and fans, and the Dean soil is in the slightly higher areas.

Included in this unit are small areas of Laporte soils and Rock outrop on ridges, Tuloso soils on canyon walls, and Vibo and Ribera soils within areas of Tapia soils. Included areas make up about 20 percent of the total acreage.

The Tapia soil is deep and well drained. It formed in material derived from mixed sources. Slope is 1 to 3 percent. Typically, the surface layer is brown loam about 5 inches thick. The subsoil is brown and light brown loam and sandy clay loam about 17 inches thick. The substratum to a depth of 60 inches or more is pink, calcareous gravelly loam.

Permeability of the Tapia soil is moderate. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is high.

The Dean soil is deep and well drained. It formed in material derived dominantly from limestone. Slope is 1 to 5 percent. Typically, the surface layer is light brownish gray, calcareous loam about 5 inches thick. The next layer is light grayish brown, calcareous loam about 8 inches thick. The underlying material to a depth of 60 inches or more is light brown, calcareous loam and very pale brown gravelly loam.

Permeability of the Dean soil is slow. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is high.

This unit is used for livestock grazing, woodland, and wildlife habitat.

The potential plant community on the Tapia soil is mainly blue grama, western wheatgrass, galleta, and pinyon ricegrass. The potential plant community on the Dean soil is mainly pinyon pine and an understory of blue grama, sideoats grama, little bluestem, and pinyon ricegrass. As the range deteriorates, the proportion of the desirable forage plants decreases and ring muhly, blue grama, and broom snakeweed increase. Grazing management should be designed to increase the productivity and reproduction of western wheatgrass, little bluestem, and pinyon ricegrass.

The Tapia soil is suited to such range improvement practices as mechanical treatment, earthen ponds, and range seeding. Suitability of the Dean soil to such range management practices as mechanical treatment and earthen ponds is limited by caliche fragments at a very shallow to moderate depth.

The Dean soil is well suited to the production of pinyon and juniper, which are used for firewood. Maximum production of understory forage can be obtained by reducing the crown density of the overstory.

TE—Teco loam, moderately sloping. This deep, well drained soil is on uplands. It formed in alluvium derived dominantly from sandstone. The vegetation is mainly grass. Elevation is 5,700 to 6,000 feet. The average annual precipitation is about 14 inches, the average annual air temperature is about 52 degrees F, and the average frost-free period is 140 to 165 days.

Typically, the surface layer is brown and pale brown loam about 6 inches thick. The subsoil is yellowish red clay loam about 22 inches thick. The substratum to a depth of 60 inches or more is pink and light red clay loam and gravelly fine sandy loam.

Included in this unit are small areas of Andok and Quintana soils on ridges. Included areas make up about 15 percent of the total acreage.

Permeability of this Teco soil is moderately slow. Available water capacity is high. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

This unit is used for livestock grazing and for wildlife habitat.

The potential plant community on the Teco soil is mainly blue grama, sideoats grama, galleta, and pinyon ricegrass. As the range deteriorates, the proportion of the desirable forage plants decreases and the proportion of ring muhly, threeawn, and blue grama increases. Grazing management should be designed to increase the productivity and reproduction of blue grama, sideoats grama, and western wheatgrass.

This unit is suited to such range improvement practices as mechanical treatment, earthen ponds, and fences.

TG—Tinaja gravelly loam, hilly. This deep, well drained soil is on terraces. It formed in alluvium derived from mixed sources. The vegetation is mainly grass. Elevation is 5,300 to 7,200 feet. The average annual precipitation is about 16 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 140 to 175 days.

Typically, the surface layer is light brown gravelly loam about 7 inches thick. The subsoil is light brown gravelly loam about 7 inches thick. The substratum to a depth of 60 inches or more is light brown and brown, calcareous very gravelly sandy loam and very gravelly loamy coarse sand.

Included in this unit are small areas of Bernal, Partri, Penrose, and Tuloso soils near the edge of mapped areas. Also included are small areas of Manzano soils and Ustifluvents on fans and flood plains. Included areas make up about 20 percent of the total acreage.

Permeability of this Tinaja soil is moderately rapid. Available water capacity is very low. Effective rooting depth is 60 inches or more. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is moderate.

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VB—Vibo-Ribera association, undulating. This map unit is on fans. Slope is 1 to 9 percent. The vegetation in areas not cultivated is mainly grass and scattered pinyon and juniper. Elevation is 6,000 to 7,200 feet. The average annual precipitation is about 18 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 140 to 165 days.

This unit is 50 percent Vibo fine sandy loam and 30 percent Ribera fine sandy loam (fig. 11). The Vibo soil is on long fans, and the Ribera soil is on short fans.

Included in this unit are small areas of Bernal and Sombordoro soils on ridges, Manzano soils on fans, Quintana soils near the edge of mapped areas, and Teco soils in depressional areas. Included areas make up about 20 percent of the total acreage.

The Vibo soil is deep and well drained. It formed in alluvial and eolian material derived from mixed sources. Slope is 1 to 5 percent. Typically, the surface layer is brown fine sandy loam about 8 inches thick. The subsoil is reddish brown sandy clay loam about 16 inches thick. The substratum to a depth of 60 inches or more is light reddish brown and pink, calcareous sandy loam and loam.

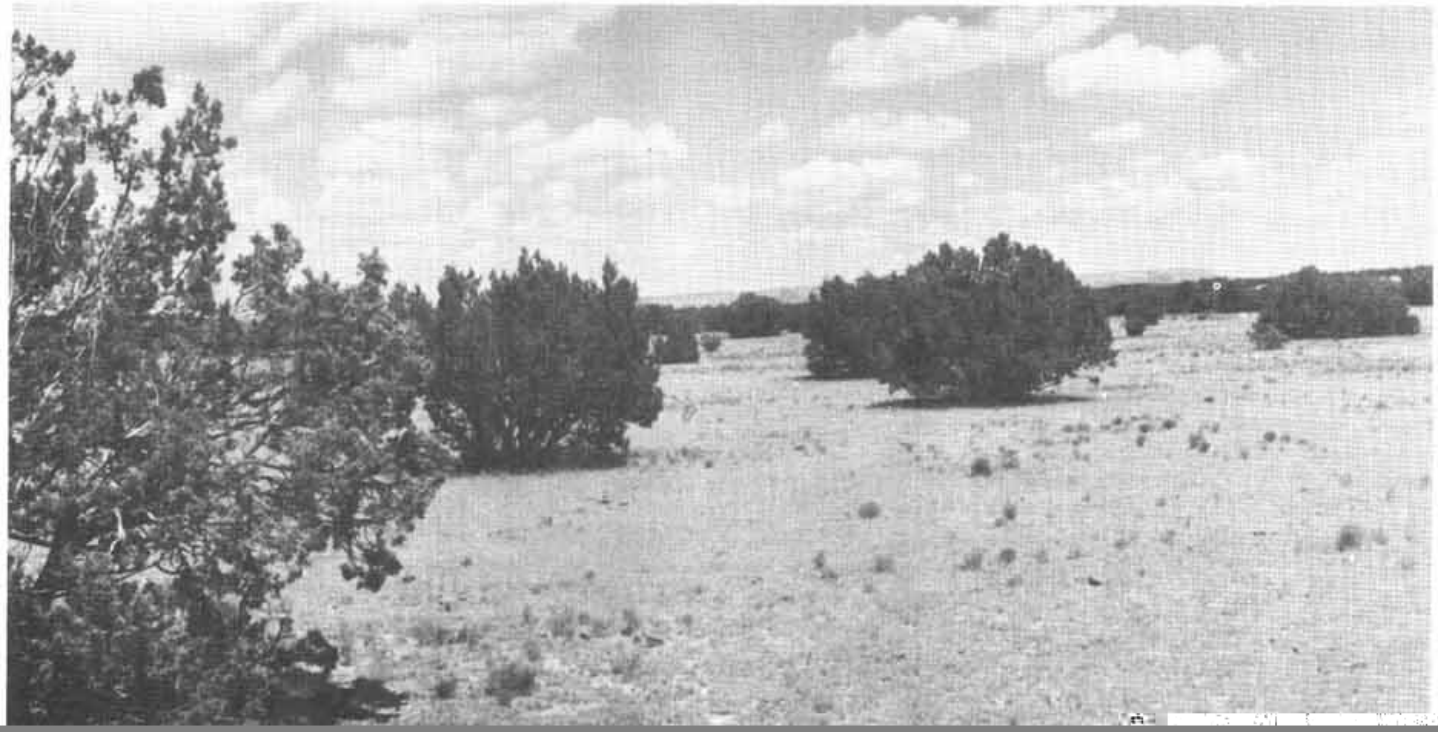
Permeability of the Vibo soil is moderate. Available water capacity is high. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is high.

The Ribera soil is moderately deep and well drained. It formed in alluvial and eolian material derived dominantly from sandstone and shale. Slope is 5 to 9 percent. Typically, the surface layer is brown fine sandy loam about 5 inches thick. The subsoil is brown clay loam about 21 inches thick. The substratum to a depth of 31 inches is light brown, calcareous loam. Sandstone is at a depth of 31 inches.

Permeability of the Ribera soil is moderate. Available water capacity is moderate. Effective rooting depth is 20 to 40 inches. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is high.

This unit is used for dryland crops, livestock grazing, woodland, and wildlife habitat.

If this unit is used for dryland crops, the main limitations are a high hazard of soil blowing, moderate slope, and a moderate hazard of water erosion. Crop residue left on or near the surface helps to conserve moisture, maintain tilth, and control erosion. Tillage should be kept to a minimum. Terracing and farming on the contour reduce runoff and the risk of erosion and help to conserve moisture. Stripcropping helps to control soil blowing. Generally, crops respond to nitrogen and phosphorus.



Also, it can help avoid soil-related fail-
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his section is useful in planning use and
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stems, sanitary facilities, and parks and
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also can find useful information in this
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asture

rvation agronomist, Soil Conservation Service.

nagement concerns in the use of the
nd pasture are described in this section.
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The yields were estimated assuming that the latest soil and crop management practices were used. Hay and pasture yields were estimated for the most productive varieties of grasses and legumes suited to the climate and the soil. A few farmers may be obtaining average yields higher than those shown in table 4.

The management needed to achieve the indicated yields of the various crops depends on the kind of soil and the crop. Such management provides drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate tillage practices, including time of tillage and seedbed preparation and tilling when soil moisture is favorable; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residues, barnyard manure, and green-manure crops; harvesting crops with the smallest possible loss; and timeliness of all fieldwork.

Rangeland

Kenneth W. Williams, range conservationist, Soil Conservation Service

About 80 percent of San Miguel County Area consists of rangeland on which the native vegetation is predominantly grasses and forbs or shrubs suitable for grazing or browsing. In addition, about 14 percent of the land area is woodland consisting of pinyon, juniper, and ponderosa pine, which produce understory vegetation that is suitable for grazing.

The livestock produced on the grazing resource in the survey area provides the principal agricultural income. Yearlong cow and calf operations are dominant in the southern and eastern parts of the area. Much of the range in the northern and western parts is used seasonally, usually in summer, either by cows, calves, or yearlings. The average size of ranches is 4,550 acres.

The southern and eastern parts of the survey area are suitable for grazing any season of the year. The western and northern parts are better suited to grazing in spring, summer, and fall because the winters are occasionally severe. In winter, most ranches supplement the forage produced on the rangeland with hay and protein concentrates.

Proper grazing management improves the ground cover, promotes the accumulation of litter, and improves the vigor and reproduction of the more productive grasses and shrubs.

Continuous, yearlong grazing or grazing continually from April through October results in the deterioration of the plant community so that it has less value as forage for domestic livestock. Proper grazing use that includes a system of deferred grazing, which varies the seasons of grazing and rest in pastures during successive years, is needed to maintain a healthy, balanced plant community and provide higher quality forage throughout the year.

Periodic rest during different seasons of the year benefits different plants. Rest in winter benefits shrubs such as mountainmahogany, winterfat, and Gambel oak. Winter rest is also beneficial to black grama. Cattle show a definite preference for black grama late in winter and can easily overgraze this species. Rest during this period reduces the grazing pressure on black grama.

Rest in spring, from April to June, benefits early forbs and cool-season grasses such as western wheatgrass, New Mexico feathergrass, pinyon ricegrass, Arizona fescue, and bottlebrush squirreltail. Rest in summer from July to September, encourages the production and reproduction of warm-season grasses such as sideoats grama, little bluestem, mountain muhly, black grama, sand bluestem, and blue grama. Rest in summer allows the cool-season grasses to complete their growth cycle. Rest in fall allows the warm-season plants to mature and to complete the growth cycle.

Flexibility in the number of livestock permitted to graze and in the frequency and intensity of grazing is essential to the success of any grazing program. Effective livestock distribution is most frequently accomplished by the proper use of fences, wells, pipelines, tanks, and salt for livestock.

Each soil mapped has a distinctive potential plant community that differs from others in its potential to produce different kinds of native plants. The potential plant community is characterized by an association of species as listed in the description of the soils. Thus, to get full information about the potential plant community and its management, it is necessary to read both the descriptions of the map units and the use and management described in this section.

Where climate and topography are about the same, differences in the kind and amount of vegetation that rangeland can produce are related closely to the kind of soil. Effective management is based on the relationships among soils, vegetation, and water.

Table 5 shows, for each kind of soil, the name of the range site; the total annual production of vegetation in favorable, normal, and unfavorable years; the characteristic vegetation; and the expected percentage of each species in the composition of the potential natural plant community. Soils not listed cannot support a natural plant community of predominately grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. The following are explanations of column headings in table 5.

A *range site* is a distinctive kind of rangeland that differs from other kinds of rangeland in its ability to produce a characteristic natural plant community. Soils that produce a similar kind, amount, and proportion of range plants are grouped into range sites. For those areas where the relationship between soils and vegetation has been established, range sites can be interpreted

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depleted by continuous and excessive use. Brush, weeds, and cacti have increased or invaded on much of the rangeland, causing further depletion of the grass cover. Soil erosion generally occurs when the soils are not adequately covered.

In many areas where the landscape is broken by a mesa or is strongly sloping, or where pastures are large, the distribution of grazing by livestock generally is poor. Poor distribution of livestock grazing results in areas that are underused and large areas that are excessively used, which results in loss of cover, invasion of undesirable plants, and accelerated erosion. Improving distribution of grazing by providing additional watering facilities, stock trails, and fencing designed to help minimize excessive use is an important management concern. Manipulating or reducing undesirable brush species and minimizing soil erosion are other management concerns.

Woodland management and productivity

Gene Anderson, forester, Soil Conservation Service

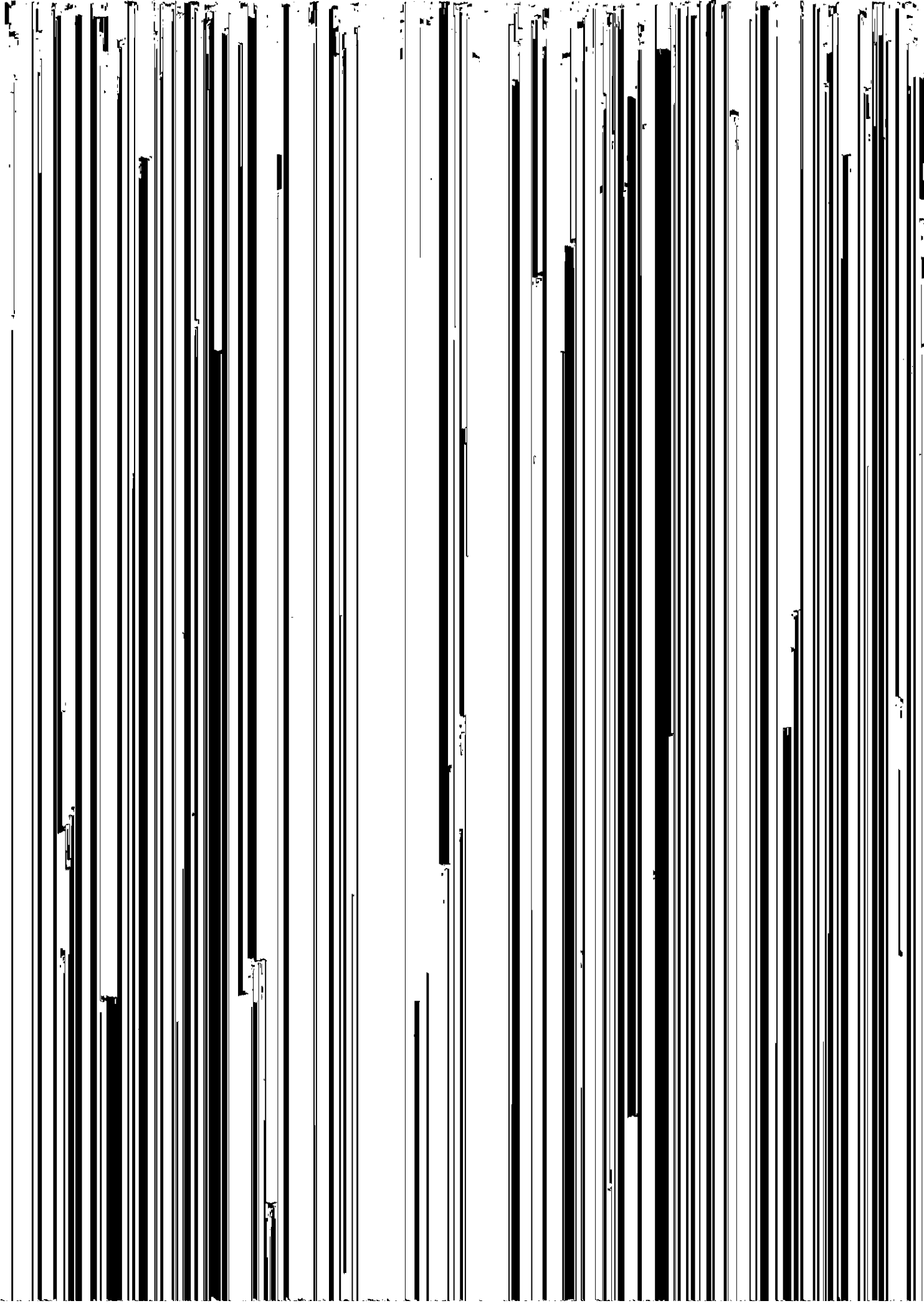
About 400,000 acres, or 14 percent, of the survey area is forested. Two principal forest types are present, ponderosa pine (*9*) and pinyon and juniper (*5*). Table 6 contains information useful to landowners desiring to manage their forested land for wood products.

In table 6, the *ordination symbol* indicates the suitability of a soil for wood production. The first part of the symbol, a number, indicates the potential productivity of the soil for a particular species of tree. In this survey area, some soils produce mainly ponderosa pine and others produce mainly pinyon and juniper. For ponderosa pine, there are 7 ratings: 1 indicates very high productivity; 2, high; 3, moderately high; 4, moderate; 5, moderately low; 6, low; and 7, very low. For pinyon and juniper there are 3 ratings: 1 indicates high productivity; 2, moderate; and 3, low.

The second part of the symbol, a letter, indicates the major soil limitation. The letter *x* indicates stoniness or rockiness; *w*, excessive water in or on the soil; *t*, toxic substances in the soil; *d*, restricted root depth; *e*, clay in the upper part of the profile; *s*, sandy texture; *f*, high coarse fragment content in the soil; *r*, steep slopes. The letter *o* indicates insignificant restrictions or limitations.

In table 6 the soils are also rated for a number of factors to be considered in management. *Slight, moderate, and severe* are used to indicate the degree of major soil limitations.

Ratings of the *erosion hazard* indicate the risk of loss of soil in well-managed woodland. The risk is *slight* if the expected soil loss is small, *moderate* if some measures are needed to control erosion during logging and road construction, and *severe* if intensive management or special equipment and methods are needed to prevent excessive loss of soil.



e such site preparation as shaping and parking areas, stabilizing roads areas, and installing sanitary facili- Camp areas are subject to heavy vehicular traffic. The best soils for opes and are not wet or subject to eriod of use. The surface has few or rs, absorbs rainfall readily but re- t dusty when dry. Strong slopes and an greatly increase the cost of con- s.

subject to heavy foot traffic. Most nfined to access roads and parking s for use as picnic areas are firm dusty when dry, are not subject to period of use, and do not have boulders that will increase the cost f building access roads and parking

e soils that can withstand intensive soils are almost level and are not oding during the season of use. The nes or boulders, is firm after rains, hen dry. If shaping is required to de, the depth of the soil over bed- ould be enough to allow necessary

or walking, horseback riding, bicy- s should require little or no cutting soils for this use are those that are r rains, are not dusty when dry, and ooding more than once during the They should have moderate slopes stones or boulders on the surface.

t the kind and amount of vegetation vildlife as food and cover, and they n of water impoundments. The kind ldlife that populates an area depend nt and distribution of food, cover, e of these elements is missing, is ccessible, wildlife either is scarce or area.

he potential, wildlife habitat can be by planting appropriate vegetation, disting plant cover, or by helping the of desirable plants.

ls in the survey area are rated ac- ntial to support the main kinds of area. This information can be used wildlife refuges, nature study areas, nts for wildlife; selecting areas that fe; selecting soils that are suitable g, or maintaining specific elements of wildlife habitat; and determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of good means that the element of wildlife habitat or the kind of habitat is easily created, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected if the soil is used for the designated purpose. A rating of fair means that the element of wildlife habitat or kind of habitat can be created, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of poor means that limitations are severe for the designated element or kind of wildlife habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of very poor means that restrictions for the element of wildlife habitat or kind of wildlife are very severe, and that unsatisfactory results can be expected. Wildlife habitat is impractical or even impossible to create, improve, or maintain on soils having such a rating.

The elements of wildlife habitat are briefly described in the following paragraphs.

Grain and seed crops are seed-producing annuals used by wildlife. The major soil properties that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations.

Grasses and legumes are domestic perennial grasses and herbaceous legumes that are planted for wildlife food and cover. Examples are fescue, orchardgrass, bromegrass, clover, and alfalfa. Major soil properties that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flood hazard, and slope. Soil temperature and soil moisture are also considerations.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds, that provide food and cover for wildlife. Examples are bluestem, goldenrod, lambsquarter, fringed sagewort, buckwheat, beggarweed, wheatgrass, galleta, dropseeds, and grama. Major soil properties that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations.

Coniferous plants are cone-bearing trees, shrubs, or ground cover plants that furnish habitat or supply food in the form of browse, seeds, or fruitlike cones. Examples are ponderosa pine, pinyon, spruce, fir, kinnikinnick, barberry, and juniper. Soil properties that have a major effect on the growth of coniferous plants are depth of the root zone, available water capacity, and wetness.

contractors, and farmers and ranch-

e engineering tables are based on test
data in the "Soil properties" section.
etermined jointly by soil scientists and
oil Conservation Service using known
en the soil properties and the behav-
s engineering uses.
roperties and site conditions identified
nd used in determining the ratings in
rain-size distribution, liquid limit, plas-
action, depth to bedrock, hardness of
ithin 5 or 6 feet of the surface, soil
a seasonal high water table, slope,
ng, natural soil structure or aggrega-
lensity, and geologic origin of the soil
rtinent, data about kinds of clay min-
f the sand and silt fractions, and the
ations were also considered.
nformation assembled about soil prop-
alues can be estimated for erodibility,
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appropriate, these values can be ap-
r horizon of each soil or to the entire

f soil behavior affect construction and
ads, airport runways, pipelines, founda-
dings, ponds and small dams, irrigation
systems, sewage and refuse disposal
er engineering works. The ranges of
ed to (1) select potential residential,
trial, and recreational uses; (2) make
tes pertinent to construction in a par-
evaluate alternative routes for roads,
pipelines, and underground cables; (4)
e sites for location of sanitary landfills,
posal systems, and other waste dis-
plan detailed onsite investigations of
(6) find sources of gravel, sand, clay,
lan farm drainage systems, irrigation
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ation; (8) relate performance of struc-
to the properties of the kinds of soil
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ame or a similar soil in other locations
and (9) predict the trafficability of soils
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in this section are useful for land-use
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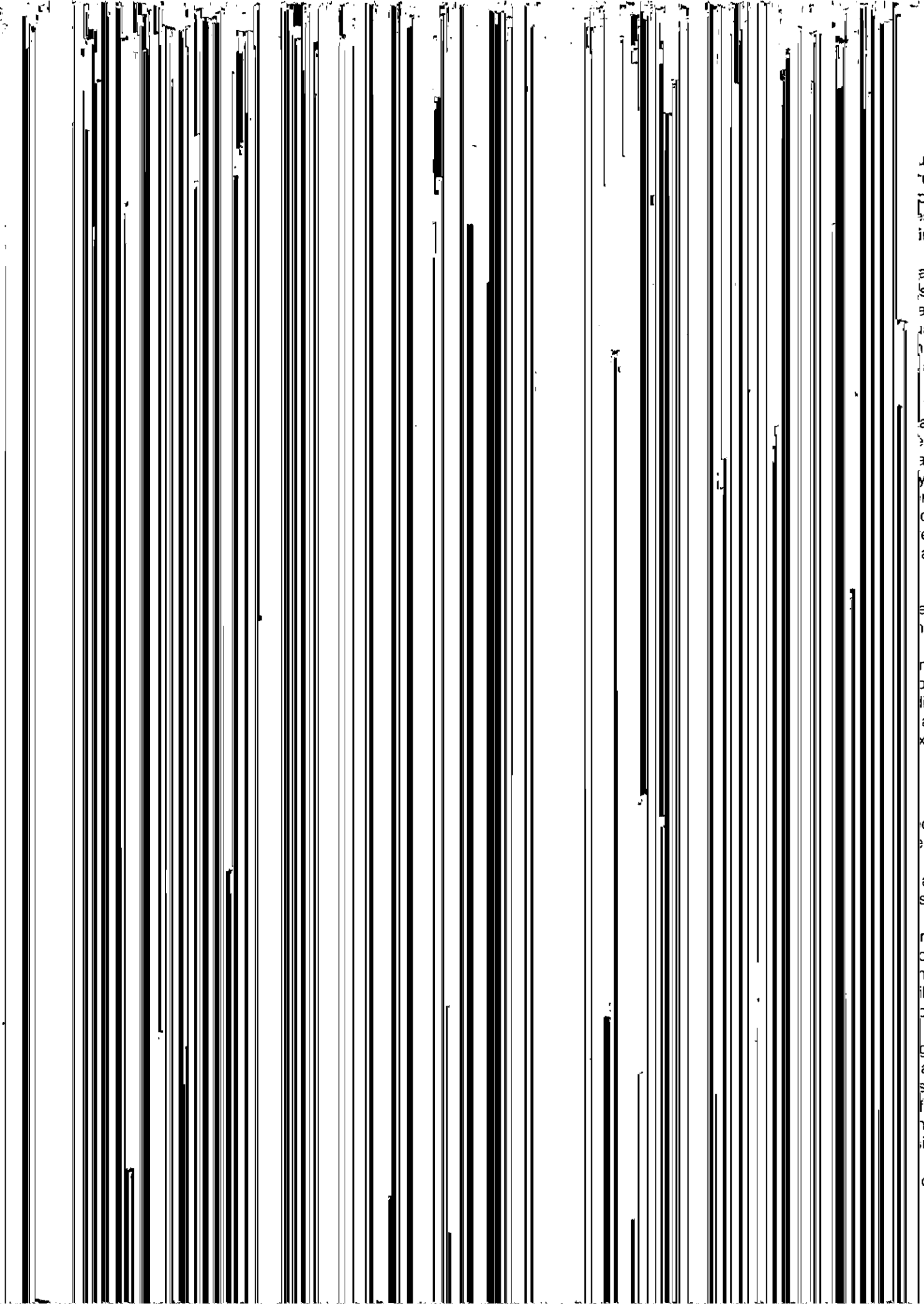

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loose sandy soils or firm loamy or
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are very sandy soils and very firm
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es and site features that affect water
ces have been identified in this soil
soil and site features that affect use
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eas hold water behind a dam or em-
st suited to this use have a low seep-
h is determined by permeability and
ured or permeable bedrock or other

ikes, and levees require soil material
seepage, erosion, and piping and has
shrink-swell potential, shear strength,
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downgrade the suitability of a soil for
ts, dikes, and levees.
is affected by such soil properties as
e; depth to bedrock, hardpan, or other
he rate of water movement; depth to
pe; stability of ditchbanks; susceptibil-
inity and alkalinity; and availability of

cted by such features as slope, sus-
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resence of salts and alkali, depth of
water intake at the surface, permeabil-
ow the surface layer, available water
drainage, and depth to the water

ersions are embankments or a combi-
s and ridges constructed across a
runoff. They allow water to soak into
owly to an outlet. Features that affect
for terraces are uniformity and steep-
th to bedrock, hardpan, or other unfa-
arge stones; permeability; ease of es-
on; and resistance to water erosion,
ipping, and piping.

for example, "gravelly loam." Other texture terms are defined in the Glossary.

The two systems commonly used in classifying soils for engineering use are the Unified Soil Classification System (Unified) (*2*) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO) (*1*).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter, plasticity index, liquid limit, and organic-matter content. Soils are grouped into 15 classes: eight classes of coarse-grained soils, identified as GW, GP, GM, GC, SW, SP, SM, and SC; six classes of fine-grained soils, identified as ML, CL, OL, MH, CH, and OH; and one class of highly organic soils, identified as Pt. Soils on the borderline between two classes have a dual classification symbol, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect their use in highway construction and maintenance. In this system a mineral soil is classified in one of seven basic groups ranging from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines. At the other extreme, in group A-7, are fine-grained soils. Highly organic soils are classified in group A-8 on the basis of visual inspection.

When laboratory data are available, the A-1, A-2, and A-7 groups are further classified as follows: A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, and A-7-6. As an additional refinement, the desirability of soils as subgrade material can be indicated by a group index number. These numbers range from 0 for the best subgrade material to 20 or higher for the poorest. The estimated classification, without group index numbers, is given in table 14. Also in table 14 the percentage, by weight, of rock fragments more than 3 inches in diameter is estimated for each major horizon. These estimates are determined mainly by observing volume percentage in the field and then converting that, by formula, to weight percentage.

Percentage of the soil material less than 3 inches in diameter that passes each of four sieves (U.S. standard) is estimated for each major horizon. The estimates are based on tests of soils that were sampled in the survey area and in nearby areas and on field estimates from many borings made during the survey.

Liquid limit and plasticity index indicate the effect of water on the strength and consistence of soil. These indexes are used in both the Unified and AASHTO soil classification systems. They are also used as indicators in making general predictions of soil behavior. Range in liquid limit and plasticity index are estimated on the basis of test data from the survey area or from nearby areas

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7.5YR 6/6) clay,
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Hard sandstone
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or 4 when moist,
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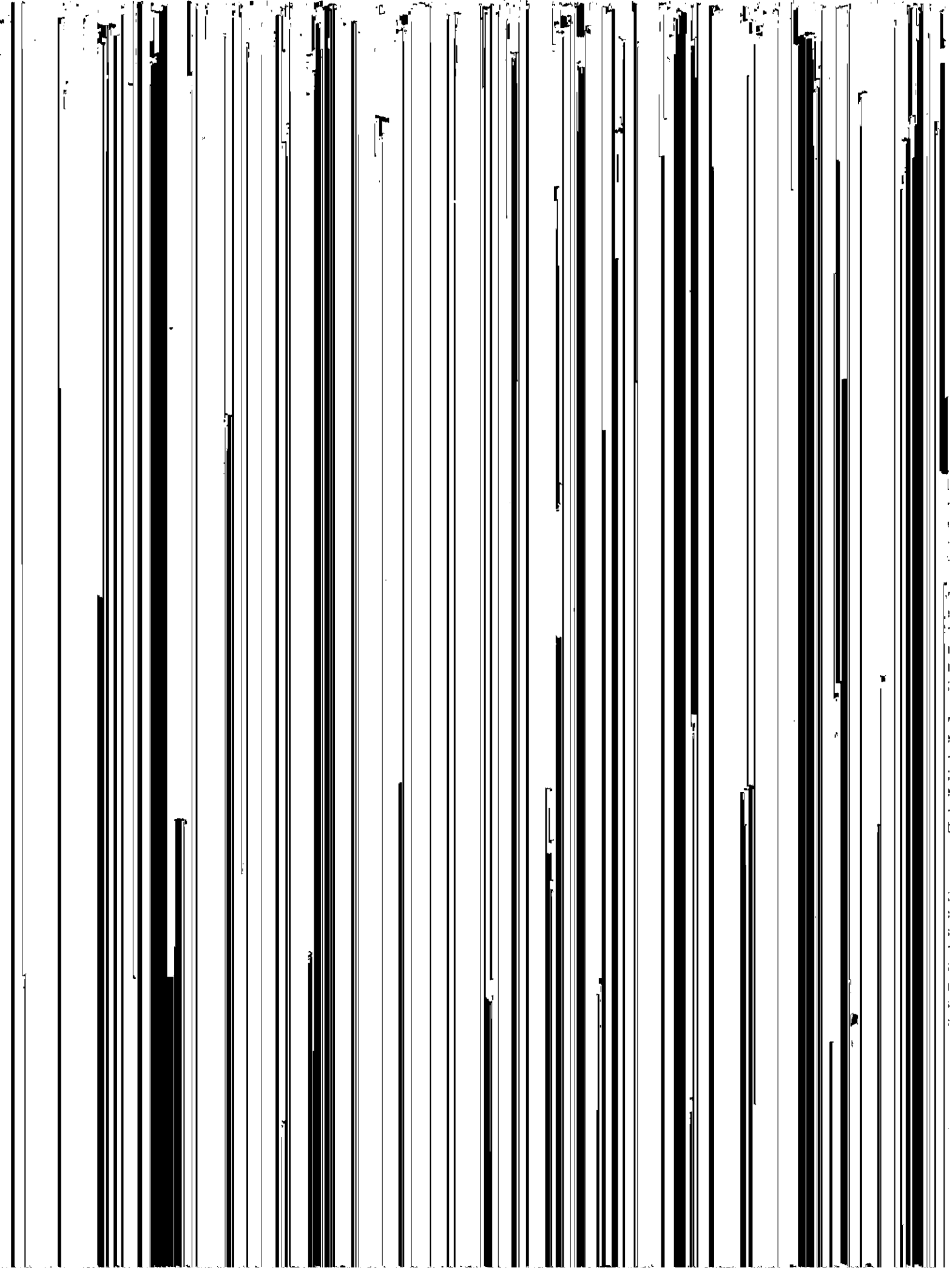

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Typical pedon of a Dean loam in an area of Tapia-Dean association, undulating; about 6 miles north of Clines Corners in the NW1/4 of sec. 16, T. 10 N., R. 12 E.:

A1—0 to 5 inches; light brownish gray (10YR 6/2) loam, dark grayish brown (10YR 4/2) moist; weak fine subangular blocky structure; soft, friable, slightly plastic; many fine and very fine roots; few very fine tubular pores; about 5 percent gravel-sized caliche fragments; calcareous; moderately alkaline; clear smooth boundary.

AC—5 to 13 inches; light grayish brown (10YR 6/2) loam, dark grayish brown (10YR 4/2) moist; weak medium subangular blocky structure; slightly hard, friable, slightly plastic; many fine and very fine roots, common medium roots; few fine and very fine tubular pores; about 10 percent fine gravel-sized caliche fragments; calcareous; moderately alkaline; clear smooth boundary.

C1ca—13 to 21 inches; light brown (7.5YR 6/4) gravelly loam, brown (7.5YR 5/4) moist; weak medium subangular blocky structure; slightly hard, friable, slightly plastic; common fine and very fine roots; few fine tubular pores; strongly calcareous; about 30 percent soft caliche fragments; moderately alkaline; clear wavy boundary.

C2ca—21 to 60 inches; very pale brown (10YR 8/3) gravelly loam; massive; weakly cemented indurated caliche fragments with loam or soft caliche cementation.

Depth to caliche is 6 to 23 inches. The profile has hue of 7.5YR or 10YR. The A and AC horizons have value of 5 or 6 when dry and 4 or 5 when moist, and they have chroma of 2 or 3. The C horizon is less than 35 percent weakly cemented to strongly cemented caliche fragments.

Dioxice series

The soils in the Dioxice series are classified as Aridic Calciustolls, fine-loamy, mixed, mesic. These deep, well drained soils are on fans. The soils formed in calcareous alluvial and eolian sediment. Slope is 0 to 5 percent. Mean annual precipitation is about 16 inches, and mean annual air temperature is about 50 degrees F.

Typical pedon of a Dioxice loam in an area of Dioxice-Dean association, undulating; about 2 miles southeast of Mosquero in the SW1/4 of sec. 27, T. 18 N., R. 28 E. (projected):

A1—0 to 4 inches; brown (7.5YR 5/2) loam, dark brown (7.5YR 3/2) moist; weak fine granular structure; soft, friable; slightly sticky and slightly plastic; many fine roots; calcareous; moderately alkaline; clear wavy boundary.

B21—4 to 9 inches; brown (7.5YR 5/2) heavy loam, dark brown (7.5YR 3/2) moist; weak coarse subangular blocky structure; slightly hard, friable, sticky and plastic; many fine and few medium roots; few fine tubular pores; calcareous; moderately alkaline; clear wavy boundary.

B22—9 to 24 inches; pinkish gray (7.5YR 6/2) clay loam, brown (7.5YR 4/2) moist; weak coarse prismatic structure; hard, friable, slightly sticky and plastic; common fine and few medium roots; common fine tubular and few medium tubular pores; calcareous; moderately alkaline; abrupt wavy boundary.

C1ca—24 to 34 inches; pinkish white (7.5YR 8/2) loam, pink (5YR 8/3) moist; massive; hard, friable, sticky and slightly plastic; few fine roots; strongly calcareous; moderately alkaline; clear wavy boundary.

C2ca—34 to 60 inches; pink (5YR 8/4) loam, light reddish brown (5YR 6/4) moist; massive; very hard, friable, sticky and slightly plastic; strongly calcareous; moderately alkaline.

The solum is 24 to 40 inches thick. The A horizon has hue of 7.5YR or 10YR, value of 4 or 5 when dry and 2 or 3 when moist, and chroma of 2 or 3. The A horizon in places is noncalcareous. The B2 horizon has hue of 7.5YR or 10YR. It has value of 4 or 5 when dry and 2 or 3 when moist in the upper part and value of 5 or 6 when dry or 3 or 4 when moist in the lower part. It is loam or clay loam. The C horizon is loam, clay loam, or gravelly loam. It is estimated at 30 percent to more than 50 percent calcium carbonate equivalent.

Dumas series

The soils in the Dumas series are classified as Aridic Paleustolls, fine-loamy, mixed, mesic. These deep, well drained soils are on uplands. The soils formed in mixed alluvial deposits. Slope is 0 to 5 percent. Mean annual precipitation is about 16 inches, and mean annual air temperature is about 50 degrees F.

Typical pedon of a Dumas loam in an area of Dumas-La Brier association, undulating; about one-half mile south of Mosquero in the SW1/4 of sec. 22, T. 18 N., R. 28 E. (projected):

A1—0 to 4 inches; dark grayish brown (10YR 4/2) loam, very dark grayish brown (10YR 3/2) moist; weak very fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many fine roots; common fine interstitial pores; neutral; clear wavy boundary.

B21t—4 to 10 inches; brown (7.5YR 5/2) clay loam, dark brown (7.5YR 3/2) moist; weak medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; many fine roots; common fine tubular pores; mildly alkaline; clear wavy boundary.

; brown (7.5YR 4/2) clay loam,
1 3/2) moist; moderate coarse
that parts to strong medium su-
ry hard, firm, sticky and plastic,
common fine tubular pores; few
peds; weakly calcareous; mildly
boundary.
strong brown (7.5YR 5/6) clay
(7.5YR 4/4) moist; moderate
structure that parts to strong
blocky; very hard, firm, slightly
common fine roots; common fine
mon thin clay films on peds; cal-
ly alkaline; clear wavy boundary.
; strong brown (7.5YR 5/6) clay
(7.5YR 4/4) moist; weak coarse
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es; light reddish brown (5YR 6/4)
brown (5YR 5/4) moist; weak
structure; hard, friable, slightly
plastic; strongly calcareous; mod-

lime is 17 to 24 inches. The A
/R or 10YR, value of 4 or 5 when
or 3. The upper part of the B2t
/R or 10YR, value of 4 or 5 when
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ies, it has hue of 5YR or 7.5YR,
dry and 3 to 5 when moist, and
B2t horizon is sandy clay loam or

cabosa series are classified as
loamy, mixed, mesic. These mod-
ed soils are on hillsides and fans.
vial and colluvial deposits derived
idstone. Slope is 3 to 25 percent.
on is about 16 inches, and mean
is about 50 degrees F.
Escabosa cobbly channery loam
Escabosa association, hilly; about
egas in the NW1/4 of sec. 28, T.
ed):

own (7.5YR 4/2) channery loam,
1 3/2) moist; weak fine granular
friable, slightly sticky and slightly
roots; weakly calcareous; few
; mildly alkaline; clear smooth

B2—3 to 11 inches; dark grayish brown (10YR 4/2) cobbly clay loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and plastic; many fine and common medium roots; about 15 percent limestone cobbles; calcareous; mildly alkaline; clear wavy boundary.

B22ca—11 to 20 inches; dark grayish brown (10YR 4/2) cobbly clay loam, very dark grayish brown (10YR 3/2) moist; weak subangular blocky structure; slightly hard, friable, slightly sticky and plastic; many fine and medium and few coarse roots; about 30 percent limestone channery fragments and cobbles; strongly calcareous; moderately alkaline; clear wavy boundary.

Cca—20 to 28 inches; light gray (10YR 7/2) cobbly loam, light brownish gray (10YR 6/2) moist; massive; soft, friable, slightly plastic; few fine and few medium roots; about 30 percent limestone channery fragments and cobbles; strongly calcareous; moderately alkaline; abrupt wavy boundary.

R—28 inches; fractured limestone; lime coatings on rock surface and in fractures.

Depth to bedrock ranges from 20 to 40 inches. Depth to the calcic horizon ranges from 17 to 25 inches. The A horizon has hue of 10YR or 7.5YR, value of 4 or 5 when dry and to 4 when moist, and chroma of 2 or 3. It is channery or stony loam. The B2 horizon has hue of 10YR or 7.5YR, value of 4 or 5 when dry and 2 to 4 when moist, and chroma of 2 to 4. It is loam, clay loam, or silty clay loam. Limestone fragments and calcium carbonate coated pebbles make up from less than 5 percent to about 25 percent of the horizon. The Cca horizon has hue of 10YR or 7.5YR, value of 7 to 8 when dry and 6 or 7 when moist, and chroma of 2 or 3. It is loam or light clay loam and is 15 to 35 percent gravel and cobbles.

Gallegos series

The soils in the Gallegos series are classified as Ustollic Camborthids, loamy-skeletal, mixed, thermic. These deep, well drained soils are on old terraces. The soils formed in coarse-textured alluvial deposits of mixed origin. Slope is 5 to 35 percent. Mean annual precipitation is about 16 inches, and mean annual air temperature is about 60 degrees F.

Typical pedon of Gallegos very gravelly fine sandy loam, hilly; about 12 miles east of Conchas State Park in the SW1/4 of sec. 21, T. 13 N., R. 28 E. (projected):

A1—0 to 3 inches; brown (7.5YR 5/4) very gravelly fine sandy loam, dark brown (7.5YR 4/4) moist; weak medium granular structure; soft, very friable; many fine and very fine roots; many fine pores; about 35

percent gravel; moderately alkaline; clear smooth boundary.

B2—3 to 13 inches; reddish brown (5YR 4/4) very gravelly loam, dark reddish brown (5YR 3/4) moist; moderate fine subangular blocky structure; soft, friable; many fine and very fine roots; few fine tubular pores; about 40 percent gravel and 10 percent cobbles; moderately alkaline; clear smooth boundary.

C1ca—13 to 20 inches; light reddish brown (5YR 6/4) very gravelly loam, reddish brown (5YR 4/4) moist; massive; soft, friable; many fine and very fine roots; about 45 percent gravel and about 15 percent cobbles; undersides of rock fragments are coated with lime; strongly calcareous; moderately alkaline; gradual wavy boundary.

C2ca—20 to 27 inches; light reddish brown (5YR 6/4) very gravelly loam, reddish brown (5YR 4/4) moist; massive; soft, very friable; common fine and very fine roots; about 45 percent gravel and about 15 percent cobbles; undersides of rock fragments are lime coated; strongly calcareous; moderately alkaline; gradual wavy boundary.

IIC3ca—27 to 60 inches; light reddish brown (5YR 6/4) very gravelly sandy loam, reddish brown (5YR 4/4) moist; single grain; loose, very friable; about 50 percent gravel and about 25 percent cobbles; undersides of pebbles are coated with lime; strongly calcareous; moderately alkaline.

The solum is 13 to 20 inches thick. Rock fragments consisting of rounded gravel and cobbles average more than 35 percent of the solum and C horizon. The A horizon has hue of 7.5YR or 5YR, value of 4 or 5 when dry, and chroma of 3 or 4. The B horizon has hue of 5YR or 7.5YR, value of 4 or 5 when dry and 3 or 4 when moist, and chroma of 4 to 6. It is very gravelly loam, gravelly clay loam, or very gravelly sandy clay loam. The C horizon has hue of 7.5YR or 5YR. In the lower part it is 15 percent or more calcium carbonate. It is gravelly or very gravelly loam or sandy loam.

Ima series

The soils in the Ima series are classsified as Ustochreptic Camborthids, coarse-loamy, mixed, thermic. These deep, well drained soils are on fans and uplands. The soils formed in moderately coarse textured eolian deposits. Slope is 1 to 5 percent. Mean annual precipitation is about 16 inches, and mean annual air temperature is about 60 degrees F.

Typical pedon of an Ima loamy fine sand in an area of Canez-Ima association, undulating; about 4 miles east of Conchas State Park in the NE1/4 of sec. 16, T. 13 N., R. 27 E. (projected):

A11—0 to 7 inches; reddish brown (5YR 5/4) loamy fine sand, reddish brown (5YR 4/4) moist; single grain; loose, many fine roots; weakly calcareous; moderately alkaline; gradual wavy boundary.

A12—7 to 15 inches; reddish brown (5YR 5/4) sandy loam, reddish brown (5YR 4/3) moist; weak medium subangular structure; soft, very friable; many fine roots; weakly calcareous; moderately alkaline; gradual wavy boundary.

B21—15 to 31 inches; reddish brown (5YR 5/4) sandy loam, reddish brown (5YR 4/4) moist; weak coarse prismatic structure; soft, very friable; many fine medium and coarse roots; few fine tubular pores; weakly calcareous; moderately alkaline; gradual wavy boundary.

B22a—31 to 46 inches; reddish brown (5YR 5/4) sandy loam, reddish brown (5YR 4/4) moist; weak coarse prismatic structure; soft, very friable; many fine and common medium and coarse roots; few fine irregular soft masses and threads of calcium carbonate; calcareous; moderately alkaline; abrupt to wavy boundary.

Bt—46 to 60 inches; reddish brown (5YR 5/4) clay loam, reddish brown (5YR 4/4) moist; moderate fine subangular blocky structure; hard, firm, very plastic; common fine and medium roots; common fine tubular pores; common thin clay films on ped faces; many fine soft threads of lime; calcareous; moderately alkaline.

The solum is 20 to 45 inches thick. The profile is noncalcareous to calcareous. Most pedons have buried horizons at a depth of 40 to 60 inches. The A horizon has hue of 5YR or 7.5YR, value 5 or 6 when dry and 4 or 5 when moist, and chroma of 3 or 4. The B horizon has hue of 2.5YR or 5YR, and it has value of 5 to 7 when dry and 4 to 6 when moist. It is sandy loam or loam. The C horizon is strongly calcareous in some pedons.

Karde series

The soils in the Karde series are classified as Ustic Torriorthents, fine-silty, carbonatic, mesic. These deep, well drained soils are on hills and low ridges on the leeward side of dry and intermittent lakes. The soils formed in silty eolian deposits. Slope is 1 to 5 percent. Mean annual precipitation is about 16 inches, and mean annual air temperature is about 50 degrees F.

Typical pedon of a Karde loam in an area of Karde-Vermejo association, gently sloping; about 30 miles east of Las Vegas in the NE1/4 of sec. 8, T. 16 N., R. 21 E.:

A1—0 to 6 inches; grayish brown (10YR 5/2) loam, dark grayish brown (10YR 4/2) moist; moderate fine granular structure; slightly hard, friable, slightly sticky and plastic; many fine and medium roots; calcareous; moderately alkaline; clear smooth boundary.

AC—6 to 17 inches; brown (10YR 5/3) clay loam, dark grayish brown (10YR 4/2) moist; moderate fine su-

ıd chroma of 2 or 3. The Bt horizon has when dry. It is stony silty clay loam or . In some pedons the rock fragments contact have thin deposits of calcium underside.

es

ə La Brier series are classified as Torrer- fine, mixed, mesic. These deep, well in swales. The soils formed in alluvium xed material. Slope is 0 to 3 percent. ecipitation is about 16 inches, and mean rature is about 50 degrees F.

of La Brier silty clay loam, 0 to 3 per- out 16 miles northeast of Las Vegas in 4 of sec. 33, T. 18 N., R. 18 E. (project-

es; grayish brown (10YR 5/2) silty clay dark grayish brown (10YR 3/2) moist; nedium granular structure; hard, firm, y and plastic; many fine roots; many fine ores; calcareous; moderately alkaline; h boundary.

hes; dark grayish brown (10YR 4/2) silty very dark grayish brown (10YR 3/2) ıg medium subangular blocky structure; iable, sticky and plastic; many fine roots; e and fine tubular pores; few thin clay ds; calcareous; moderately alkaline; clear ndary.

inches; grayish brown (10YR 5/2) clay, brown (10YR 2/2) moist; moderate smatic structure that parts to fine suban- ; hard, firm, sticky and very plastic; many dium roots; many medium tubular pores; n clay films on peds; calcareous; moder- e; clear smooth boundary.

inches; grayish brown (10YR 5/2) clay, ayish brown (10YR 3/2) moist; moderate ic structure that parts to fine subangular hard, firm, sticky and very plastic; many fine roots; many fine pores; common thick clay films on peds; moderately al- smooth boundary.

inches; brown (10YR 5/3) clay, dark R 3/3) moist; weak medium prismatic t parts to fine angular blocky; very hard, and very plastic; few coarse and many dium roots; few large and many fine and ular pores; continuous thin clay films on reous; moderately alkaline; clear wavy

inches; light brownish gray (10YR 6/2) grayish brown (10YR 4/2) moist; weak tic structure that parts to fine angular

ıted into fine soft masses; calcareous; lkaline.

horizons have hue of 2.5YR, 5YR, or or 6 when dry and 4 or 5 when moist, to 6. Thin strata are present in some file is silt loam, silty clay loam, or clay ıt in the 10- to 40-inch control section 0 percent.

ies

he La Lande series are classified as ids, fine-loamy, mixed, thermic. These d soils are on fans. The soils formed in and moderately fine textured alluvium dstone and shale. Slope is 3 to 8 per- al precipitation is about 14 inches, and temperature is about 60 degrees F. of a La Lande sandy loam in an area of a association, undulating; about 2 1/2 e Trementina School, in the NE1/4 of , R. 23, E.:

s; reddish brown (5YR 5/4) sandy loam, brown (5YR 3/4) moist; weak fine cture; soft, very friable; many fine and ts; many fine interstitial pores; calcare- tely alkaline; abrupt smooth boundary.
ches; reddish brown (5YR 5/4) loam, n (5YR 4/4) moist; weak coarse pris- ure; slightly hard, very friable, slightly mon fine and very fine roots; common pores; calcareous; moderately alkaline; boundary.
ches; reddish brown (5YR 5/4) sandy eddish brown (5YR 4/4) moist; weak atic structure; slightly hard, friable, plas- and medium roots; common fine and es; common fine filaments of calcium calcareous; moderately alkaline; clear dary.
ches; reddish brown (5YR 5/4) sandy ldish brown (5YR 4/4) moist; massive; plastic; very few fine roots; common ores; about 5 percent very fine gravel; ients and soft masses of lime; calcare- ely alkalne; gradual wavy boundary.
es; reddish brown (5YR 5/4) sandy clay h brown (5YR 4/4) moist; massive; slightly plastic; very few fine roots; tubular pores; very few fine filaments reous; moderately alkaline.

to 40 inches thick. The A horizon has R and value of 5 or 6 when dry and 3 or e B horizon has hue of 2.5YR, 5YR, or

oam in an area
g; about 5 miles
34, T. 33 N., R.

ine sandy loam,
uctureless; soft,
v fine hard lime
s; moderately al-

a thin layer of
cks.

is covered with
depth of 8 to 20
o 15 percent of
or 7.5YR, and it
when moist. It is

sified as Ustollic
ese moderately
s and fans. The
shale and lime-
nual precipitation
ir temperature is

area of Penrose-
20 miles east of
16 N., R. 19 E.

/ 5/2) clay, dark
moderate fine
lastic; many fine
stitial pores; cal-
smooth bound-

Y 5/2) clay, dark
oderate medium
hard, firm, very
ots; common fine
aces; calcareous;
oundary.
/ (2.5Y 6/2) clay,
st; weak medium
hard, firm, very
roots; common
e chips; calcare-
y boundary.
alcium carbonate

ale is at a depth
hue of 10YR or

n dry and 4 or 5 when moist, is sandy loam or loamy fine

o series are classified as Cu- ıy, mixed, mesic. These deep, fans, flood plains, and valley soils formed in mixed alluvial ercent. Mean annual precipita- ı mean annual air temperature

ano fine sandy loam, 1 to 3 ıiles north of Las Vegas in the R. 16 E. (projected):

rayish brown (10YR 4/2) fine k grayish brown (10YR 3/2) ıle; many fine and very fine ubular pores; mildly alkaline;

< grayish brown (10YR 4/2) sh brown (10YR 3/2) moist; ngular blocky structure; slight- y fine and very fine roots; fine tubular pores; moderately boundary.

rk grayish brown (10YR 4/2) sh brown (10YR 3/2) moist; matic structure that parts to ular blocky; slightly hard, fri- l very fine roots; common very derately alkaline; clear smooth

yish brown (10YR 5/2) loam, n (10YR 3/2) moist; moderate ucture that breaks to weak ocky; slightly hard, friable; few s; few very fine tubular pores; ear smooth boundary.

ırk grayish brown (10YR 4/2) vn (10YR 2/2) moist; weak ucture; slightly hard, friable, n fine tubular pores; common ients of lime; weakly calcare- e.

40 inches ranges from non- The dark-colored layers are . The A horizon has hue of of 4 or 5 when dry. It is fine loam. The B2 horizon to a e has hue of 7.5YR or 10YR w a depth of 20 inches the The B2 horizon to a depth of 2 or 3; below a depth of 20

pores; calcareous; moderately alkaline; abrupt smooth boundary.

B21—4 to 13 inches; reddish brown (5YR 5/4) clay, reddish brown (5YR 4/4) moist; weak coarse angular blocky structure; very hard, firm, sticky and plastic; many fine roots; common fine tubular pores; few cracks 1/2 to 1 inch wide; few pressure faces; calcareous; moderately alkaline; clear smooth boundary.

B22—13 to 24 inches; light reddish brown (5YR 5/4) clay, reddish brown (5YR 4/4) moist; moderate coarse subangular blocky structure; very hard, firm, sticky and very plastic; common fine roots; common fine tubular pores; few cracks 1/2 inch wide; few weakly expressed slickensides; few filaments of gypsum crystals; calcareous; moderately alkaline; clear smooth boundary.

C1ca—24 to 43 inches; reddish brown (5YR 5/3) clay, reddish brown (5YR 4/3) moist; massive; very hard, very firm, sticky and very plastic; few fine roots in the upper part; few slickensides and pressure faces; few gypsum crystals; calcareous; moderately alkaline; clear smooth boundary.

C2—43 to 60 inches; reddish brown (5YR 5/3) clay, reddish brown (5YR 4/3) moist; massive; very hard, very firm, sticky and very plastic; few slickensides; common pressure faces; slightly calcareous; moderately alkaline.

The solum is 13 to 34 inches thick. Cracks 1/2 to 1 inch wide extend to a depth of 20 inches or more. The A and B horizons have hue of 5YR or 2.5YR, value of 4 or 5 when dry and 3 or 4 when moist, and chroma of 3 to 6. The B horizon is clay or clay loam and is 35 to 60 percent clay. In the lower part it has few if any accumulations of carbonate and gypsum. The C horizon has hue of 5YR or 2.5YR. It is clay or heavy clay loam It is less than 15 percent calcium carbonate equivalent. The C horizon has few if any accumulations of gypsum or soluble salts.

Moreno series

The soils in the Moreno series are classified as Typic Argiborolls, fine, mixed. These deep, well drained soils are on fans and valley sides. The soils formed in fine textured alluvium derived from sandstone and shale. Slope is 3 to 9 percent. Mean annual precipitation is about 20 inches, and mean annual air temperature is about 45 degrees F.

Typical pedon of a Moreno loam in an area of Moreno-Brycan association, sloping; about 10 miles northwest of Sapello, in the SE1/4 of sec. 16, T. 19 N., R. 15 E. (projected):

A1—0 to 4 inches; dark grayish brown (10YR 4/2) loam, very dark grayish brown (10YR 3/2) moist; moderate

A1—0 to 4 inches; reddish brown (5YR 5/4) sandy loam, reddish brown (5YR 4/4) moist; moderate fine granular structure; soft, very friable; many fine and very fine roots; many fine interstitial pores; neutral; abrupt smooth boundary.

B2t—4 to 13 inches; reddish brown (5YR 4/4) sandy clay loam, dark reddish brown (5YR 3/4) moist; weak coarse prismatic structure that parts to medium subangular blocky; slightly hard, friable, slightly plastic; many fine and very fine roots; common fine tubular pores; few thin clay films on peds and in pores; about 5 percent gravel; moderately alkaline; abrupt wavy boundary.

R—13 inches; calcareous sandstone that is fractured in the upper 5 inches; thin carbonate accumulation on upper surfaces and in fractures.

The thickness of the solum and the depth to sandstone range from 8 to 20 inches. The solum is 0 to 15 percent coarse fragments. Most pedons are leached, but some pedons are calcareous in the lower part of the B2t horizon. The A horizon has hue of 5YR or 7.5YR, value of 3 to 5 when dry and 3 or 4 when moist, and chroma of 2 to 4. It is sandy loam or fine sandy loam. The B2t horizon has hue of 5YR or 7.5YR, value of 4 or 5 when dry and 3 or 4 when moist, and chroma of 3 or 4. It is sandy clay loam or clay loam.

Partri series

The soils in the Partri series are classified as Aridic Argiustolls, fine, mixed, mesic. These deep, well drained soils are on level to undulating uplands. The soils formed in mixed alluvium derived from limestone and sandstone and in wind-worked calcareous sediment. Slope is 0 to 5 percent. Mean annual precipitation is about 16 inches, and mean annual air temperature is about 50 degrees F.

Typical pedon of Partri loam, undulating; about 24 miles east of Las Vegas on Maes Road, 2,400 feet north and 50 feet west of the southeast corner of sec. 17, T. 16 N., R. 20 E. (projected):

A1—0 to 4 inches; dark grayish brown (10YR 4/2) loam, very dark grayish brown (10YR 3/2) moist; moderate coarse granular structure; slightly hard, friable, slightly sticky; many fine and very fine roots, many fine tubular pores; neutral; abrupt smooth boundary.

B21t—4 to 17 inches; brown (7.5YR 5/2) clay, dark brown (7.5YR 3/2) moist; strong medium angular blocky structure; very hard, firm, slightly sticky and very plastic; common very fine roots; common fine tubular pores; continuous thick clay films on peds; mildly alkaline; abrupt smooth boundary.

B22t—17 to 25 inches; brown (7.5YR 5/4) silty clay loam, dark brown (7.5YR 4/4) moist; moderate medium prismatic structure; very hard, firm, slightly sticky and plastic; common very fine roots; common

subangular blocky stucture; slightly hard, firm, slightly sticky and plastic; many fine and very fine roots; common fine tubular pores; 10 to 15 percent fine limestone fragments; weakly calcareous; moderately alkaline; abrupt smooth boundary.

R—14 inches; hard limestone that is fractured; calcium carbonate coatings are on the bottom of fragments.

Depth to limestone is 10 to 20 inches. The profile is weakly calcareous to strongly calcareous. The A and C horizons have hue of 2.5Y or 10YR, value of 5 or 6 when dry and 3 or 4 when moist, and chroma of 2 or 3. The A horizon is channery silt loam or channery loam and is 15 to 20 percent channery limestone fragments. The C horizon is clay loam or loam and is 10 to 25 percent channery limestone fragments.

Quay series

The soils in the Quay series are classified as Ustochreptic Calciorthids, fine-silty, mixed, thermic. These deep, well drained soils are on fans and uplands. The soils formed in medium textured and fine textured alluvium. Slope is 0 to 5 percent. Mean annual precipitation is about 14 inches, and mean annual air temperature is about 60 degrees F.

Typical pedon of a Quay loam in an area of Redona-Quay association, undulating; about 10 miles east of the junction of U. S. Highway 84 and the south boundary of San Miguel County, in the SE1/4 of sec. 17, T. 12 N., R. 21 E. (projected):

A1—0 to 2 inches; light brown (7.5YR 6/4) loam, brown (7.5YR 5/4) moist; weak medium platy structure; soft, very friable, slightly sticky and slightly plastic; many fine roots; few fine tubular pores; calcareous; moderately alkaline; clear smooth boundary.

A3—2 to 6 inches; light brown (7.5YR 6/4) loam, brown (7.5YR 5/4) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many fine roots; few coarse tubular pores; calcareous; moderately alkaline; clear smooth boundary.

B21—6 to 11 inches; reddish brown (5YR 5/4) clay loam, reddish brown (5YR 4/4) moist; weak coarse prismatic structure; slightly hard, friable, slightly sticky and slightly plastic; common fine roots; many fine tubular pores; calcareous; moderately alkaline; clear smooth boundary.

B22—11 to 16 inches; pink (5YR 7/3) clay loam, light reddish brown (5YR 6/3) moist; weak coarse prismatic structure; hard, firm, slightly sticky and slightly plastic; few fine roots; very few very fine tubular pores; lime segregated into large irregular soft masses; calcareous; moderately alkaline; abrupt smooth boundary.

B3ca—16 to 26 inches; pinkish white (7.5YR 8/2) silty clay loam, pinkish gray (7.5YR 6/2) moist; weak medium subangular blocky structure; hard, friable, firm, slightly sticky and slightly plastic; few fine roots; few fine tubular pores; about 50 percent calcium carbonate equivalent; calcareous; moderately alkaline; clear wavy boundary.

C1ca—26 to 40 inches; pink (7.5YR 8/4) silty clay loam, brown (7.5YR 5/4) moist; massive; hard, firm, slightly sticky and slightly plastic; few fine and very fine roots; few very fine pores; lime segregated into large hard masses; about 30 percent calcium carbonate equivalent; calcareous; moderately alkaline; clear and wavy boundary.

C2ca—40 to 60 inches; light brown (7.5YR 6/4) clay loam, brown (7.5YR 4/4) moist; massive; very hard, very firm, slightly sticky and slightly plastic; very few fine roots; calcareous; moderately alkaline.

The solum is 21 to 30 inches thick. The calcic horizon is at a depth of 16 to 30 inches. Some pedons have sandstone at a depth of 40 to 60 inches. The A horizon has hue of 5YR or 7.5YR, value of 5 or 6 when dry and 3 or 4 when moist, and chroma of 3 or 4. The B horizon has hue of 2.5YR or 5YR, value of 5 to 7 when dry and 4 to 6 when moist, and chroma of 3 or 4. Some pedons have dry value of 8 in the lower part of the B horizon. The calcic horizon is 15 to 30 percent calcium carbonate equivalent.

Quintana series

The soils in the Quintana series are classified as Typic Ustochrepts, fine-loamy, mixed, mesic. These deep, well drained soils are on uplands. The soils formed in material derived from limestone, calcareous sandstone, and shale. Slope is 0 to 15 percent. Mean annual precipitation is about 18 inches, and mean annual air temperature is about 52 degrees F.

Typical pedon of Quintana gravelly loam, moderately sloping; 1.25 miles southeast of Quintana Spring on Forest Service Road 45, in the NE1/4 of sec. 7, T. 12 N., R. 16 E.:

A11—0 to 2 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 4/3) moist; weak fine platy structure parting to weak fine granular; soft, friable, nonsticky and nonplastic; many very fine and fine roots; many very fine and fine interstitial pores; 50 percent gravel; mildly alkaline; abrupt smooth boundary.

A12—2 to 6 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; soft, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine and fine tubular pores; mildly alkaline; clear smooth boundary.

B2—6 to 13 inches; light yellowish brown (10YR 6/4) clay loam, dark yellowish brown (10YR 4/4) moist; weak fine and medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common very fine and fine roots, few medium roots; common very fine tubular pores; calcareous; mildly alkaline; clear smooth boundary.

B3ca—13 to 19 inches; light yellowish brown (10YR 6/4) clay loam, yellowish brown (10YR 5/4) moist; moderate medium subangular blocky structure, slightly hard, firm, slightly sticky and slightly plastic; common very fine and fine roots; common very fine and fine tubular pores; 5 percent gravel; calcareous; moderately alkaline; clear wavy boundary.

C1ca—19 to 33 inches; very pale brown (10YR 7/3) sandy clay loam, yellowish brown (10YR 5/4) moist; moderate medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; few very fine and fine roots; many very fine tubular pores; 10 percent gravel; calcareous; moderately alkaline; gradual wavy boundary.

C2—33 to 41 inches; very pale brown (10YR 7/4) sandy loam, light yellowish brown (10YR 6/4) moist; moderate medium subangular blocky structure; soft, very friable; few very fine and fine roots; common very fine and fine interstitial pores; 10 percent gravel; calcareous; moderately alkaline; gradual wavy boundary.

C3—41 to 60 inches; yellow (10YR 8/6) very gravelly sandy loam; very pale brown (10YR 8/4) moist; moderate medium subangular blocky structure; soft, very friable; common very fine and fine interstitial pores; 50 percent gravel; calcareous; moderately alkaline.

In some pedons the A horizon is calcareous. Depth to the calcic horizon ranges from 19 to 40 inches. The A horizon has hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 2 to 4. It is loam or gravelly loam. The B horizon has hue of 10YR to 5YR, value of 4 to 8, and chroma of 2 to 4. The C horizon has value of 7 or 8 and chroma of 2 to 4. It is sandy clay loam or sandy loam.

Redona series

The soils in the Redona series are classified as Ustollic Haplargids, fine-loamy, mixed, thermic. These deep, well drained soils are on fans and upland plains. The soils formed in medium textured to moderately fine textured material derived from sandstone and shale. Slope is 0 to 5 percent. Mean annual precipitation is about 14 inches, and mean annual air temperature is about 60 degrees F.

Typical pedon of a Redona loam in an area of Redona-Quay association, undulating; about 25 miles southwest of Mosquero, in the SW1/4 of sec. 19, T. 16 N., R. 24 E.:

A1—0 to 5 inches; reddish brown (5YR 5/4) loam, dark reddish brown (5YR 3/4) moist; moderate fine granular structure; soft, friable, slightly plastic; many fine and very fine roots; many fine pores; neutral; clear smooth boundary.

B21t—5 to 10 inches; reddish brown (5YR 4/4) light clay loam, dark reddish brown (5YR 3/4) moist; weak coarse prismatic structure that parts to moderate fine subangular blocky; hard, friable, slightly sticky and plastic; many fine and very fine roots; common fine and very fine tubular pores; few thin clay film on peds and in pores; mildly alkaline; clear smooth boundary.

B22t—10 to 21 inches; reddish brown (5YR 5/4) clay loam, reddish brown (5YR 4/4) moist; moderate coarse prismatic structure that parts to medium subangular blocky; hard, friable, slightly sticky and plastic; common fine and very fine roots; common fine tubular pores; common thin clay films on peds and in pores; calcareous; moderately alkaline; clear smooth boundary.

B23t—21 to 31 inches; reddish brown (5YR 5/4) clay loam, reddish brown (5YR 4/4) moist; moderate coarse prismatic structure that parts to medium subangular blocky; hard, friable, slightly sticky and plastic; few fine and very fine roots; common fine tubular pores; common thin clay film on peds and in pores; lime segregated into few fine filaments; calcareous; moderately alkaline; clear wavy boundary.

B3ca—31 to 37 inches; light reddish brown (5YR 6/4) clay loam, reddish brown (5YR 5/4) moist; weak coarse prismatic structure; hard, friable, slightly sticky and slightly plastic; very few very fine roots; common fine and very fine tubular pores; about 20 percent calcium carbonate equivalent; lime segregated into common medium hard concretions; calcareous; moderately alkaline; clear wavy boundary.

C1ca—37 to 60 inches; reddish brown (5YR 5/4) sandy clay loam, reddish brown (5YR 4/4) moist; massive; slightly hard, friable, slightly sticky and plastic; few fine tubular pores; lime segregated into many very fine soft masses; calcareous; moderately alkaline.

The solum is 36 to 60 inches thick. The calcic horizon is at a depth of 23 to 38 inches. Some pedons are calcareous to the surface. The A1 horizon has hue of 5YR or 7.5YR, value of 4 or 5 when dry and 3 or 4 when moist, and chroma of 3 or 4. Layers that have value of 5 when dry and 3 when moist and chroma of 3 are too thin or too low in organic matter to meet the requirements of a mollic epipedon. The B2t horizon has hue of 2.5YR, 5YR, or 7.5YR, value of 4 to 6 when dry and 3 to 5 when moist, and chroma of 4 or 5. It is clay loam or silty clay loam. The lower part of the Bt horizon is 15 to 30 percent calcium carbonate equivalent.

Ribera series

The soils in the Ribera series are classified as Typic Haplustalfs, fine-loamy, mixed, mesic. These deep, well drained soils are on uplands and fans. The soils formed in eolian and alluvial deposits derived from sandstone and shale. Slope is 3 to 9 percent. Mean annual precipitation is about 18 inches, and mean annual air temperature is about 50 degrees F.

Typical pedon of a Ribera fine sandy loam in an area of Vibo-Ribera association, undulating; about 30 miles southwest of Las Vegas, in the SW1/4 of sec. 33, T. 15 N., R. 13 E.:

A1—0 to 5 inches; brown (7.5YR 5/4) fine sandy loam, dark brown (7.5YR 4/4) moist; weak fine granular structure; loose, very friable; many fine and very fine roots; neutral; clear smooth boundary.

B1—5 to 9 inches; brown (7.5YR 5/4) loam, dark brown (7.5YR 4/4) moist; moderate medium subangular blocky structure; very hard, friable, slightly sticky and slightly plastic; many fine roots; many fine tubular pores; neutral; clear smooth boundary.

B21t—9 to 17 inches; brown (7.5YR 5/4) clay loam, dark brown (7.5YR 4/4) moist; moderate coarse prismatic structure; very hard, firm, sticky and plastic; common fine and medium roots; many fine and common medium pores; few thin clay films on peds and in pores; mildly alkaline; clear wavy boundary.

B22t—17 to 26 inches; brown (7.5YR 5/4) clay loam, dark brown (7.5YR 4/4) moist; moderate coarse prismatic structure; very hard, firm, slightly sticky and plastic; few fine and common medium roots; many fine and common medium tubular pores; few thin clay films on peds and in pores; carbonates segregated into fine discontinuous filaments; calcareous; moderately alkaline; clear wavy boundary.

Cca—26 to 31 inches; light brown (7.5YR 6/4) loam, brown (7.5YR 5/4) moist; massive; slightly hard, friable, slightly plastic; very few fine roots; strongly calcareous; carbonates segregated into common fine filaments; moderately alkaline; abrupt wavy boundary.

R—31 inches; sandstone; lime deposits on surface and in cracks.

The solum is 21 to 31 inches thick. Bedrock is at a depth of 20 to 40 inches. The A horizon has hue of 2.5YR, 5YR, or 7.5YR, value of 4 or 5 when dry and 3 to 5 when moist, and chroma of 3 to 5. It is fine sandy loam or loam. The B2t horizon has hue of 2.5YR, 5YR, or 7.5YR, value of 4 to 6 when dry and 3 or 4 when moist, and chroma of 4 to 6. It is clay loam or sandy clay loam. The lower part of the B2t horizon is noncalcareous to calcareous. The Cca horizon has hue of 2.5YR, 5YR, or 7.5YR; value of 5 to 7 when dry and 4 to 6 when moist; and chroma of 4 to 6. It is sandy loam or loam.

sandy clay. In some pedons there is a C

series

the San Jose series are classified as Ustic coarse-loamy, mixed (calcareous), thermic. well drained soils are on terraces, benches, ns. The soils formed in moderately coarse areous alluvial deposits derived from mixed e is 0 to 3 percent. Mean annual precipita- 5 inches, and mean annual air temperature egrees F.

lon of San Jose fine sandy loam, 0 to 3 s, in an area of Lacita-San Jose associ- loping; about 10 miles north of Tucumcari, of sec. 19, T. 13 N., R. 20 E. (projected):

nches; brown (7.5YR 5/4) fine sandy loam, n (7.5YR 4/4) moist; weak medium granu- ure; loose, very friable; few fine roots; calcareous; moderately alkaline; gradual oundary.

2 inches; brown (7.5YR 5/4) fine sandy k brown (7.5YR 4/4) moist; weak coarse ar blocky structure; soft, very friable; few ; weakly calcareous; moderately alkaliine; oth boundary.

1 inches; brown (7.5YR 5/4) fine sandy k brown (7.5YR 4/4) moist; massive; soft, le; few fine roots; weakly calcareous; mod- kaline; clear smooth boundary.

inches; brown (7.5YR 5/4) stratified fine m and silt loam, dark brown (7.5YR 4/4) assive; soft, very friable; few fine roots; lcareous; moderately alkaline.

is weakly calcareous throughout. Depth to s is 30 to 50 inches. The A horizon has 7.5YR, value of 4 or 5 when dry and 3 or and chroma of 4 or 5. The C horizon has r 7.5YR and value of 4 or 5 when dry or tratified fine sandy loam, sandy loam, or m and has layers of silt loam.

o series

the Sombordoro series are classified as alfs, clayey-skeletal, mixed, mesic. These well drained soils are on uplands. The soils erial derived from sandstone. Slope is 0 to Mean annual precipitation is about 16 ean annual air temperature is about 50

n of a Sombordoro very stony fine sandy a of Ribera-Sombordoro-Vibo association,

le brown (10YR 6/3) cobbly sandy
rown (10YR 5/4) moist; moderate
cture; soft, friable; many fine and
roots; many fine interstitial pores;
gravel; slightly acid; abrupt wavy

posing, coarse grained sandstone.

th of 6 to 20 inches. The profile is
fragments that are gravel to cob-
rizon has value of 5 or 6 when dry
t, and it has chroma of 2 or 3. It is
r cobbly fine sandy loam. The C
5YR or 10YR, value of 5 to 7 when
moist, and chroma of 3 to 7. Some
rizon of decomposing forest litter 1

astika series are classified as Aridic
d, mesic. These deep, well drained
The soils formed in fine textured
m shale. Slope is 0 to 5 percent.
ation is about 16 inches, and mean
e is about 50 degrees F.
wastika silt loam, undulating; about
as Vegas, in the NW1/4 of sec. 32,
jected):

lark grayish brown (10YR 4/2) silt
grayish brown (10YR 3/2) moist;
gular blocky structure; soft, friable,
any fine and very fine roots; many
es; mildly alkaline; abrupt smooth

brown (10YR 4/3) silt loam, dark
3) moist; weak medium subangular
slightly hard; friable, slightly plastic;
ery fine roots; common fine tubular
line; clear smooth boundary.
brown (10YR 4/3) clay loam, dark
) moist; moderate medium prismat-
hard, friable, plastic; common fine
ots; common fine tubular pores;
films on peds and in pores; mod-
lear smooth boundary.
es; brown (10YR 5/3) clay, brown
t; weak coarse prismatic structure
derate medium subangular blocky;
lastic and slightly sticky; common
roots; common fine tubular pores;
film on peds and in pores; weakly
derately alkaline; clear smooth

ches; yellowish brown (10YR 5/4)
sh brown (10YR 4/4) moist; moder-

part; mildly alka-

7.5YR 6/4) loam, coarse subangular slightly plastic; ubular pores; few calcic fragments; lkaline; clear wavy

8/4) very gravelly ssive; hard, friable; el and cobble frag- ately alkaline.

h to calcic gravel The solum is less A and B2t horizons ns downslope from ughout the solum. YR, value of 4 or 5 he B1 horizon has 3, and chroma of 4 horizon has hue of nen dry. It is sandy orizon has hue of hroma of 2 to 4. It It is more than 15 horizon is gravelly material between s slightly cemented

classified as Aridic deep, well drained ed in alluvium de- pe is 0 to 15 per- out 16 inches, and ut 52 degrees F. ately sloping; about 4 of sec. 8, T. 12

) loam, dark brown aty structure; soft, plastic; many very erstitial pores; neu-

6/3) loam, brown medium granular sticky and slightly roots; many fine both boundary.
YR 4/6) clay loam, moist; strong fine d, firm, sticky and

ongly calcareous;
ary.
(7.5YR 6/4) very
5/4) moist; mas-
alcareous, weakly
his horizon; about
clear wavy bound-

5/4) very gravelly
4/4) moist; single
70 percent gravel
moderately alka-

Rock fragments,
ked origin. The A
ments. The B2ca
nt rock fragments.
10YR, value of 5
and chroma of 2
/R or 10YR, value
noist, and chroma
oam, gravelly clay
orizon has hue of
n dry and 4 to 6
It is sandy loam,
75 percent coarse
esent, has hue of
8 when dry and 4
. It is sand, loamy
5 percent coarse

assified as Petro-
These moderately
ly level to gently
ned in mixed allu-
ain by petrocalcic
nnual precipitation
air temperature is

m in an area of
about 21 miles
ec. 8, T. 16 N., R.

/R 5/2) silt loam,
) moist; weak fine
ery friable, slightly
n fine roots; neu-

R 4/3) clay loam,
eak fine prismatic
ular blocky; hard,
y fine roots; few

s; reddish brown (5YR 5/4) silty
(5YR 4/4) moist; weak coarse
hat parts to medium subangular
irm, sticky and plastic; few fine
tubular pores; few thin clay films
pores; few irregular soft lime
s; moderately alkaline; clear

; reddish brown (5YR 5/4) silty
brown (5YR 4/4) moist; weak
blocky structure; very hard, firm,
ne roots; common fine tubular
gular soft lime masses; calcare-
aline; gradual smooth boundary.
ddish brown (5YR 5/4) silty clay
h (5YR 4/4) moist; massive; very
; few fine irregular soft lime
; moderately alkaline.

55 inches thick. The A1 horizon
YR and value of 4 or 5 when dry
n has hue of 2.5YR or 5YR and
ry or moist. It is heavy silty clay
lay, or clay. The C horizon has
is silty clay loam, clay loam, silty

so series are classified as Lithic
letal, mixed, mesic. These shal-
re on uplands, ridges, and small
lls. The soils formed in material
. Slope is 1 to 35 percent. Mean
out 17 inches, and mean annual
52 degrees F.

Tuloso stony sandy loam in an
crop-Sombordoro complex, mod-
0 miles northeast of Las Vegas,
, T. 17 N., R. 22 E.:

brown (7.5YR 6/4) stony sandy
R 4/4) moist; weak thin platy
y friable; many fine and very fine
tubular pores; 15 percent gravel
clear smooth boundary.

lowish red (5YR 5/6) very stony
n (5YR 4/4) moist; weak coarse
structure; slightly hard, very fri-
; common very fine and many
medium and coarse roots; few
60 percent gravel, cobbles, and
pt wavy boundary.

stone.

solum and the depth to bedrock
hes. Sandstone rock fragments

nt of the profile. The A
YR, value of 4 to 6 when
chroma of 3 or 4. The B
YR, value of 4 or 5 when
d chroma of 4 to 6. It is
am, very stony fine sandy
me pedons have a thin
urface of the sandstone

es are classified as Ustic
lcareous), mesic. These
soils are on fans and
and lakebeds. The soils
ium derived from shale.
n annual precipitation is
annual air temperature is

ty clay loam, 0 to 3 per-
rth of Las Vegas, in the
17 E. (projected):

own (2.5Y 5/2) silty clay
brown (2.5Y 3/2) moist;
ructure; hard, firm, sticky
and very fine roots; few
areous; moderately alka-
ry.
own (2.5Y 5/2) clay, dark
moist; weak medium pris-
o weak medium subangu-
firm, sticky and very plas-
e interstitial pores; calcar-
abrupt smooth boundary.
own (2.5Y 5/2) clay, dark
moist; weak coarse pris-
to medium subangular
n, sticky and very plastic;
e tubular pores; few pres-
ellia and crystals of salt;
kaline; clear wavy bound-

own (2.5Y 5/2) clay, dark
moist; massive; very hard,
lastic; few fine roots; few
of salt; strongly calcare-

is 0 to 24 inches. The A
5Y, value of 4 or 5 when
hroma of 2 or 3. The C
5Y, value of 4 to 5 when
s silty clay or clay. Some
large and medium, soft

Vibo series

The soils in the Vibo series are classified as Typic Haplustalfs, fine-loamy, mixed, mesic. These deep, well drained soils are on uplands, fans, and valley sides. The soils formed in eolian sediment and local alluvium. Slope is 1 to 5 percent. Mean annual precipitation is about 18 inches, and mean annual air temperature is about 50 degrees F.

Typical pedon of a Vibo fine sandy loam in an area of Vibo-Ribera association, undulating; about 30 miles southwest of Las Vegas, in the southeast corner of sec. 21 T. 12 N., R. 14 E.:

A1—0 to 8 inches; brown (7.5YR 5/4) fine sandy loam, dark brown (7.5YR 4/4) moist; weak very fine granular structure; soft, friable; many fine and very fine roots; many very fine interstitial pores; neutral; clear smooth boundary.

B21t—8 to 13 inches; reddish brown (5YR 5/4) sandy clay loam, reddish brown (5YR 4/4) moist; moderate to medium subangular blocky structure; hard, friable, slightly plastic; many fine and common medium roots; many fine and few medium tubular pores; few thin clay films on peds and in pores; mildly alkaline; clear smooth boundary.

B22t—13 to 24 inches; reddish brown (5YR 5/4) sandy clay loam, reddish brown (5YR 4/4) moist; moderate coarse prismatic structure that easily parts to medium subangular blocky; very hard, firm, slightly plastic; common fine and medium and few coarse roots; common fine and medium tubular pores; few thin clay films on peds and in pores; mildly alkaline; clear wavy boundary.

C1—24 to 34 inches; light reddish brown (5YR 6/4) sandy loam, reddish brown (5YR 5/4) moist; massive; very hard, friable; common fine and few medium and coarse roots; few very fine tubular pores; carbonates segregated into few fine filaments; calcareous; mildly alkaline; clear wavy boundary.

C2ca—34 to 60 inches; pink (5YR 7/4) loam, light reddish brown (5YR 6/4) moist; massive; very hard, firm; very few fine roots; few very fine tubular pores; carbonates segregated into common fine filaments; strongly calcareous; moderately alkaline.

Some pedons are calcareous in the lower part of the solum. The A horizon has hue of 5YR or 7.5YR, value of 4 or 5, and chroma of 4. It is fine sandy loam or sandy loam. The B2t horizon has hue of 5YR or 7.5YR and value of 4 to 6 when dry or moist. It is loam, sandy clay loam, clay loam, or silty clay loam and is 18 to 30 percent clay. The C1 horizon has hue of 5YR or 7.5YR and value of 5 or 6 when dry or moist. It is loam or sandy loam. The Cca horizon has hue of 5YR or 7.5YR and value of 6 or 7 when moist or dry. It is less than 15

percent calcium carbonate equivalent. It is sandy loam, loam, or fine sandy loam.

Walkon series

The soils in the Walkon series are classified as Ustollic Haplargids, fine-loamy, mixed, thermic. These moderately deep, well drained soils are on uplands. The soils formed in sediment eroded from sandstone and shale. Slope is 1 to 7 percent. Mean annual precipitation is about 14 inches, and mean annual air temperature is about 60 degrees F.

Typical pedon of a Walkon fine sandy loam in an area of Newkirk-Walkon-Conchas association, undulating; about 1.5 miles east of the Trementina School, in the NW1/4 of sec. 11, T. 14 N., R. 23 E.:

A1—0 to 4 inches; reddish brown (5YR 5/4) fine sandy loam, dark reddish brown (5YR 3/4) moist; moderate fine granular structure; soft, very friable; many fine and very fine roots; many fine interstitial pores; neutral; abrupt smooth boundary.

B21t—4 to 10 inches; reddish brown (5YR 4/4) clay loam, dark reddish brown (5YR 3/4) moist; moderate medium subangular blocky structure; hard, friable, slightly sticky and plastic; many fine roots; common fine tubular pores; common thin clay films on peds and in pores; neutral; abrupt wavy boundary.

B22t—10 to 24 inches; reddish brown (5YR 5/4) clay loam, reddish brown (5YR 4/4) moist; moderate coarse prismatic structure that parts to medium subangular blocky; very hard, firm, slightly sticky and plastic; few fine roots; many very fine and common fine tubular pores; many thin clay films on peds and in pores; mildly alkaline; abrupt wavy boundary.

Cca—24 to 31 inches; light reddish brown (5YR 6/4) silt loam, reddish brown (5YR 5/4) moist; massive; very hard, friable, slightly sticky and slightly plastic; few fine roots; many fine tubular pores; carbonates disseminated; strongly calcareous; moderately alkaline; abrupt smooth boundary.

R—31 inches; red sandstone.

Bedrock is at a depth of 20 to 40 inches. The profile is 0 to 10 percent rock fragments.

The A horizon has hue of 5YR or 7.5YR, and it has value of 4 to 6 when dry and 3 or 4 when moist. The B horizon has hue of 2.5YR or 5YR, and it has value of 4 to 6 when dry and 3 or 4 when moist. It is clay loam, silty clay loam, or sandy clay loam. The C horizon where present, has hue of 2.5YR, 5YR, or 7.5YR, and it has value of 5 to 7 when dry and 3 to 5 when moist.

Factors of soil formation

Soil is the collection of natural bodies on the surface of landscapes that is capable of supporting plants when air, water, and light are present in the kind and amount needed to promote plant growth. At any point on the landscape the soil has characteristics that are the result of the five factors of soil formation: (1) parent material modified by (2) climate and (3) plant and animal life as they are affected by (4) topography and (5) time. These five factors are so closely interrelated that generalizations regarding the effect of any one are difficult to make. In the San Miguel County Area, all of these factors vary greatly.

This section discusses the major factors of soil formation as they are interrelated in the San Miguel County Area (*6*). Each factor is discussed separately so that some of the variability in soils and landscapes can be explained.

Parent material

Parent material of most of the soils in the San Miguel County Area is material that formed by weathering of rock. Rock becomes soil through the action of the other four factors of soil formation on it. The various kinds of rock become soil at different rates, and at any time the soil may have different characteristics. The kinds of rock, or parent material, in the San Miguel County Area can be related to geologic periods (*3*). The oldest rock in the area belongs to the Pennsylvanian Period. The rock of this period is around the edge of the Sangre de Cristo Mountains and is mostly gray limestone and brown shale. The principal soils derived from this rock are in the Dargol, Kiln, Rocio, and Stout series.

The southwestern part of the area is dominated by younger rock of the Permian Period. It consists mostly of sandstone and shale with some thin layers of gypsum and limestone. The soils derived from these rocks include those in the Andok, Ribera, Tapia, and Vibo series.

A large part of the erosional valleys of the Conchas and Canadian Rivers is exposed red sandstone and shale of the Triassic Period and of the younger Jurassic Period. Similar material was deposited during these two periods, and it is difficult to determine which is the parent material of most of the soils in the area. Soils derived from the rocks of these two periods include those of the Conchas, Latom, Newkirk, and Walkon series. Most of the deep soils in the eastern part of the area are deposits eroded from these formations. Among these soils are those of the Montoya, Quay, Redona, and Tucumcari series.

The soils on the high plateau in the central part of the survey area are underlain by sandstone, shale, and limestone of the Cretaceous Period. These rocks are younger than the Jurassic red beds of the Conchas and Canadian River Valleys. Red Dakota sandstone under-

of the products of weathered rock material to matter. Both plants and animals mix the surface subsurface layers to some extent. Their residue pro- weathering of minerals and enhances the soil processes.

graphy

graphy is one of the more visible factors in soil on. The degree and length of slope determine the runoff and the hazard of erosion. The aspect, or n of slope, often modifies the climate of an area North-facing slopes are cooler than south-facing Very steep north-facing slopes receive much less t than do more gently sloping south-facing slopes. apes that have varied topography have a greater of soils than do landscapes that have smooth aphy.

processes of soil formation are slow. Soils that een in place a long time show greater develop- f definite soil horizons than do other soils that lerived from the same parent material and were to the same soil-forming factors but that have place for only a short time.

rences

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Glossary

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Association, soil. A group of soils geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as—

	Inches
Very low	3.5
Low	3.5-5.0
Moderate	5.0-7.5
High	7.5-10
Very high	10

Badland. Steep or very steep, commonly nonstony barren land dissected by many intermittent drainage channels. Badland is most common in semiarid and arid regions where streams are entrenched in soft geologic material. Local relief generally ranges from 25 to 500 feet. Runoff potential is very high, and geologic erosion is active.

Base saturation. The degree to which material having base exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, K), expressed as a percentage of the exchange capacity.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bottom land. The normal flood plain of a stream, subject to frequent flooding.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Calcareous soil. A soil containing enough calcium carbonate (commonly with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Caliche. A more or less cemented deposit of calcium carbonate in soils of warm-temperate, subhumid to arid areas. Caliche occurs as soft, thin layers in the soil or as hard, thick beds just beneath the solum, or it is exposed at the surface by erosion.

Channery soil. A soil that is, by volume, more than 15 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches along the longest axis. A single piece is called a fragment.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coat, clay skin.

Coarse fragments. Mineral or rock particles as much as 3 inches (2 millimeters to 7.5 centimeters) (10 inches) in diameter.

Coarse textured (light textured) soil. Sand or loamy sand.

Cobblestone (or cobble). A rounded or partly rounded fragment of rock 3 to 10 inches (7.5 to 25 centimeters) in diameter.

Colluvium. Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the bases of steep slopes.

Complex slope. Irregular or variable slope. Planning or constructing terraces, diversions, and other water-control measures is difficult.

Complex, soil. A map unit of two or more kinds of soil occurring in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils are somewhat similar in all areas.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the sur-

ן soil. Calcium carbonate and iron oxide are
ı compounds in concretions.
ɜ, soil. The feel of the soil and the ease with
lump can be crushed by the fingers. Terms
ıly used to describe consistence are—
–Noncoherent when dry or moist; does not
ıether in a mass.
—When moist, crushes easily under gentle
ɜ between thumb and forefinger and can be
l together into a lump.
When moist, crushes under moderate pres-
tween thumb and forefinger, but resistance is
y noticeable.
—When wet, readily deformed by moderate
e but can be pressed into a lump; will form a
when rolled between thumb and forefinger.
–When wet, adheres to other material and
ɔ stretch somewhat and pull apart rather than
ree from other material.
When dry, moderately resistant to pressure;
broken with difficulty between thumb and
ıer.
When dry, breaks into powder or individual
ınder very slight pressure.
ted.—Hard; little affected by moistening.
ction. The part of the soil on which classifica-
based. The thickness varies among different
ɔf soil, but for many it is that part of the soil
between depths of 10 inches and 40 or 80

ırazing. Postponing grazing or arresting graz-
a prescribed period.
ock. Bedrock is too near the surface for the
ɜd use.
ɔlass (natural). Refers to the frequency and
n of periods of saturation or partial saturation
soil formation, as opposed to altered drain-
hich is commonly the result of artificial drain-
irrigation but may be caused by the sudden
ıing of channels or the blocking of drainage
. Seven classes of natural soil drainage are
ıized:
ɜively drained.—Water is removed from the
ry rapidly. Excessively drained soils are com-
very coarse textured, rocky, or shallow. Some
ɜep. All are free of the mottling related to
ɜs.
vhat excessively drained.—Water is removed
he soil rapidly. Many somewhat excessively
ɜ soils are sandy and rapidly pervious. Some
allow. Some are so steep that much of the
they receive is lost as runoff. All are free of
ɔttling related to wetness.
rained.—Water is removed from the soil readi-
not rapidly. It is available to plants throughout
ɔf the growing season, and wetness does not
growth of roots for significant periods during most growing seasons. Well drained soils are commonly medium textured. They are mainly free of mottling.

Moderately well drained.—Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season, but periodically for long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solum, or periodically receive high rainfall, or both.

Somewhat poorly drained.—Water is removed slowly enough that the soil is wet for significant periods during the growing season. Wetness markedly restricts the growth of mesophytic crops unless artificial drainage is provided. Somewhat poorly drained soils commonly have a slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall, or a combination of these.

Poorly drained.—Water is removed so slowly that the soil is saturated periodically during the growing season or remains wet for long periods. Free water is commonly at or near the surface for long enough during the growing season that most mesophytic crops cannot be grown unless the soil is artificially drained. The soil is not continuously saturated in layers directly below plow depth. Poor drainage results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.

Very poorly drained.—Water is removed from the soil so slowly that free water remains at or on the surface during most of the growing season. Unless the soil is artificially drained, most mesophytic crops cannot be grown. Very poorly drained soils are commonly level or depressed and are frequently ponded. Yet, where rainfall is high and nearly continuous, they can have moderate or high slope gradients.

Drainage, surface. Runoff, or surface flow of water, from an area.

Eolian soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of the activities of man or other animals or of a catastrophe in nature, for example, fire, that exposes the surface.

izon below an A horizon.
layer of transition from the
ng C horizon. The B hori-
naracteristics such as (1)
squioxides, humus, or a
prismatic or blocky struc-
colors than those in the
iation of these. The com-
are generally called the
soil does not have a B
le is the solum.
orizon or layer, excluding
ittle affected by soil-form-
not have the properties
zon. The material of a C
or unlike that from which
have formed. If the materi-
n that in the solum the
s the letter C.
ck beneath the soil. The
a C horizon, but can be
horizon.
which water, air, or roots
all. No soil is absolutely
all the time.
ry of water into the imme-
er material, as contrasted
is movement of water
rial.
to soils to assist in pro-
of irrigation are—
at the upper end of a strip
of water is controlled by
border dikes, or borders.
rapidly to nearly level
s or dikes.
r is released at intervals
itches and distributed uni-

pplied to small, closely
in fields of close-growing
that it flows in only one

in small ditches made by
rrows are used for tree

ed over the soil surface
from a pressure system.
plied in open ditches or
le is raised enough to wet

eased at high points, is
ea without controlled dis-

fragments 3 inches (7.5
s. Large stones adversely

bility of a soil for producing
quence of plants under a
agement.
tion of the soil extending
nd into the parent material.
of acidity or alkalinity of a
lues. A soil that tests to pH
isely neutral in reaction be-
nor alkaline. The degree of
ressed as—

	pH
	Below 4.5
	4.5 to 5.0
	5.1 to 5.5
	5.6 to 6.0
	6.1 to 6.5
	6.6 to 7.3
	7.4 to 7.8
	7.9 to 8.4
	8.5 to 9.0
	9.1 and higher

material). Unconsolidated,
thered mineral material that
dated rock disintegrated in

mineral fragments having a
s or more; for example, peb-
nd boulders.
soil that can be penetrated

charged in stream channels
he water that flows off the
nout sinking into the soil is
Water that enters the soil
streams is called ground-
e flow from ground water.
dividual rock or mineral frag-
ter to 2.0 millimeters in di-
s consist of quartz. As a soil
is 85 percent or more sand
rcent clay.
ock containing dominantly

de up of particles deposited
er. The chief kinds of sedi-
merate, formed from gravel;
sand; shale, formed from
rmed from soft masses of
re are many intermediate
sited sand is consolidated

nt of water through the soil.
ts the specified use.
of a fairly uniform layer of
nd surface by the action of

of soil when dry and the
rinking and swelling can

of a seedbed for the next crop, and
arly growing period of the new crop.
ally, the B horizon; roughly, the part of
ow plow depth.
a soil below normal plow depth, ordi-
er a hardpan or claypan.
part of the soil below the solum.
. Technically, the A2 horizon. Generally
ached horizon lighter in color and lower
organic matter than the overlying sur-

). An old alluvial plain, ordinarily flat or
ordering a river, a lake, or the sea.
e relative proportions of sand, silt, and
in a mass of soil. The basic textural
rder of increasing proportion of fine
sand, loamy sand, sandy loam, loam,
sandy clay loam, clay loam, silty clay
clay, silty clay, and *clay*. The sand,
and sandy loam classes may be further
specifying "coarse," "fine," or "very

bles). Otherwise suitable soil material
e specified use.
ensive flat to undulating area underlain

hysical condition of the soil, as related
dbed preparation, seedling emergence,
etration.
Land at a higher elevation, in general,
ial plain or stream terrace; land above
along streams.
aciated regions, material deposited in
s by glacial melt water. In nonglaciated
vium deposited by heavily loaded

physical and chemical changes pro-
ks or other deposits at or near the
ce by atmospheric agents. These
lt in disintegration and decomposition
l.

TABLES

TABLE 1.--TEMPERATURE AND PRECIPITATION

[Recorded in 1936-65 at Bell Ranch, San Miguel County, N. Mex.; elevation, 4,500 feet]

Month	Temperature				Precipitation				
	Average daily maximum	Average daily minimum	Two years in 10 will have at least 4 days with--		Average	One year in 10 will have--		Average number of days with precipitation	
			Maximum temperature equal to or higher than--	Minimum temperature equal to or lower than--		Less than--	More than--	0.10 inch or more	0.25 inch or more
	°F	°F	°F	°F	In	In	In	In	In
January----	53	19	69	6	0.3	1 [1]	0.8	1	1 [2]
February---	58	23	72	10	0.3	1 [1]	0.8	1	1 [2]
March------	65	29	77	15	0.6	1 [1]	1.1	2	1
April------	74	39	86	28	1.0	0.1	1.9	2	1
May--------	82	49	93	38	1.8	0.5	3.4	4	2
June-------	91	59	100	49	1.6	0.3	3.1	3	2
July-------	93	63	100	57	2.8	1.0	5.3	6	4
August-----	91	63	99	57	2.6	0.9	3.9	5	3
September--	85	55	95	43	1.8	0.2	3.9	3	2
October----	76	42	86	31	1.0	1 [1]	2.9	2	1
November---	63	29	75	16	0.4	1 [1]	1.0	1	1
December---	56	21	70	9	0.5	1 [1]	1.1	1	1
Year---	74	41	102 [3]	-3 [4]	14.7	8.8	21.7	31	18

[1]Less than 0.05 inch.

[2]Less than one-half day.

[3]Average annual maximum.

[4]Average annual minimum.

November---	39	23	70	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
December---	47	19	64	1	0.4	0.1	0.9	9	4
Year---	64	35	92 [3]	-9 [4]	14.5	10.5	19.3	32	3

[1]Less than 0.05 inch.

[2]Less than one-half day.

[3]Average annual maximum.

[4]Average annual minimum.

TABLE 2.--FREEZE DATES IN SPRING AND FALL

[Recorded in 1936-65 at Bell Ranch, San Miguel County, New Mex.; elevation, 4,500 feet]

Probability	Minimum temperature						
	16° F or lower	20° F or lower	24° F or lower	28° F or lower	32° F or lower	36° F or lower	40° F or lower
Spring:							
1 year in 10 later than--	March 28	April 6	April 16	April 23	May 10	May 17	May 27
2 years in 10 later than--	March 22	April 1	April 11	April 19	May 5	May 11	May 22
5 years in 10 later than--	March 8	March 20	March 31	April 9	April 23	May 1	May 12
Fall:							
1 year in 10 earlier than--	November 6	October 30	October 26	October 20	October 8	September 30	September 25
2 years in 10 earlier than--	November 12	November 4	October 31	October 24	October 12	October 3	September 27
5 years in 10 earlier than--	November 23	November 13	November 8	October 31	October 20	October 12	October 5

TABLE 2A.--FREEZE DATES IN SPRING AND FALL

[Recorded in 1921-50 at Las Vegas Airport, San Miguel County, N. Mex.; elevation, 6,857 feet]

Probability	Minimum temperature						
	16° F or lower	20° F or lower	24° F or lower	28° F or lower	32° F or lower	36° F or lower	40° F or lower
Spring:							
1 year in 10 later than--	April 17	April 26	May 2	May 13	May 21	June 2	June 16
2 years in 10 later than--	April 13	April 21	April 27	May 9	May 18	May 29	June 12
5 years in 10 later than--	March 31	April 9	April 18	April 29	May 10	May 21	June 5
Fall:							
1 year in 10 earlier than--	October 25	October 21	October 17	October 4	September 21	September 16	September 4
2 years in 10 earlier than--	October 31	October 25	October 21	October 8	September 26	September 21	September 6
5 years in 10 earlier than--	November 11	November 3	October 29	October 17	October 6	September 28	September 16

3.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Soil name	Acres	Percent
derately sloping	1,715	0.1
ing	3,405	0.1
	34,315	1.3
it slopes	2,072	0.1
iation, gently sloping	26,218	1.0
ulating	26,087	1.0
ent slopes	1,289	*
ent slopes	461	*
, undulating	94,734	3.5
it slopes	1,576	0.1
ercent slopes	1,646	0.1
ing	16,439	0.6
, undulating	277,229	10.1
undulating	79,524	2.9
undulating	1,106	*
, undulating	2,003	0.1
e sandy loam, hilly	11,807	0.4
lex, gently sloping	1,646	0.1
lex, gently sloping	1,855	0.1
, gently sloping	8,411	0.3
, hilly	7,958	0.3
0 to 3 percent slopes	10,649	0.4
n, gently sloping	24,058	0.9
n, undulating	223,871	8.2
ion, hilly	12,861	0.5
lex, steep	43,806	1.6
association, rolling	199,168	7.3
ercent slopes	1,472	0.1
ercent slopes	775	*
dulating	1,202	*
to 3 percent slopes	618	*
ing	13,897	0.5
percent slopes	2,612	0.1
hilly	14,802	0.5
ion, gently sloping	51,835	1.9
, sloping	15,046	0.6
sociation, undulating	234,119	8.6
it slopes	2,612	0.1
it slopes	496	*
	76,973	2.8
, undulating	54,638	2.0
ition, undulating	28,116	1.0
derately sloping	3,788	0.1
ndulating	124,320	4.5
sociation, moderately sloping	35,099	1.3
ition, hilly	36,910	1.4
complex, very steep	11,416	0.4
complex, very steep	97,546	3.6
ition, very steep	11,676	0.4
iting	7,140	0.3
percent slopes	4,223	0.2
percent slopes	1,167	*
dulating	46,445	1.7
ping	5,712	0.2
y	2,839	0.1
doro association, steep	164,147	6.0
crop complex, moderately sloping	195,868	7.2
looded	3,161	0.1
omplex, very steep	142,457	5.2
to 3 percent slopes	22,883	0.8
ndulating	150,721	5.5
undulating	38,817	1.4
	12,443	0.3
	2,733,900	100.0

TABLE 4.--YIELDS PER ACRE OF IRRIGATED CROPS AND PASTURE

are those that can be expected under a high level of management. Absence of a yield indicates that soil is not suited to the crop or the crop generally is not grown on the soil]

il name and map symbol	Alfalfa hay	Barley	Wheat	Pasture
	Ton	Bu	Bu	AUM*
----------	4.5	---	---	8
----------	4.5	---	---	8
----------	3.0	---	---	6
----------	2.5	---	---	5
----------	2.5	---	---	5
----------	4	40	---	---
----------	5	55	45	10
----------	4.5	45	40	9
----------	5	---	---	10
----------	---	---	---	---
----------	---	---	50	---
er----------	---	---	---	---
----------	---	---	---	---
----------	3.5	40	40	7
----------	3.5	40	---	7
----------	4.0	55	45	---
----------	4	---	---	---
----------	4	---	---	---
a----------	---	---	---	---
ari----------	5.5	---	50	10
----------	5	---	45	9

footnote at end of table.

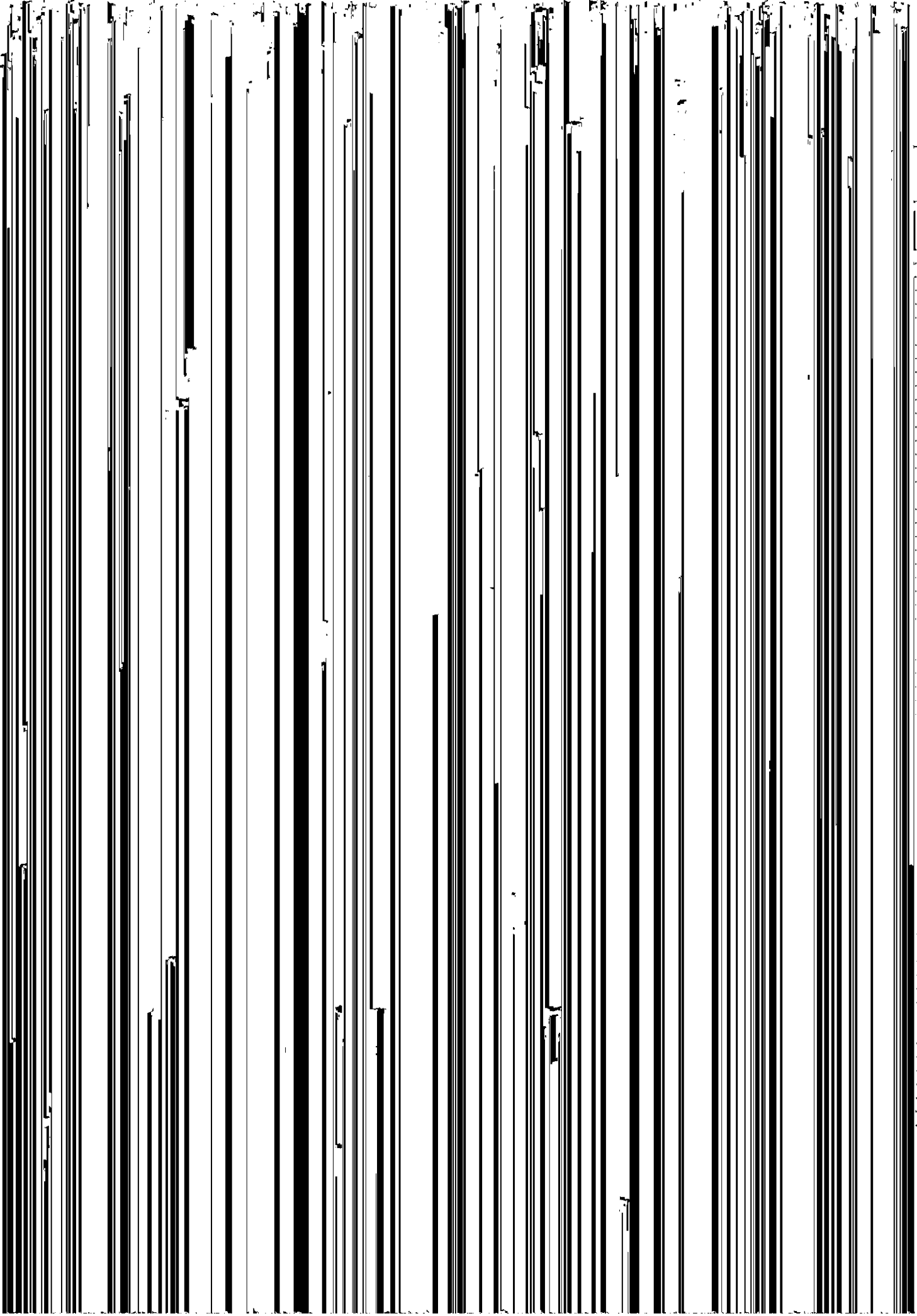
TABLE 4.--YIELDS PER ACRE OF IRRIGATED CROPS AND PASTURE--Continued

Soil name and map symbol	Alfalfa hay	Barley	Wheat	Pasture
	Ton	Bu	Bu	AUM*
MG**:				
Moreno	---	---	---	---
Brycan	3.5	---	---	9
Pa Partri	4	40	---	---
Pb, PC Partri	3.5	35	---	---
PD**:				
Partri	4	40	---	---
Tricon	---	---	---	---
RE**:				
Redona	6	---	50	11
Quay	5.5	---	45	9
SW Swastika	4.0	40	40	8
Sx Swastika	4.5	45	45	9
Sy Swastika	4.0	40	40	8
Va Vermejo	3.5	40	40	7

* Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.
** See description of the map unit for composition and behavior characteristics of the map unit.
*** Yields are for areas protected from flooding.

isted]

vegetation	Composition
	Pct
----------	20
----------	15
----------	10
reltail----	7
----------	5
----------	5
rgrass----	5
----------	5
----------	5
----------	5
----------	25
s----------	15
----------	10
----------	10
----------	5
----------	5
reltail----	5
----------	5
----------	5
----------	25
----------	20
s----------	20
----------	10
----------	10
----------	5
----------	5
s----------	20
reltail----	10
----------	10
----------	10
----------	10
----------	20
----------	20
----------	15
----------	5
s----------	5
----------	5
----------	5
rgrass----	5
----------	20
----------	20
----------	15
----------	5
s----------	5
----------	5
----------	5
rgrass----	5



Composition Pct
30
15
15
10
5
5
20
10
10
10
10
10
10
5
5
5
5
40
15
10
10
5
5
5
5
5
40
15
10
10
5
5
5
5
5
30
20
10
10
5
5
5
5
35
10
10
10
5
5
5
35
15
10
10
5
5
5

TABLE 5.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site name	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		Pct
CK*:					
Latom	Shallow Sandstone Cp-2	Favorable	1,000	Sideoats grama	30
		Normal	750	Blue grama	10
		Unfavorable	500	Black grama	10
				Little bluestem	5
				Buffalograss	5
				Sand bluestem	5
				Arizona cottontop	5
				Hairy grama	5
				Silver bluestem	5
CT*:					
Crews	Shallow Cp-1	Favorable	1,000	Sideoats grama	25
		Normal	650	Blue grama	15
		Unfavorable	300	Little bluestem	15
				Hairy grama	10
				New Mexico feathergrass	5
				Silver bluestem	5
				Wolftail	5
Tricon	Loamy Cp-1	Favorable	1,300	Blue grama	40
		Normal	900	Western wheatgrass	15
		Unfavorable	600	Sideoats grama	10
				Buffalograss	10
				Galleta	10
				Vine-mesquite	5
DA*:					
Dioxice	Loamy Hp-1	Favorable	1,300	Blue grama	40
		Normal	900	Western wheatgrass	15
		Unfavorable	600	Sideoats grama	10
				Buffalograss	10
				Galleta	10
				Vine-mesquite	5
				Sand dropseed	5
				Threeawn	5
Dean	Gravelly Hp-1	Favorable	1,000	Black grama	15
		Normal	600	Blue grama	15
		Unfavorable	300	Sideoats grama	10
				Needleandthread	10
				Hairy grama	10
				Little bluestem	5
				New Mexico feathergrass	5
				Winterfat	5
				Spike dropseed	5
				Galleta	5
DB*:					
Dumas	Loamy Hp-1	Favorable	1,800	Blue grama	35
		Normal	1,200	Buffalograss	20
		Unfavorable	900	Vine-mesquite	10
				Sideoats grama	5
				Silver bluestem	5
				Western wheatgrass	5
				Hairy grama	5
La Brier	Swale Hp-1	Favorable	3,000	Western wheatgrass	20
		Normal	2,500	Blue grama	20
		Unfavorable	1,500	Vine-mesquite	15
				Galleta	15
				Alkali sacaton	15
				Buffalograss	5
				Mat muhly	5
				Fourwing saltbush	5

See footnote at end of table.

TABLE 5.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site name	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		Pct
GA---------- Gallegos	Gravelly Cp-2----------	Favorable	1,100	Black grama----------	20
		Normal	850	Blue grama----------	16
		Unfavorable	450	Galleta----------	16
				Sideoats grama----------	10
				Threeawn----------	6
				Little bluestem----------	6
				Rough tridens----------	5
KA*:					
Karde----------	Limy Cp-1----------	Favorable	---	Blue grama----------	30
		Normal	---	Western wheatgrass----------	15
		Unfavorable	---	Bottlebrush squirreltail------	10
				Winterfat----------	5
				Ring muhly----------	5
				Sand dropseed----------	5
				Sideoats grama----------	5
Vermejo----------	Clayey Cp-1----------	Favorable	1,500	Blue grama----------	30
		Normal	1,200	Western wheatgrass----------	20
		Unfavorable	600	Alkali sacaton----------	15
				Galleta----------	10
				Sideoats grama----------	10
				Fourwing saltbush----------	5
La---------- La Brier	Swale Cp-1----------	Favorable	3,000	Western wheatgrass----------	20
		Normal	2,500	Blue grama----------	20
		Unfavorable	1,500	Vine-mesquite----------	15
				Galleta----------	15
				Alkali sacaton----------	15
				Buffalograss----------	5
				Mat muhly----------	5
				Fourwing saltbush----------	5
LB*:					
Lacita----------	Bottomland Cp-2----------	Favorable	3,500	Giant sacaton----------	25
		Normal	2,100	Alkali sacaton----------	10
		Unfavorable	1,100	Vine-mesquite----------	10
				Sideoats grama----------	10
				Blue grama----------	10
				Sand dropseed----------	5
				Galleta----------	5
				Fourwing saltbush----------	5
				Western wheatgrass----------	5
San Jose----------	Bottomland Cp-2----------	Favorable	3,900	Giant sacaton----------	30
		Normal	2,300	Alkali sacaton----------	10
		Unfavorable	1,200	Vine-mesquite----------	10
				Sideoats grama----------	10
				Blue grama----------	10
				Sand dropseed----------	5
				Galleta----------	5
				Western wheatgrass----------	5
LC*:					
La Lande----------	Sandy Loam Cp-2----------	Favorable	1,600	Blue grama----------	20
		Normal	850	Little bluestem----------	20
		Unfavorable	400	Black grama----------	15
				Sideoats grama----------	10
				Sand dropseed----------	10
				Fringed sagewort----------	5
				Yucca----------	5

See footnote at end of table.

TABLE 5.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site name	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		Pct
LC*:					
Redona	Loamy Cp-2	Favorable	1,500	Blue grama	40
		Normal	850	Yucca	10
		Unfavorable	400	Galleta	10
				Sideoats grama	5
				Sand dropseed	5
				Threeawn	5
				Black grama	5
				Vine-mesquite	5
LN*:					
Latom	Shallow Sandstone Cp-2	Favorable	1,000	Sideoats grama	30
		Normal	750	Blue grama	10
		Unfavorable	500	Black grama	10
				Little bluestem	5
				Buffalograss	5
				Sand bluestem	5
				Arizona cottontop	5
				Hairy grama	5
				Silver bluestem	5
Newkirk	Shallow Sandstone Cp-2	Favorable	1,000	Blue grama	15
		Normal	700	New Mexico feathergrass	15
		Unfavorable	400	Black grama	10
				Little bluestem	10
				Sideoats grama	10
				Silver bluestem	5
Rock outcrop.					
Lo, Lp	Clayey Cp-1	Favorable	1,200	Blue grama	20
Litle		Normal	700	Western wheatgrass	15
		Unfavorable	400	Sideoats grama	10
				Galleta	10
				Alkali sacaton	10
				Vine-mesquite	5
				Buffalograss	5
				Mat muhly	5
				Threeawn	5
				Fourwing saltbush	5
				Winterfat	5
MA	Sandy Plains Cp-1	Favorable	1,800	Indian ricegrass	15
Manter		Normal	1,400	Blue grama	15
		Unfavorable	950	Needlegrass	10
				Sand dropseed	10
				Bottlebrush squirreltail	7
				Western wheatgrass	7
				Little bluestem	5
				Sand sagebrush	5
Mb	Loamy Cp-1	Favorable	1,450	Blue grama	45
Manzano		Normal	800	Western wheatgrass	25
		Unfavorable	350	Galleta	10
				Buffalograss	5
				Mat muhly	5
MC	Swale Cp-1	Favorable	3,500	Western wheatgrass	20
Manzano		Normal	2,200	Blue grama	15
		Unfavorable	1,000	Alkali sacaton	15
				Vine-mesquite	12
				Galleta	10
				Buffalograss	5
				Sideoats grama	5
				Switchgrass	5
				Inland saltgrass	5

See footnote at end of table.

on	Composition
	Pct
-----	45
-----	25
-----	10
-----	5
-----	5
-----	20
-----	20
-----	20
-----	15
-----	10
-----	5
-----	5
-----	30
-----	15
-----	10
-----	10
-----	5
-----	5
-----	20
-----	15
-----	10
-----	10
-----	10
-----	5
-----	5
-----	5
-----	5
-----	5
-----	5
-----	40
-----	15
-----	10
-----	10
-----	5
-----	5
-----	5
-----	35
-----	15
-----	15
-----	10
-----	5
-----	25
-----	10
-----	10
-----	10
-----	10
-----	10
-----	5
-----	5

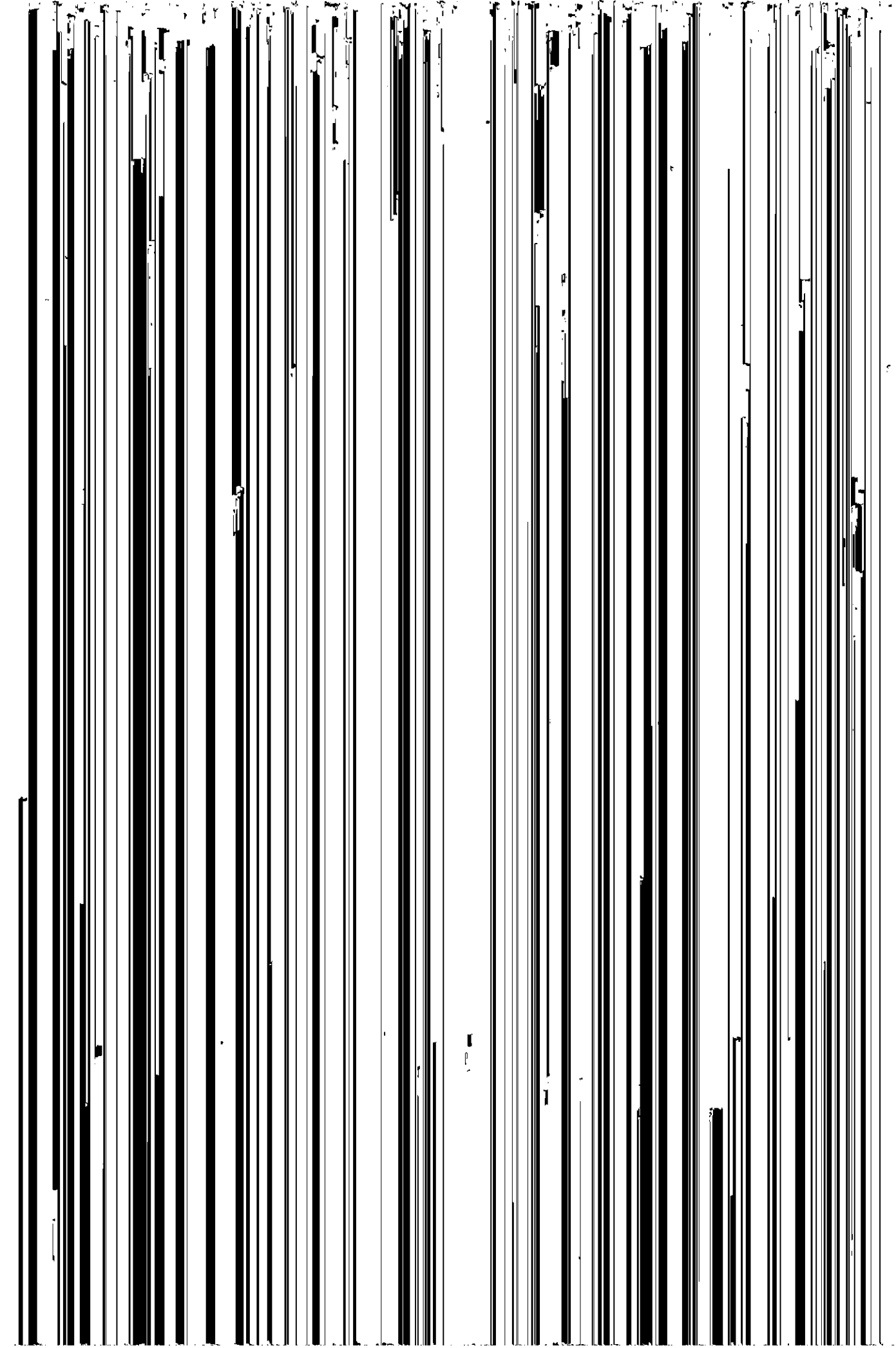
TABLE 5.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site name	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		Pct
MG*:					
Moreno	Mountain Loam Rm-1	Favorable	1,100	Little bluestem	15
		Normal	700	Western wheatgrass	15
		Unfavorable	400	Mountain muhly	10
				Blue grama	10
				Sideoats grama	10
				Arizona fescue	5
				Big bluestem	5
				True mountainmahogany	5
				Muttongrass	5
				Gambel oak	5
				Pine dropseed	5
Brycan	Mountain Valley Rm-1	Favorable	1,500	Little bluestem	15
		Normal	1,000	Blue grama	15
		Unfavorable	700	Prairie junegrass	10
				Mountain brome	10
				Mountain muhly	10
				Sideoats grama	10
				Western wheatgrass	10
				Muttongrass	5
				Pine dropseed	5
				Pinyon	5
NW*:					
Newkirk	Shallow Sandstone Cp-2	Favorable	1,000	Blue grama	15
		Normal	700	New Mexico feathergrass	15
		Unfavorable	400	Black grama	10
				Little bluestem	10
				Sideoats grama	10
				Silver bluestem	5
				Hairy grama	5
				Rough tridens	5
				Galleta	5
Walkon	Loamy Cp-2	Favorable	1,200	Blue grama	20
		Normal	650	Black grama	15
		Unfavorable	350	Galleta	10
				Sand dropseed	10
				Sideoats grama	10
				Juniper	5
Conchas	Loamy Cp-2	Favorable	1,200	Blue grama	35
		Normal	750	Black grama	15
		Unfavorable	300	Galleta	10
				Sideoats grama	10
				Sand dropseed	5
Pa, Pb, PC	Loamy Cp-1	Favorable	1,500	Blue grama	30
Partri		Normal	950	Western wheatgrass	20
		Unfavorable	450	Sideoats grama	10
				Galleta	10
				Winterfat	5
				Bottlebrush squirreltail	5
				Ring muhly	5
				Wolftail	5
PD*:					
Partri	Loamy Cp-1	Favorable	1,500	Blue grama	30
		Normal	950	Western wheatgrass	20
		Unfavorable	450	Sideoats grama	10
				Galleta	10
				Winterfat	5
				Bottlebrush squirreltail	5
				Ring muhly	5
				Wolftail	5

See footnote at end of table.

ued

egetation	Compo-sition
	Pct
----------	40
----------	15
----------	10
----------	5
----------	30
----------	15
----------	10
----------	10
----------	5
----------	5
----------	20
----------	15
----------	10
----------	10
----------	10
----------	5
----------	5
----------	5
----------	5
----------	5
----------	5
----------	20
----------	20
----------	20
----------	15
grass-------	10
----------	5
----------	5
----------	25
----------	15
----------	10
----------	10
----------	5
----------	5
eltail------	5
----------	5
----------	5
----------	40
----------	10
----------	10
----------	5
----------	5
----------	5
----------	5
----------	40
----------	10
----------	10
----------	5
----------	5
----------	5
----------	5
----------	5
----------	40
----------	15
----------	10
----------	5
----------	5
----------	5
----------	5



URVEY

Composition Pct
25
20
15
10
10
5
25
12
8
8
8
5
5
5
25
20
20
10
5
5
5
5
30
20
15
10
10
5
20
10
10
10
10
5
5
5
5
20
10
10
10
10
5
5
5
5

TABLE 6.--WOODLAND MANAGEMENT AND PRODUCTIVITY

nly the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available]

Soil name and map symbol	Ordination symbol	Management concerns					Potential productivity	
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index
*---------- iln	6d	Severe	Severe	Severe	Moderate	Severe	Ponderosa pine------	53
*: aporte----------	2d	Slight	Moderate	Severe	Moderate	Slight	Pinyon-Juniper------	86
scabosa----------	3o	Slight	Slight	Slight	Slight	Slight	Pinyon-Juniper------	69
*: aporte----------	2d	Slight	Moderate	Severe	Moderate	Slight	Pinyon-Juniper------	86
ock outcrop.								
scabosa----------	3o	Slight	Slight	Slight	Slight	Slight	Pinyon-Juniper------	69
*: ibera.								
ombordoro--------	3x	Moderate	Moderate	Severe	Slight	Moderate	Juniper-Pinyon------	64
*: ocio----------	5o	Moderate	Moderate	Moderate	Slight	Moderate	Ponderosa pine------	57
argol----------	6o	Moderate	Moderate	Moderate	Moderate	Moderate	Ponderosa pine------ Douglas-fir---------	49 ---
tout----------	6d	Moderate	Slight	Severe	Moderate	Moderate	Ponderosa pine------	51
*: tout----------	6d	Moderate	Slight	Severe	Moderate	Moderate	Ponderosa pine------	51
ocio----------	5r	Severe	Severe	Moderate	Slight	Moderate	Ponderosa pine------	57
argol----------	6o	Moderate	Moderate	Moderate	Moderate	Moderate	Ponderosa pine------ Douglas-fir---------	49 ---
*: apia.								
*: uloso----------	2d	Moderate	Moderate	Moderate	Slight	Moderate	Pinyon-Juniper------	64
ock outcrop.								
*: ombordoro--------	3x	Moderate	Moderate	Severe	Slight	Moderate	Juniper-Pinyon------	64
*: uloso----------	2d	Moderate	Moderate	Moderate	Slight	Moderate	Pinyon-Juniper------	64
ombordoro--------	3x	Moderate	Moderate	Severe	Slight	Moderate	Juniper-Pinyon------	64
ock outcrop.								

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 7.--WOODLAND UNDERSTORY VEGETATION

[Only the soils suitable for production of commercial trees are listed]

Soil name and map symbol	Total production		Characteristic vegetation	Composition
	Kind of year	Dry weight		
		Lb/acre		Pct
KR*----------	Favorable	800	Arizona fescue----------	15
Kiln	Normal	600	Mountain muhly----------	15
	Unfavorable	400	Blue grama----------	10
			Muttongrass----------	10
			Sideoats grama----------	10
			Little bluestem----------	10
			Gambel oak----------	5
			Carex----------	5
LE*:				
Laporte----------	Favorable	900	Blue grama----------	20
	Normal	500	Little bluestem----------	15
	Unfavorable	350	Sideoats grama----------	15
			Needlegrass----------	10
			True mountainmahogany----------	5
			Wheatgrass----------	5
Escabosa----------	Favorable	1,200	Blue grama----------	20
	Normal	850	Pinyon ricegrass----------	15
	Unfavorable	400	Sideoats grama----------	10
			Little bluestem----------	10
			Western wheatgrass----------	5
			Carex----------	5
			Hairy grama----------	5
			Threeawn----------	5
			Wolftail----------	5
LF*:				
Laporte----------	Favorable	900	Blue grama----------	20
	Normal	500	Little bluestem----------	15
	Unfavorable	350	Sideoats grama----------	15
			Needlegrass----------	10
			True mountainmahogany----------	5
			Wheatgrass----------	5
Rock outcrop.				
Escabosa----------	Favorable	1,200	Blue grama----------	20
	Normal	850	Pinyon ricegrass----------	15
	Unfavorable	400	Sideoats grama----------	10
			Little bluestem----------	10
			Western wheatgrass----------	5
			Carex----------	5
			Hairy grama----------	5
			Threeawn----------	5
			Wolftail----------	5
RF*:				
Ribera.				
Sombordoro--------	Favorable	750	Blue grama----------	18
	Normal	450	Pinyon ricegrass----------	10
	Unfavorable	200	Sideoats grama----------	10
			Green needlegrass----------	8
			Plains lovegrass----------	8
			Oneseed juniper----------	6
			Little bluestem----------	5
			Pinyon----------	5
			Wavyleaf oak----------	5
			Wolftail----------	5

See footnote at end of table.

STORY VEGETATION--Continued

Characteristic vegetation	Composition
	Pct
neseed juniper	25
inyon	15
lue grama	15
ndian ricegrass	10
and dropseed	5
eedleandthread	5
hreeawn	5
lains pricklypear	5
alleta	5
luegrass	25
rizona fescue	20
ine dropseed	15
ountain muhly	10
ountain brome	5
estern wheatgrass	5
ambel oak	5
rue mountainmahogany	5
rizona fescue	20
uttongrass	20
ountain muhly	15
ambel oak	10
inyon	6
ine dropseed	5
rairie junegrass	5
ideoats grama	5
innikinnick	5
ideoats grama	15
rizona fescue	15
ountain muhly	15
lue grama	15
uttongrass	10
ittle bluestem	10
ine dropseed	5
rairie junegrass	5
ideoats grama	15
rizona fescue	15
ountain muhly	15
lue grama	15
uttongrass	10
ittle bluestem	10
ine dropseed	5
rairie junegrass	5
luegrass	25
rizona fescue	20
ine dropseed	15
ountain muhly	10
ountain brome	5
estern wheatgrass	5
ambel oak	5
rue mountainmahogany	5
rizona fescue	20
uttongrass	20
ountain muhly	15
ambel oak	10
inyon	6
ine dropseed	5
rairie junegrass	5
ideoats grama	5
innikinnick	5

TABLE 7.--WOODLAND UNDERSTORY VEGETATION--Continued

Soil name and map symbol	Total production		Characteristic vegetation	Composition
	Kind of year	Dry weight		
		Lb/acre		Pct
*: apia.				
ean----------	Favorable	300	Oneseed juniper----------	20
	Normal	200	Blue grama----------	20
	Unfavorable	100	Sideoats grama----------	15
			Pinyon----------	10
			Little bluestem----------	5
			Pinyon ricegrass----------	5
			Needleandthread----------	5
			Winterfat----------	5
			Hairy grama----------	5
			Spike dropseed----------	5
, TS: uloso----------	Favorable	700	Hairy grama----------	15
	Normal	600	Little bluestem----------	10
	Unfavorable	500	Sideoats grama----------	10
			Blue grama----------	8
			Gambel oak----------	8
			Pinyon----------	8
			Pinyon ricegrass----------	8
			Galleta----------	5
			Oneseed juniper----------	5
			Wolftail----------	5
ombordoro---------	Favorable	750	Blue grama----------	18
	Normal	450	Pinyon ricegrass----------	10
	Unfavorable	200	Sideoats grama----------	10
			Green needlegrass----------	8
			Plains lovegrass----------	8
			Oneseed juniper----------	6
			Little bluestem----------	5
			Pinyon----------	5
			Wavyleaf oak----------	5
			Wolftail----------	5
ock outcrop.				

* See description of the map unit for composition and behavior characteristics of the map unit.

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TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
CT*:				
Crews	Slight	Slight	Severe: cemented pan.	Slight.
Tricon	Slight	Slight	Moderate: slope.	Slight.
DA*:				
Dioxice	Slight	Slight	Moderate: slope.	Slight.
Dean	Slight	Slight	Moderate: slope.	Slight.
DB*:				
Dumas	Slight	Slight	Moderate: slope.	Slight.
La Brier	Severe: floods.	Moderate: percs slowly, dusty.	Moderate: percs slowly, dusty.	Moderate: dusty.
GA Gallegos	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Moderate: slope, small stones.
GB*:				
Gullied land.				
Manzano	Severe: floods.	Moderate: too clayey.	Moderate: slope, too clayey.	Moderate: too clayey.
GC*:				
Gullied land.				
Montoya	Severe: floods.	Slight	Moderate: percs slowly.	Slight.
KA*:				
Karde	Moderate: dusty.	Moderate: dusty.	Moderate: dusty, slope.	Moderate: dusty.
Vermejo	Severe: floods.	Moderate: too clayey, percs slowly.	Moderate: too clayey, percs slowly.	Moderate: too clayey.
KR* Kiln	Severe: slope.	Severe: slope.	Severe: slope, depth to rock.	Moderate: slope.
Rock outcrop.				
La La Brier	Severe: floods.	Moderate: percs slowly, too clayey.	Moderate: too clayey, percs slowly.	Slight.
LB*:				
Lacita	Severe: floods.	Moderate: floods.	Severe: floods.	Moderate: floods.
San Jose	Severe: floods.	Moderate: floods.	Severe: floods.	Moderate: floods.
LC*:				
La Lande	Slight	Slight	Moderate: slope.	Slight.

See footnote at end of table.

8.--RECREATIONAL DEVELOPMENT--Continued

	Picnic areas	Playgrounds	Paths and trails
	Moderate: dusty.	Moderate: slope, dusty.	Moderate: dusty.
	Moderate: slope, small stones.	Severe: depth to rock, slope.	Moderate: small stones.
	Moderate: small stones.	Severe: slope, small stones.	Moderate: small stones.
	Severe: slope.	Severe: depth to rock, slope.	Moderate: slope, small stones.
	Severe: slope.	Severe: slope, small stones.	Moderate: slope, small stones.
	Moderate: slope.	Severe: slope, depth to rock.	Slight.
-----	Slight----------	Severe: depth to rock.	Slight.
-----	Slight----------	Moderate: slope.	Slight.
	Moderate: too sandy.	Moderate: too sandy, slope.	Moderate: too sandy.
-----	Slight----------	Moderate: percs slowly.	Slight.
	Moderate: dusty.	Moderate: dusty, floods.	Moderate: dusty.
-----	Slight----------	Moderate: percs slowly.	Slight.
	Severe: slope.	Severe: slope, depth to rock.	Moderate: slope.
	Moderate: small stones, dusty.	Severe: depth to rock, slope.	Moderate: small stones, dusty.
-----	Slight----------	Moderate: slope.	Slight.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
MF*:				
Montoya	Severe: floods.	Slight	Moderate: percs slowly.	Slight.
Tucumcari	Slight	Moderate: too clayey.	Moderate: too clayey.	Slight.
Lacita	Severe: floods.	Moderate: dusty.	Moderate: dusty, slope.	Moderate: dusty.
MG*:				
Moreno	Moderate: percs slowly.	Moderate: percs slowly.	Severe: slope.	Slight.
Brycan	Slight	Slight	Moderate: slope.	Slight.
NW*:				
Newkirk	Slight	Slight	Severe: depth to rock.	Slight.
Walkon	Slight	Slight	Moderate: depth to rock, slope.	Slight.
Conchas	Moderate: dusty, percs slowly.	Moderate: dusty, percs slowly.	Moderate: slope, depth to rock, percs slowly.	Moderate: dusty.
Pa, Pb, PC---------- Partri	Moderate: percs slowly, too clayey.	Moderate: too clayey, percs slowly.	Moderate: slope, percs slowly, too clayey.	Moderate: too clayey.
PD*:				
Partri	Moderate: percs slowly, too clayey.	Moderate: too clayey, percs slowly.	Moderate: slope, percs slowly, too clayey.	Moderate: too clayey.
Tricon	Slight	Slight	Moderate: slope.	Slight.
PM*:				
Penrose	Moderate: small stones, dusty.	Moderate: small stones, dusty.	Severe: depth to rock.	Moderate: small stones, dusty.
Litle	Severe: too clayey.	Severe: too clayey.	Severe: too clayey.	Severe: too clayey.
Mion	Moderate: percs slowly.	Moderate: percs slowly.	Severe: depth to rock.	Slight.
QU---------- Quintana	Moderate: small stones.	Moderate: small stones.	Severe: small stones.	Moderate: small stones.
RE*:				
Redona	Moderate: dusty.	Moderate: dusty.	Moderate: dusty.	Moderate: dusty.
Quay	Moderate: dusty.	Moderate: dusty.	Moderate: dusty, slope.	Moderate: dusty.

See footnote at end of table.

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TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
TG---------- Tinaja	Moderate: slope, small stones.	Moderate: slope, small stones.	Severe: slope, small stones.	Moderate: small stones.
TR*: Tuloso----------	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones.	Severe: large stones, slope.
Rock outcrop.				
Sombordoro----------	Severe: large stones.	Severe: large stones.	Severe: large stones, depth to rock, slope.	Severe: large stones.
TS*: Tuloso----------	Severe: large stones.	Severe: large stones.	Severe: large stones.	Severe: large stones.
Sombordoro----------	Severe: large stones.	Severe: large stones.	Severe: large stones, depth to rock, slope.	Severe: large stones.
Rock outcrop.				
UF*. Ustifluvents				
UR*: Ustorthents.				
Rock outcrop.				
Va---------- Vermejo	Severe: floods.	Moderate: too clayey, percs slowly.	Moderate: too clayey, percs slowly.	Moderate: too clayey.
VB*: Vibo----------	Slight----------	Slight----------	Moderate: slope.	Slight.
Ribera----------	Slight----------	Slight----------	Severe: slope.	Slight.
VC*: Vibo----------	Slight----------	Slight----------	Moderate: slope.	Slight.
Rock outcrop.				
Ribera----------	Slight----------	Slight----------	Severe: slope.	Slight.

* See description of the map unit for composition and behavior characteristics of the map unit.

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' Absence of an entry indicates that the

Potential as habitat for--				
Shallow water areas	Open-land wild-life	Wood-land wild-life	Wetland wild-life	Range-land wild-life
Very poor.	Fair	Fair	Very poor.	Fair.
Very poor.	Fair	Very poor.	Very poor.	Fair.
Very poor.	Poor	---	Very poor.	Fair.
Very poor.	Poor	Very poor.	Very poor.	Fair.
Very poor.	Poor	---	Very poor.	Fair.
Very poor.	Poor	---	Very poor.	Fair.
Very poor.	Fair	---	Very poor.	Fair.
Very poor.	Fair	---	Very poor.	Fair.
Very poor.	Fair	---	Very poor.	Poor.
Very poor.	Fair	---	Very poor.	Poor.
Very poor.	Poor	---	Very poor.	Poor.
Poor	Good	---	Poor	Fair.
Very poor.	Fair	---	Very poor.	Fair.
Very poor.	Fair	---	Very poor.	Fair.
Very poor.	Poor	---	Very poor.	Fair.
Very poor.	Poor	---	Very poor.	Fair.
Very poor.	Poor	---	Very poor.	Fair.

tial as habitat for--		
Wood-land wild-life	Wetland wild-life	Range-land wild-life
---	Very poor.	Fair.
---	Very poor.	Fair.
---	Very poor.	Fair.
---	Very poor.	Poor.
---	Very poor.	Fair.
---	Poor	Poor.
---	Very poor.	Fair.
---	Very poor.	Fair.
---	Poor	Poor.
Fair	Very poor.	Very poor.
---	Very poor.	Poor.
---	Very poor.	Fair.
---	Very poor.	Fair.
---	Very poor.	Fair.
---	Very poor.	Fair.
---	Very poor.	Fair.
---	Very poor.	Fair.
---	Very poor.	Fair.

TABLE 9.--WILDLIFE HABITAT POTENTIALS--Continued

Potential for habitat elements							Potential as habitat for--			
rain and seed rops	Grasses and legumes	Wild herba-ceous plants	Conif-erous plants	Shrubs	Wetland plants	Shallow water areas	Open-land wild-life	Wood-land wild-life	Wetland wild-life	Range-land wild-life
or	Fair	Fair	---	Fair	Very poor.	Very poor.	Poor	---	Very poor.	Fair.
ry oor.	Very poor.	Fair	Very poor.	Fair	Very poor.	Very poor.	Poor	---	Very poor.	Fair.
or	Poor	Fair	---	Fair	Very poor.	Very poor.	Poor	---	Very poor.	Fair.
ir	Good	Fair	---	Poor	Fair	Poor	Fair	---	Fair	Fair.
or	Fair	Fair	---	Poor	Poor	Very poor.	Fair	---	Very poor.	Fair.
ir	Good	Fair	---	Fair	Very poor.	Very poor.	Fair	---	Very poor.	Fair.
od	Good	Good	---	Fair	Fair	Fair	Good	---	Fair	Fair.
or	Fair	Fair	---	Poor	Poor	Poor	Fair	---	Poor	Poor.
od	Good	Good	---	Fair	Fair	Fair	Good	---	Fair	Fair.
ry oor.	Very poor.	Fair	---	Fair	Very poor.	Very poor.	Poor	---	Very poor.	Fair.
ry oor.	Very poor.	Fair	---	Fair	Very poor.	Very poor.	Poor	---	Very poor.	Fair.
or	Fair	Fair	---	Poor	Poor	Very poor.	Fair	---	Very poor.	Fair.
or	Fair	Fair	---	Fair	Poor	Very poor.	Fair	---	Very poor.	Fair.
or	Fair	Fair	---	Fair	Poor	Very poor.	Fair	---	Very poor.	Fair.
or	Fair	Good	---	Fair	Very poor.	Very poor.	Fair	---	Very poor.	Fair.
or	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.	Good.
or	Poor	Fair	---	Fair	Very poor.	Very poor.	Poor	---	Very poor.	Fair.
or	Fair	Fair	---	Fair	Poor	Very poor.	Fair	---	Very poor.	Fair.
or	Fair	Fair	---	Poor	Poor	Very poor.	Fair	---	Very poor.	Fair.

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T POTENTIALS--Continued

elements			Potential as habitat for--			
hrubs	Wetland plants	Shallow water areas	Open-land wildlife	Woodland wildlife	Wetland wildlife	Rangeland wildlife
ir	Poor	Poor	Good	---	Poor	Fair.
ir	Poor	Very poor.	Fair	---	Very poor.	Fair.
or	Very poor.	Very poor.	Poor	---	Very poor.	Poor.
or	Very poor.	Very poor.	Poor	---	Very poor.	Poor.
or	Poor	Very poor.	Poor	---	Very poor.	Fair.
ir	Very poor.	Very poor.	Poor	---	Very poor.	Fair.
or	Poor	Very poor.	Fair	---	Very poor.	Fair.
ir	Poor	Poor	Poor	---	Poor	Fair.
ir	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Fair.
ir	Poor	Very poor.	Fair	---	Very poor.	Fair.
ir	Very poor.	Very poor.	Fair	---	Very poor.	Fair.
od	Poor	Very poor.	Fair	---	Very poor.	Good.
ir	Very poor.	Very poor.	Poor	Poor	Very poor.	Fair.
ir	Very poor.	Very poor.	Fair	Fair	Very poor.	Fair.
od	Very poor.	Very poor.	Very poor.	Good	Very poor.	Good.
ir	Very poor.	Very poor.	Very poor.	Fair	Very poor.	Fair.
ir	Very poor.	Very poor.	Poor	Poor	Very poor.	Poor.

TABLE 9.--WILDLIFE HABITAT POTENTIALS--Continued

Potential for habitat elements							Potential as habitat for--			
Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife	Rangeland wildlife
ery poor.	Poor	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Poor	Very poor.	Poor.
ery poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.	Very poor.
ery poor.	Very poor.	Good	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.	---
oor	Fair	Fair	---	Fair	Poor	Very poor.	Poor	---	Very poor.	Fair.
ood	Good	Fair	---	Fair	Poor	Poor	Fair	---	Poor	Good.
air	Good	Fair	---	Fair	Poor	Very poor.	Fair	---	Very poor.	Good.
oor	Fair	Fair	---	Poor	Poor	Very poor.	Fair	---	Very poor.	Fair.
oor	Fair	Fair	---	Fair	Poor	Very poor.	Fair	---	Very poor.	Fair.
oor	Fair	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.	Fair.
oor	Fair	Fair	---	Fair	Poor	Very poor.	Fair	---	Very poor.	Fair.
ery poor.	Very poor.	Poor	Good	Poor	Very poor.	Very poor.	Very poor.	Good	Very poor.	Poor.
ery poor.	Very poor.	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Poor	Very poor.	Fair.
ery poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
ery poor.	Very poor.	Fair	Good	Fair	Very poor.	Very poor.	Poor	Good	Very poor.	Fair.
oor	Poor	Fair	---	Poor	Poor	Poor	Poor	---	Poor	Poor.
oor	Fair	Good	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.	Fair.
oor	Fair	Good	---	Good	Poor	Very poor.	Fair	---	Very poor.	Good.

nd of table.

l as habitat for--		
od- and ld- ife	Wetland wild- life	Range- land wild- life
r	Very poor.	Fair.
--	Very poor.	Good.

map unit.

TABLE 10.--BUILDING SITE DEVELOPMENT

soil features are defined in the Glossary. See text for definitions of ." Absence of an entry indicates that the soil was not rated]

Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
Moderate: shrink-swell, slope.	Moderate: shrink-swell, slope.	Severe: slope.	Moderate: shrink-swell, slope.
Moderate: shrink-swell, low strength.	Moderate: shrink-swell, low strength.	Moderate: shrink-swell.	Moderate: low strength, shrink-swell, frost action.
Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.
Severe: large stones.	Severe: large stones.	Severe: large stones, slope.	Severe: large stones.
Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock, low strength.
Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock, low strength.
Slight----------	Slight----------	Slight----------	Moderate: low strength.
Slight----------	Slight----------	Slight----------	Slight.
Severe: shrink-swell, low strength.	Severe: depth to rock, low strength, shrink-swell.	Severe: depth to rock, low strength, shrink-swell.	Severe: shrink-swell, low strength.
Severe: shrink-swell, low strength.	Severe: depth to rock, low strength, shrink-swell.	Severe: depth to rock, low strength, shrink-swell.	Severe: shrink-swell, low strength.
Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.
Moderate: low strength, shrink-swell.	Moderate: low strength, shrink-swell.	Moderate: low strength, shrink-swell.	Severe: low strength.
Moderate: low strength, shrink-swell.	Moderate: low strength, shrink-swell.	Moderate: slope, low strength, shrink-swell.	Severe: low strength.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
CH---------- Colmor	Slight----------	Moderate: low strength, shrink-swell.	Moderate: low strength, shrink-swell.	Moderate: low strength, shrink-swell.	Severe: low strength.
CK*: Conchas----------	Severe: depth to rock.	Moderate: depth to rock, shrink-swell, low strength.	Severe: depth to rock.	Moderate: shrink-swell, depth to rock.	Severe: low strength.
Latom----------	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.
CT*: Crews----------	Severe: cemented pan.	Severe: cemented pan, shrink-swell.	Severe: cemented pan, shrink-swell.	Severe: cemented pan, shrink-swell.	Severe: cemented pan, shrink-swell, low strength.
Tricon----------	Severe: cemented pan.	Severe: shrink-swell.	Severe: cemented pan, shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.
DA*: Dioxice----------	Slight----------	Moderate: low strength, shrink-swell.	Moderate: low strength, shrink-swell.	Moderate: low strength, shrink-swell.	Severe: low strength.
Dean----------	Slight----------	Slight----------	Slight----------	Moderate: slope.	Slight.
DB*: Dumas----------	Slight----------	Moderate: low strength.	Moderate: low strength.	Moderate: low strength.	Moderate: low strength.
La Brier----------	Moderate: floods.	Severe: floods, low strength, shrink-swell.	Severe: floods, low strength, shrink-swell.	Severe: floods, low strength, shrink-swell.	Severe: low strength, shrink-swell.
GA---------- Gallegos	Severe: slope, cutbanks cave.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
GB*: Gullied land.					
Manzano----------	Slight----------	Severe: floods.	Severe: floods.	Severe: floods.	Moderate: floods, shrink-swell, frost action.
GC*: Gullied land.					
Montoya----------	Moderate: too clayey.	Severe: floods, shrink-swell, low strength.	Severe: floods, shrink-swell, low strength.	Severe: floods, shrink-swell, low strength.	Severe: shrink-swell, low strength.
KA*: Karde----------	Slight----------	Slight----------	Slight----------	Slight----------	Moderate: low strength.
Vermejo----------	Moderate: too clayey.	Severe: floods, shrink-swell, low strength.	Severe: floods, shrink-swell, low strength.	Severe: floods, shrink-swell, low strength.	Severe: shrink-swell, low strength.

See footnote at end of table.

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to rock.
to rock.
rength, -swell.
e: rength, action.

).--BUILDING SITE DEVELOPMENT--Continued

Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
pderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, low strength, frost action.
evere: floods.	Severe: floods.	Severe: floods.	Moderate: floods, shrink-swell, frost action.
oderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, low strength, frost action.
evere: slope, depth to rock, shrink-swell.	Severe: slope, depth to rock, shrink-swell.	Severe: slope, depth to rock, shrink-swell.	Severe: slope, low strength, depth to rock.
oderate: depth to rock.	Moderate: depth to rock.	Moderate: depth to rock, slope.	Moderate: depth to rock.
evere: shrink-swell, low strength.	Severe: shrink-swell, low strength.	Severe: corrosive, shrink-swell, low strength.	Severe: low strength, shrink-swell.
evere: floods, shrink-swell, low strength.	Severe: floods, shrink-swell, low strength.	Severe: floods, shrink-swell, low strength.	Severe: shrink-swell, low strength.
evere: shrink-swell, low strength.	Severe: shrink-swell, low strength.	Severe: shrink-swell, low strength.	Severe: shrink-swell, low strength.
evere: floods.	Severe: floods.	Severe: floods.	Moderate: floods, low strength, shrink-swell.
evere: shrink-swell, low strength.	Severe: shrink-swell, low strength.	Severe: shrink-swell, low strength.	Severe: shrink-swell, low strength.
light----------	Moderate: shrink-swell, low strength.	Moderate: slope.	Moderate: low strength, frost action.
evere: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.
evere: shrink-swell.	Severe: depth to rock, shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.
oderate: depth to rock, shrink-swell, low strength.	Severe: depth to rock.	Moderate: depth to rock, slope, shrink-swell.	Severe: low strength.

Local roads and streets
Severe: shrink-swell, low strength.
Severe: shrink-swell, low strength.
Severe: low strength, shrink-swell.
Severe: depth to rock.
Severe: low strength, shrink-swell.
Severe: low strength, shrink-swell, depth to rock.
Moderate: low strength, shrink-swell, frost action.
Moderate: low strength, shrink-swell.
Moderate: shrink-swell, low strength.
Moderate: depth to rock, low strength.
Severe: depth to rock, shrink-swell, large stones.
Moderate: frost action, low strength.
Severe: slope, shrink-swell, low strength.
Severe: shrink-swell, low strength.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
RG*:					
Stout	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.
RH*:					
Rock outcrop.					
Haploborolls.					
RT*:					
Rock outcrop.					
Torriorthents.					
SR*:					
Stout	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.
Rocio	Severe: slope.	Severe: slope, shrink-swell, low strength.	Severe: slope, shrink-swell.	Severe: slope, low strength, shrink-swell.	Severe: slope, shrink-swell, low strength.
Dargol	Severe: slope, depth to rock.	Severe: slope, shrink-swell, low strength.	Severe: slope, shrink-swell, depth to rock.	Severe: slope, shrink-swell, depth to rock.	Severe: slope, shrink-swell, low strength.
SW, Sx, Sy---- Swastika	Moderate: too clayey.	Severe: shrink-swell, low strength.	Severe: shrink-swell, low strength.	Severe: shrink-swell, low strength.	Severe: shrink-swell, low strength.
TD*:					
Tapia	Slight	Moderate: shrink-swell.	Moderate: shrink-swell, low strength.	Moderate: shrink-swell, low strength.	Moderate: shrink-swell, low strength.
Dean	Slight	Slight	Slight	Slight	Slight.
TE---- Teco	Moderate: too clayey.	Severe: shrink-swell, low strength.	Severe: shrink-swell, low strength.	Severe: shrink-swell, low strength.	Severe: shrink-swell, low strength.
TG---- Tinaja	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.
TR*:					
Tuloso	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.
Rock outcrop.					
Sombordoro	Severe: depth to rock, large stones.	Severe: depth to rock, shrink-swell, large stones.	Severe: depth to rock, shrink-swell, large stones.	Severe: depth to rock, shrink-swell, large stones.	Severe: depth to rock, shrink-swell, large stones.
TS*:					
Tuloso	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.

See footnote at end of table.

LDING SITE DEVELOPMENT--Continued

lings nout ments	Dwellings with basements	Small commercial buildings	Local roads and streets
o rock, swell, tones.	Severe: depth to rock, shrink-swell, large stones.	Severe: depth to rock, shrink-swell, large stones.	Severe: depth to rock, shrink-swell, large stones.
swell, ength.	Severe: floods, shrink-swell, low strength.	Severe: floods, shrink-swell, low strength.	Severe: shrink-swell, low strength.
swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: frost action, low strength.
ength, rock.	Severe: depth to rock.	Moderate: low strength, depth to rock, slope.	Moderate: depth to rock, low strength.
swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: frost action, low strength.
ength, rock.	Severe: depth to rock.	Moderate: low strength, depth to rock, slope.	Moderate: depth to rock, low strength.

osition and behavior characteristics of the map unit.

TABLE 11.--SANITARY FACILITIES

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
AQ*:					
Andok	Moderate: percs slowly, slope.	Severe: slope, seepage.	Severe: seepage.	Moderate: slope.	Fair: small stones, slope.
Quintana	Slight	Moderate: slope, seepage.	Severe: seepage.	Slight	Fair: small stones.
AY*:					
Apache	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Slight	Poor: thin layer, area reclaim.
Ayon	Severe: large stones.	Severe: slope, large stones.	Severe: large stones.	Moderate: slope.	Poor: large stones.
BA*.					
Badland					
Be	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Slight	Poor: thin layer, area reclaim.
Bernal					
BR*:					
Bernal	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Slight	Poor: thin layer, area reclaim.
Rock outcrop.					
CA*:					
Canez	Moderate: percs slowly.	Moderate: seepage, slope.	Slight	Slight	Good.
Ima	Slight	Severe: seepage.	Slight	Slight	Good.
Cb, Cc	Severe: depth to rock, percs slowly.	Severe: depth to rock.	Severe: depth to rock.	Slight	Poor: thin layer, too clayey, area reclaim.
Carnero					
CD*:					
Carnero	Severe: depth to rock, percs slowly.	Severe: depth to rock.	Severe: depth to rock.	Slight	Poor: thin layer, too clayey, area reclaim.
Partri	Severe: percs slowly.	Moderate: slope.	Moderate: too clayey.	Slight	Fair: too clayey.
Cf, Cg, CH	Severe: percs slowly.	Moderate: slope.	Moderate: too clayey.	Slight	Fair: too clayey.
Colmor					
CK*:					
Conchas	Severe: depth to rock, percs slowly.	Severe: depth to rock.	Severe: depth to rock.	Slight	Poor: thin layer.
Latom	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Slight	Poor: thin layer.

See footnote at end of table.

ITARY FACILITIES--Continued

lagoon as	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
pan.	Severe: cemented pan.	Slight----------	Poor: thin layer, area reclaim, too clayey.
pan.	Severe: cemented pan.	Slight----------	Poor: area reclaim, thin layer, too clayey.
	Slight----------	Slight----------	Fair: too clayey.
	Slight----------	Slight----------	Fair: small stones.
	Slight----------	Slight----------	Good.
	Moderate: floods, too clayey.	Moderate: floods.	Fair: hard to pack, too clayey.
	Severe: seepage.	Severe: seepage, slope.	Poor: slope, small stones, seepage.
	Moderate: floods.	Moderate: floods.	Fair: too clayey.
	Severe: too clayey.	Moderate: floods.	Poor: too clayey.
	Slight----------	Slight----------	Good.
	Severe: too clayey.	Moderate: floods.	Poor: too clayey.
rock,	Severe: depth to rock.	Severe: slope.	Poor: slope, thin layer, area reclaim.
	Moderate: floods, too clayey.	Moderate: floods.	Fair: hard to pack, too clayey.
	Severe: floods.	Severe: floods.	Fair: too clayey.

--Continued

ench itary ifill	Area sanitary landfill	Daily cover for landfill
.	Severe: floods.	Good.
----------	Slight----------	Good.
e: ayey.	Slight----------	Fair: too clayey.
to rock.	Moderate: slope.	Poor: thin layer, area reclaim.
to rock.	Slight----------	Poor: thin layer, area reclaim.
to rock.	Severe: slope.	Poor: thin layer, slope, area reclaim.
to rock.	Severe: slope.	Poor: slope, thin layer, area reclaim.
to rock.	Moderate: slope.	Poor: thin layer.
to rock.	Slight----------	Poor: thin layer.
to rock.	Slight----------	Poor: thin layer.
ge.	Severe: seepage.	Good.
te: layey.	Slight----------	Fair: too clayey.
te: s, layey.	Moderate: floods.	Fair: too clayey.
te: layey.	Slight----------	Fair: too clayey.
to rock.	Severe: slope.	Poor: slope, thin layer.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
ME*:					
Penrose	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Slight	Poor: thin layer.
Litle	Severe: percs slowly, depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Slight	Poor: thin layer.
MF*:					
Montoya	Severe: percs slowly.	Severe: floods.	Severe: too clayey.	Moderate: floods.	Poor: too clayey.
Tucumcari	Severe: percs slowly.	Slight	Severe: too clayey.	Slight	Poor: too clayey.
Lacita	Severe: percs slowly.	Severe: floods.	Moderate: floods.	Moderate: floods.	Good.
MG*:					
Moreno	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight	Poor: too clayey.
Brycan	Severe: percs slowly.	Moderate: slope, seepage.	Moderate: too clayey.	Slight	Fair: too clayey.
NW*:					
Newkirk	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Slight	Poor: thin layer.
Walkon	Severe: depth to rock, percs slowly.	Severe: depth to rock.	Severe: depth to rock, too clayey.	Slight	Poor: thin layer.
Conchas	Severe: depth to rock, percs slowly.	Severe: depth to rock.	Severe: depth to rock.	Slight	Poor: thin layer.
Pa, Pb, PC---------- Partri	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight	Poor: too clayey.
PD*:					
Partri	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight	Poor: too clayey.
Tricon	Severe: cemented pan, percs slowly.	Severe: cemented pan.	Severe: cemented pan.	Slight	Poor: area reclaim, thin layer, too clayey.
PM*:					
Penrose	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Slight	Poor: thin layer.
Litle	Severe: percs slowly, depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Slight	Poor: thin layer.
Mion	Severe: percs slowly, depth to rock.	Severe: depth to rock.	Severe: depth to rock, too clayey.	Slight	Poor: thin layer.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
QU---------- Quintana	Moderate: percs slowly.	Severe: slope.	Severe: seepage.	Slight----------	Good.
RE*: Redona----------	Moderate: percs slowly.	Moderate: seepage.	Slight----------	Slight----------	Good.
Quay----------	Moderate: percs slowly.	Moderate: seepage, slope.	Slight----------	Slight----------	Good.
RF*: Ribera----------	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Slight----------	Poor: thin layer, area reclaim.
Sombordoro---------	Severe: depth to rock, large stones.	Severe: depth to rock, large stones.	Severe: depth to rock, large stones.	Slight----------	Poor: thin layer, area reclaim, large stones.
Vibo----------	Moderate: percs slowly.	Severe: seepage.	Severe: seepage.	Severe: seepage.	Good.
RG*: Rocio----------	Severe: percs slowly, slope.	Severe: slope.	Severe: too clayey.	Severe: slope.	Poor: slope, too clayey.
Dargol----------	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: too clayey, depth to rock.	Moderate: slope.	Poor: thin layer, area reclaim, too clayey.
Stout----------	Severe: depth to rock.	Severe: slope, depth to rock, seepage.	Severe: depth to rock, seepage.	Severe: seepage.	Poor: thin layer, area reclaim.
RH*: Rock outcrop. Haploborolls.					
RT*: Rock outcrop. Torriorthents.					
SR*: Stout----------	Severe: slope, depth to rock.	Severe: slope, depth to rock, seepage.	Severe: slope, depth to rock, seepage.	Severe: slope, seepage.	Poor: slope, thin layer, area reclaim.
Rocio----------	Severe: percs slowly, slope.	Severe: slope.	Severe: too clayey, slope.	Severe: slope.	Poor: slope, too clayey.
Dargol----------	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope.	Poor: slope, thin layer, area reclaim.
SW, Sx, Sy---------- Swastika	Severe: percs slowly.	Moderate: slope.	Moderate: too clayey.	Slight----------	Fair: too clayey.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
TD*:					
Tapia	Moderate: percs slowly.	Moderate: seepage, slope.	Slight	Slight	Fair: small stones.
Dean	Severe: percs slowly.	Moderate: slope.	Slight	Slight	Fair: small stones.
TE Teco	Severe: percs slowly.	Severe: slope, seepage.	Severe: seepage, too clayey.	Slight	Poor: too clayey.
TG Tinaja	Moderate: slope, percs slowly.	Severe: slope, seepage.	Severe: seepage.	Moderate: slope.	Poor: small stones.
TR*:					
Tuloso	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: seepage, slope.	Poor: thin layer, area reclaim, slope.
Rock outcrop.					
Sombordoro	Severe: depth to rock, large stones.	Severe: depth to rock, large stones.	Severe: depth to rock, large stones.	Slight	Poor: thin layer, area reclaim, large stones.
TS*:					
Tuloso	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: seepage.	Poor: thin layer, area reclaim.
Sombordoro	Severe: depth to rock, large stones.	Severe: depth to rock, large stones.	Severe: depth to rock, large stones.	Slight	Poor: thin layer, area reclaim, large stones.
Rock outcrop.					
UF*. Ustifluvents					
UR*: Ustorthents.					
Rock outcrop.					
Va Vermejo	Severe: percs slowly.	Severe: floods.	Severe: too clayey.	Moderate: floods.	Poor: too clayey.
VB*:					
Vibo	Moderate: percs slowly.	Severe: seepage.	Severe: seepage.	Severe: seepage.	Good.
Ribera	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Slight	Poor: thin layer, area reclaim.
VC*:					
Vibo	Moderate: percs slowly.	Severe: seepage.	Severe: seepage.	Severe: seepage.	Good.
Rock outcrop.					

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
VC*: Ribera	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Slight	Poor: thin layer, area reclaim.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 12.--CONSTRUCTION MATERIALS

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," and "poor." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
AQ*:				
Andok	Poor: low strength.	Unsuited	Poor: excess fines.	Poor: small stones, slope.
Quintana	Fair: shrink-swell.	Unsuited	Unsuited	Fair: too clayey.
AY*:				
Apache	Poor: thin layer.	Unsuited	Unsuited	Poor: thin layer, small stones, area reclaim.
Ayon	Poor: large stones.	Unsuited	Unsuited	Poor: large stones.
BA*.				
Badland				
Be	Poor: thin layer, area reclaim, low strength.	Unsuited	Unsuited	Poor: area reclaim, thin layer.
Bernal				
BR*:				
Bernal	Poor: thin layer, area reclaim, low strength.	Unsuited	Unsuited	Poor: area reclaim, thin layer.
Rock outcrop.				
CA*:				
Canez	Fair: low strength.	Unsuited	Unsuited	Good.
Ima	Good	Poor: excess fines.	Unsuited	Fair: too sandy.
Cb, Cc	Poor: shrink-swell, thin layer, low strength.	Unsuited	Unsuited	Fair: thin layer, area reclaim, too clayey.
Carnero				
CD*:				
Carnero	Poor: shrink-swell, thin layer, low strength.	Unsuited	Unsuited	Fair: thin layer, area reclaim, too clayey.
Partri	Poor: shrink-swell, low strength.	Unsuited	Unsuited	Fair: too clayey.
Cf, Cg, CH	Poor: low strength.	Unsuited	Unsuited	Fair: too clayey.
Colmor				
CK*:				
Conchas	Poor: thin layer, low strength.	Unsuited	Unsuited	Fair: thin layer, too clayey.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
CK*:				
Latom	Poor: thin layer.	Unsuited	Unsuited	Poor: thin layer.
CT*:				
Crews	Poor: shrink-swell, low strength, thin layer.	Unsuited	Unsuited	Poor: thin layer, area reclaim, too clayey.
Tricon	Poor: low strength, shrink-swell.	Unsuited	Unsuited	Fair: thin layer, area reclaim, too clayey.
DA*:				
Dioxice	Poor: low strength.	Unsuited	Unsuited	Good.
Dean	Fair: low strength.	Poor: excess fines.	Poor: excess fines.	Poor: excess lime, small stones.
DB*:				
Dumas	Fair: low strength.	Unsuited	Unsuited	Fair: too clayey.
La Brier	Poor: low strength, shrink-swell.	Unsuited	Unsuited	Fair: too clayey.
GA	Fair: slope.	Unsuited	Fair: excess fines.	Poor: slope, small stones.
Gallegos				
GB*:				
Gullied land.				
Manzano	Fair: low strength, shrink-swell, frost action.	Unsuited	Unsuited	Good.
GC*:				
Gullied land.				
Montoya	Poor: shrink-swell, low strength.	Unsuited	Unsuited	Poor: too clayey.
KA*:				
Karde	Fair: low strength.	Unsuited	Unsuited	Fair: excess salt.
Vermejo	Poor: shrink-swell, low strength.	Unsuited	Unsuited	Poor: too clayey, excess salt.
KR*	Poor: area reclaim, thin layer.	Unsuited	Unsuited	Poor: area reclaim, large stones, slope.
Kiln				
Rock outcrop.				
La	Poor: low strength, shrink-swell.	Unsuited	Unsuited	Fair: too clayey.
La Brier				

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
LB*:				
Lacita	Fair: low strength, shrink-swell.	Unsuited	Unsuited	Fair: too clayey.
San Jose	Fair: low strength.	Poor: excess fines.	Unsuited	Good.
LC*:				
La Lande	Fair: low strength, shrink-swell.	Unsuited	Unsuited	Fair: too clayey.
Redona	Fair: low strength, shrink-swell.	Unsuited	Unsuited	Fair: too clayey.
LE*:				
Laporte	Poor: thin layer, area reclaim.	Unsuited	Unsuited	Poor: thin layer, small stones, area reclaim.
Escabosa	Poor: low strength.	Unsuited	Unsuited	Poor: small stones.
LF*:				
Laporte	Poor: thin layer, area reclaim.	Unsuited	Unsuited	Poor: small stones, slope, area reclaim.
Rock outcrop.				
Escabosa	Poor: low strength.	Unsuited	Unsuited	Poor: slope, small stones.
LN*:				
Latom	Poor: thin layer.	Unsuited	Unsuited	Poor: thin layer.
Newkirk	Poor: thin layer.	Unsuited	Unsuited	Poor: thin layer.
Rock outcrop.				
Lo, Lp Litle	Poor: low strength, shrink-swell.	Unsuited	Unsuited	Poor: too clayey.
MA Manter	Fair: low strength, frost action.	Poor: excess fines.	Unsuited	Fair: too sandy.
Mb, MC Manzano	Fair: low strength, shrink-swell, frost action.	Unsuited	Unsuited	Good.
Md Manzano	Fair: low strength, shrink-swell, frost action.	Unsuited	Unsuited	Fair: too clayey.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
ME*:				
Mion	Poor: shrink-swell, low strength, thin layer.	Unsuited	Unsuited	Poor: slope, thin layer, area reclaim.
Penrose	Poor: thin layer, area reclaim.	Unsuited	Unsuited	Poor: area reclaim, thin layer, small stones.
Litle	Poor: low strength, shrink-swell.	Unsuited	Unsuited	Poor: too clayey.
MF*:				
Montoya	Poor: shrink-swell, low strength.	Unsuited	Unsuited	Poor: too clayey, excess salt.
Tucumcari	Poor: shrink-swell, low strength.	Unsuited	Unsuited	Poor: too clayey.
Lacita	Fair: low strength, shrink-swell.	Unsuited	Unsuited	Fair: too clayey.
MG*:				
Moreno	Poor: shrink-swell, low strength.	Unsuited	Unsuited	Fair: too clayey.
Brycan	Fair: low strength, shrink-swell.	Unsuited	Unsuited	Good.
NW*:				
Newkirk	Poor: thin layer, area reclaim.	Unsuited	Unsuited	Poor: thin layer.
Walkon	Poor: low strength, thin layer.	Unsuited	Unsuited	Fair: too clayey, thin layer.
Conchas	Poor: thin layer, low strength.	Unsuited	Unsuited	Fair: too clayey, excess sodium.
Pa, Pb, PC Partri	Poor: shrink-swell, low strength.	Unsuited	Unsuited	Poor: too clayey.
PD*:				
Partri	Poor: shrink-swell, low strength.	Unsuited	Unsuited	Poor: too clayey.
Tricon	Poor: low strength, shrink-swell, thin layer.	Unsuited	Unsuited	Fair: thin layer, too clayey, area reclaim.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
PM*:				
Penrose	Poor: thin layer, area reclaim.	Unsuited	Unsuited	Poor: area reclaim, thin layer, small stones.
Litle	Poor: low strength, shrink-swell.	Unsuited	Unsuited	Poor: too clayey.
Mion	Poor: shrink-swell, low strength, thin layer.	Unsuited	Unsuited	Poor: thin layer, area reclaim.
QU	Fair: shrink-swell.	Unsuited	Unsuited	Fair: too clayey.
Quintana				
RE*:				
Redona	Fair: low strength, shrink-swell.	Unsuited	Unsuited	Fair: too clayey.
Quay	Fair: low strength, shrink-swell.	Unsuited	Unsuited	Fair: too clayey.
RF*:				
Ribera	Poor: area reclaim, thin layer.	Unsuited	Unsuited	Fair: area reclaim, thin layer, too clayey.
Sombordoro	Poor: shrink-swell, low strength, area reclaim.	Unsuited	Unsuited	Poor: too clayey, large stones, area reclaim.
Vibo	Fair: low strength, shrink-swell.	Poor: excess fines.	Unsuited	Fair: too clayey.
RG*:				
Rocio	Poor: low strength, shrink-swell.	Unsuited	Unsuited	Poor: slope.
Dargol	Poor: shrink-swell, low strength, thin layer.	Unsuited	Unsuited	Poor: too clayey.
Stout	Poor: thin layer, area reclaim.	Unsuited	Unsuited	Poor: thin layer, large stones, area reclaim.
RH*:				
Rock outcrop.				
Haploborolls.				
RT*:				
Rock outcrop.				
Torriorthents.				

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
SR*:				
Stout	Poor: slope, thin layer, area reclaim.	Unsuited	Unsuited	Poor: slope, thin layer, large stones.
Rocio	Poor: low strength, shrink-swell, slope.	Unsuited	Unsuited	Poor: slope.
Dargol	Poor: slope, low strength, thin layer.	Unsuited	Unsuited	Poor: slope, too clayey.
SW, Sx, Sy---- Swastika	Poor: shrink-swell, low strength.	Unsuited	Unsuited	Fair: too clayey.
TD*:				
Tapia	Fair: low strength, shrink-swell.	Unsuited	Unsuited	Fair: too clayey.
Dean	Fair: low strength.	Poor: excess fines.	Poor: excess fines.	Poor: excess lime, small stones.
TE---- Teco	Poor: shrink-swell, low strength.	Unsuited	Unsuited	Poor: too clayey.
TG---- Tinaja	Good	Fair: excess fines.	Fair: excess fines.	Poor: small stones.
TR*:				
Tuloso	Poor: thin layer, slope, area reclaim.	Unsuited	Poor: excess fines.	Poor: large stones, thin layer, area reclaim.
Rock outcrop.				
Sombordoro	Poor: shrink-swell, low strength, thin layer.	Unsuited	Unsuited	Poor: too clayey, large stones, thin layer.
TS*:				
Tuloso	Poor: thin layer, area reclaim.	Unsuited	Poor: excess fines.	Poor: large stones, thin layer, area reclaim.
Sombordoro	Poor: shrink-swell, low strength, thin layer.	Unsuited	Unsuited	Poor: too clayey, large stones, thin layer.
Rock outcrop.				
UF*. Ustifluvents				
UR*: Ustorthents.				
Rock outcrop.				

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
Va---------- Vermejo	Poor: shrink-swell, low strength.	Unsuited----------	Unsuited----------	Poor: too clayey, excess salt.
VB*: Vibo----------	Fair: low strength, shrink-swell.	Poor: excess fines.	Unsuited----------	Fair: too clayey.
Ribera----------	Poor: area reclaim, thin layer.	Unsuited----------	Unsuited----------	Fair: area reclaim, thin layer.
VC*: Vibo----------	Fair: low strength, shrink-swell.	Poor: excess fines.	Unsuited----------	Fair: too clayey.
Rock outcrop.				
Ribera----------	Poor: area reclaim, thin layer.	Unsuited----------	Unsuited----------	Fair: area reclaim, thin layer.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 13.--WATER MANAGEMENT

[Some terms that describe restrictive soil features are defined in the Glossary. Absence of an entry indicates that the soil was not evaluated]

Soil name and map symbol	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions
AQ*:					
Andok	Seepage	Seepage	Slope	Droughty, slope.	Slope.
Quintana	Seepage	Seepage	Favorable	Slope, erodes easily.	Favorable.
AY*:					
Apache	Depth to rock	Thin layer, piping.	Depth to rock, slope.	Rooting depth, slope.	Depth to rock.
Ayon	Seepage	Large stones	Slope, large stones.	Large stones, slope, droughty.	Large stones, slope.
BA*.					
Badland					
Be	Depth to rock, slope.	Thin layer	Depth to rock, slope.	Rooting depth, slope.	Depth to rock.
Bernal					
BR*:					
Bernal	Depth to rock, slope.	Thin layer	Depth to rock, slope.	Rooting depth, slope.	Depth to rock.
Rock outcrop.					
CA*:					
Canez	Seepage, slope.	Piping	Favorable	Slope, soil blowing.	Soil blowing.
Ima	Seepage	Seepage	Favorable	Erodes easily	Erodes easily.
Cb, Cc	Depth to rock, slope.	Hard to pack, thin layer.	Depth to rock, percs slowly.	Rooting depth, percs slowly.	Depth to rock, rooting depth, percs slowly.
Carnero					
CD*:					
Carnero	Depth to rock, slope.	Hard to pack, thin layer.	Depth to rock, percs slowly.	Rooting depth, percs slowly.	Depth to rock, rooting depth, percs slowly.
Partri	Slope	Favorable	Percs slowly	Percs slowly, slope, erodes easily.	Percs slowly.
Cf, Cg, CH	Slope	Piping	Favorable	Slope. slope.	Slope.
Colmor					
CK*:					
Conchas	Depth to rock	Thin layer	Depth to rock, excess sodium.	Rooting depth, erodes easily.	Depth to rock.
Latom	Depth to rock	Thin layer	Depth to rock, slope.	Rooting depth, droughty, slope.	Depth to rock, slope.
CT*:					
Crews	Cemented pan	Thin layer	Cemented pan	Rooting depth	Cemented pan, rooting depth.
Tricon	Cemented pan	Thin layer	Percs slowly, cemented pan, slope.	Percs slowly, rooting depth, slope.	Cemented pan, percs slowly.

See footnote at end of table.

13.--WATER MANAGEMENT--Continued

ankments, , and levees	Drainage	Irrigation	Terraces and diversions
g	Favorable	Erodes easily	Favorable.
able	Slope, percs slowly.	Percs slowly	Percs slowly.
able	Slope	Slope	Favorable.
to pack	Percs slowly	Percs slowly	Percs slowly.
ge	Slope	Droughty, slope.	Slope, droughty.
able	Complex slope	Slope	Favorable.
to pack	Percs slowly, excess salt.	Percs slowly	Percs slowly.
able	Favorable	Erodes easily, slope.	Favorable.
to pack	Excess salt, percs slowly.	Excess salt, percs slowly.	Percs slowly.
layer, e stones.	Depth to rock, slope.	Large stones, rooting depth, slope.	Depth to rock, slope, large stones.
to pack	Percs slowly	Percs slowly	Percs slowly.
able	Floods, slope.	Erodes easily, floods.	Erodes easily.
g	Floods	Floods, soil blowing.	Soil blowing.
able	Slope	Slope, erodes easily.	Favorable.
able	Favorable	Slope	Favorable.
layer	Depth to rock, slope.	Rooting depth, slope.	Depth to rock, rooting depth, slope.
layer	Depth to rock, slope.	Rooting depth, slope.	Depth to rock, slope.
layer	Depth to rock, slope.	Rooting depth, slope.	Depth to rock, rooting depth, slope.

ENT--Continued

Drainage	Irrigation	Terraces and diversions
to rock, e.	Rooting depth, slope.	Depth to rock, slope.
to rock-----	Rooting depth, droughty, slope.	Depth to rock, slope, droughty.
to rock, e.	Rooting depth, slope, soil blowing.	Depth to rock, soil blowing.
ss salt, s slowly, h to rock.	Rooting depth, excess salt, percs slowly.	Depth to rock, percs slowly, slope.
----------	Droughty, slope.	Soil blowing.
lex slope-----	Complex slope-----	Favorable.
lex slope-----	Complex slope-----	Favorable.
lex slope-----	Complex slope-----	Favorable.
h to rock, cs slowly, pe.	Slope, erodes easily, percs slowly.	Complex slope, depth to rock, percs slowly.
h to rock, pe.	Droughty, rooting depth, slope.	Depth to rock, slope, droughty.
ss salt, cs slowly, th to rock.	Rooting depth, excess salt, percs slowly.	Depth to rock, percs slowly, slope.
s slowly, ess salt, ods.	Percs slowly------	Percs slowly.
rable---------	Slope, erodes easily.	Favorable.
e----------	Erodes easily, slope.	Erodes easily.
s slowly, pe.	Slope, percs slowly.	Slope, percs slowly.
rable---------	Favorable---------	Favorable.
h to rock, pe.	Rooting depth, slope, soil blowing.	Depth to rock, soil blowing.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions
NW*:					
Walkon	Slope, depth to rock.	Thin layer	Slope, percs slowly, depth to rock.	Slope, percs slowly, rooting depth.	Depth to rock, percs slowly.
Conchas	Depth to rock	Thin layer	Depth to rock, excess sodium.	Rooting depth, erodes easily.	Depth to rock.
Pa, Pb, PC Partri	Slope	Favorable	Percs slowly	Percs slowly, slope, erodes easily.	Percs slowly.
PD*:					
Partri	Slope	Favorable	Percs slowly	Percs slowly, slope, erodes easily.	Percs slowly.
Tricon	Cemented pan	Thin layer	Percs slowly, cemented pan, slope.	Percs slowly, rooting depth, slope.	Cemented pan, percs slowly.
PM*:					
Penrose	Depth to rock, slope.	Thin layer, piping.	Depth to rock, slope.	Droughty, rooting depth, slope.	Depth to rock, slope.
Litle	Depth to rock	Hard to pack	Excess salt, percs slowly. depth to rock.	Rooting depth, excess salt, percs slowly.	Depth to rock, percs slowly, slope.
Mion	Slope, depth to rock.	Thin layer	Depth to rock, percs slowly, slope.	Slope, percs slowly, rooting depth.	Complex slope, depth to rock, percs slowly.
QU Quintana	Seepage	Seepage	Slope	Slope, erodes easily.	Favorable.
RE*:					
Redona	Seepage	Piping	Favorable	Slope	Favorable.
Quay	Slope, seepage.	Favorable	Favorable	Slope, erodes easily.	Favorable.
RF*:					
Ribera	Depth to rock, seepage.	Thin layer	Depth to rock, slope.	Slope, soil blowing, rooting depth.	Slope, soil blowing, depth to rock.
Sombordoro	Depth to rock	Thin layer	Percs slowly, depth to rock.	Large stones, percs slowly, rooting depth.	Large stones, depth to rock.
Vibo	Seepage, slope.	Piping, seepage.	Slope, cutbanks cave.	Slope, soil blowing.	Slope, soil blowing.
RG*:					
Rocio	Slope	Hard to pack	Complex slope, percs slowly.	Slope, erodes easily, percs slowly.	Slope, percs slowly.
Dargol	Slope, depth to rock.	Thin layer, hard to pack.	Slope, depth to rock.	Slope, rooting depth.	Depth to rock.
Stout	Slope, depth to rock, seepage.	Thin layer	Slope, depth to rock.	Droughty, slope, rooting depth.	Depth to rock, slope.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions
RH*: Rock outcrop.					
Haploborolls.					
RT*: Rock outcrop.					
Torriorthents.					
SR*: Stout	Slope, depth to rock, seepage.	Thin layer	Slope, depth to rock.	Droughty, slope, rooting depth.	Depth to rock, slope.
Rocio	Slope	Hard to pack	Complex slope, percs slowly.	Slope, erodes easily, percs slowly.	Slope, percs slowly.
Dargol	Slope, depth to rock.	Thin layer, hard to pack.	Slope, depth to rock.	Slope, rooting depth.	Slope, depth to rock.
SW, Sx, Sy: Swastika	Slope	Hard to pack	Percs slowly	Percs slowly, slope, erodes easily.	Percs slowly.
TD*: Tapia	Seepage, slope.	Seepage	Favorable	Favorable	Favorable.
Dean	Slope	Favorable	Slope, percs slowly.	Percs slowly	Percs slowly.
TE: Teco	Seepage	Hard to pack	Slope	Slope, erodes easily.	Erodes easily.
TG: Tinaja	Slope, seepage.	Seepage	Slope	Slope, droughty.	Slope, droughty.
TR*: Tuloso	Seepage, depth to rock.	Thin layer, large stones.	Depth to rock, slope.	Droughty, slope, rooting depth.	Large stones, depth to rock, slope.
Rock outcrop.					
Sombordoro	Depth to rock	Thin layer	Percs slowly, depth to rock.	Large stones, percs slowly, rooting depth.	Large stones, depth to rock.
TS*: Tuloso	Seepage, depth to rock.	Thin layer, large stones.	Depth to rock, slope.	Droughty, slope, rooting depth.	Large stones, depth to rock, slope.
Sombordoro	Depth to rock	Thin layer	Percs slowly, depth to rock.	Large stones, percs slowly, rooting depth.	Large stones, depth to rock.
Rock outcrop.					
UF*. Ustifluvents					
UR*: Ustorthents.					

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions
UR*: Rock outcrop.					
Va---------- Vermejo	Favorable---------	Hard to pack-----	Excess salt, percs slowly.	Excess salt, percs slowly.	Percs slowly.
VB*: Vibo----------	Seepage, slope.	Piping, seepage.	Slope----------	Slope, soil blowing.	Slope, soil blowing.
Ribera----------	Depth to rock, seepage, slope.	Thin layer-------	Depth to rock, slope.	Slope, soil blowing, rooting depth.	Slope, soil blowing, depth to rock.
VC*: Vibo----------	Seepage, slope.	Piping, seepage.	Slope----------	Slope, soil blowing.	Slope, soil blowing.
Rock outcrop.					
Ribera----------	Depth to rock, seepage, slope.	Thin layer-------	Depth to rock, slope.	Slope, soil blowing, rooting depth.	Slope, soil blowing, depth to rock.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 14.--ENGINEERING INDEX PROPERTIES

[The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated]

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
AQ*:											
Andok	0-9	Very gravelly loam.	GM	A-4	5-20	60-70	50-60	40-55	35-50	15-30	NP-5
	9-37	Very cobbly clay loam, very gravelly sandy clay loam.	GC	A-6, A-2	25-35	55-65	50-60	40-55	25-45	30-40	10-20
	37-60	Very gravelly sandy loam, very gravelly loam.	GM, SM, GP-GM, SP-SM	A-1, A-2	0-10	30-60	25-55	15-50	5-35	15-25	NP-5
Quintana	0-6	Loam	ML	A-4	0	95-100	90-100	80-95	65-85	25-35	NP-10
	6-19	Clay loam, sandy clay loam, loam.	CL-ML, CL, SM-SC, SC	A-4, A-6	0	95-100	90-100	75-95	35-75	25-40	5-15
	19-60	Very gravelly sandy loam, gravelly sandy clay loam.	SM, SP-SM, GM, GP-GM	A-1, A-2	0	35-95	40-60	30-50	5-30	20-25	NP-5
AY*:											
Apache	0-6	Cobbly loam	CL	A-6	15-40	80-100	75-95	65-90	50-75	30-40	10-20
	6-19	Cobbly loam, cobbly clay loam.	CL	A-6	15-40	80-100	75-95	70-90	60-80	30-40	10-20
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Ayon	0-11	Stony loam	ML	A-6, A-7	10-20	90-100	85-100	80-100	70-90	35-50	10-20
	11-60	Very stony loam, stony loam, stony clay loam	GM	A-2	40-65	40-50	30-45	30-40	25-35	35-50	10-20
BA*.											
Badland											
Be	0-6	Loam	CL	A-6	0	100	100	90-100	60-80	25-40	10-20
Bernal	6-19	Sandy clay loam, clay loam.	CL	A-6	0	100	80-100	70-90	50-70	30-40	15-25
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
BR*:											
Bernal	0-5	Loam	CL, CL-ML	A-6, A-4	0	100	100	65-95	50-65	20-35	5-20
	5-12	Sandy clay loam, clay loam.	CL	A-6	0	100	80-100	70-90	50-70	25-40	15-25
	12	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
CA*:											
Canez	0-10	Fine sandy loam	SM, ML	A-4	0	100	100	75-90	40-55	---	NP
	10-32	Sandy loam, fine sandy loam, sandy clay loam.	CL-ML, CL, SC, SM-SC	A-4, A-6	0	100	100	70-90	35-55	25-35	5-15
	32-60	Sandy clay loam, loam, clay loam	ML, SM	A-4	0	100	100	70-90	40-60	25-35	NP-10

See footnote at end of table.

lg 200	Liquid limit	Plasticity index
	Pct	
25-50	20-30	NP-5
25-50	20-30	NP-5
55-75	30-40	10-20
60-95	30-45	10-20
60-95	40-55	15-30
60-95	30-45	10-20
---	---	---
60-95	30-45	10-20
60-95	40-55	15-30
---	---	---
70-95	20-30	NP-10
70-85	30-50	10-30
65-80	30-40	10-20
70-90	30-35	5-15
60-95	30-40	10-20
60-85	25-45	5-15
70-90	30-35	5-15
60-95	30-40	10-20
60-85	25-45	5-15
60-90	25-35	5-15
75-90	30-45	10-20
---	---	---
45-45	20-25	NP-5
---	---	---
80-85	25-35	5-15
75-95	35-55	15-30
---	---	---

EX PROPERTIES--Continued

on	Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
HTO		4	10	40	200		
	Pct					Pct	
, A-6	0	100	100	85-100	70-90	20-35	5-15
, A-7	0	100	100	90-100	75-95	35-55	15-30
--	---	---	---	---	---	---	---
	0	95-100	90-100	80-100	70-85	30-40	10-15
	0	95-100	90-100	85-100	60-85	30-45	5-20
5, 7	0-15	65-100	60-100	55-100	50-85	30-45	5-20
6, 7	0	80-100	75-100	65-95	60-85	20-30	NP-10
	5-10	60-80	55-80	50-65	35-50	20-30	NP-5
, A-6	0	100	100	95-100	50-70	25-35	5-15
, A-7	0	100	100	95-100	50-75	25-45	10-25
, A-6	0	100	100	95-100	70-85	30-40	5-15
	0	100	100	95-100	85-100	40-55	15-30
	0	100	100	95-100	85-100	40-50	10-25
, A-2	5-10	50-65	45-55	30-45	10-35	20-25	NP-5
6, 4	5-15	50-75	30-60	25-50	10-40	20-30	5-15
	5-15	20-40	15-30	5-15	0-10	---	NP
	0	100	100	85-100	60-80	20-30	5-10
, A-6	0	100	100	85-100	60-85	25-40	5-15
, A-7	0	100	100	90-100	70-80	30-55	10-35
	0	100	100	90-100	75-95	45-55	25-35

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
KA*:											
Karde	0-6	Loam	ML, CL-ML	A-4	0	100	100	85-95	60-75	25-35	5-10
	6-60	Loam, clay loam, silt loam.	CL, CL-ML	A-4, A-6	0	100	100	85-100	75-85	25-35	5-15
Vermejo	0-3	Clay loam	CL	A-6, A-7	0	100	100	95-100	85-95	35-45	15-25
	3-60	Silty clay, clay	CL, CH	A-7	0	100	100	90-100	75-95	45-55	20-35
KR*	0-4	Stony loam	ML, CL-ML	A-4	20-45	90-100	85-95	75-90	55-70	25-35	5-10
Kiln	4-14	Stony clay loam, stony silty clay loam.	ML, CL	A-6, A-7	20-45	90-100	85-95	75-95	50-75	35-45	10-20
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
La	0-4	Silty clay loam	ML, CL	A-6, A-7	0	100	100	95-100	85-100	35-45	10-20
La Brier	4-60	Silty clay loam, clay loam, clay.	CL, CH	A-7	0	100	100	95-100	85-100	40-55	15-30
LB*:											
Lacita	0-4	Silty clay loam	CL-ML, CL	A-4, A-6	0	100	100	95-100	80-95	25-35	5-15
	4-60	Silt loam, silty clay loam, clay loam.	CL-ML, CL	A-4, A-6	0	100	100	95-100	80-95	25-35	5-15
San Jose	0-12	Fine sandy loam	SM, ML	A-4	0	100	100	70-85	40-55	15-25	NP-5
	12-60	Stratified sandy loam, sandy clay loam.	SM, ML, CL-ML, SM-SC	A-4	0	100	100	65-90	35-65	15-25	NP-10
LC*:											
La Lande	0-3	Sandy loam	SM, ML	A-4	0	100	100	90-100	35-75	---	NP
	3-31	Loam, sandy clay loam, clay loam.	CL-ML, CL	A-4, A-6	0	100	100	85-95	55-75	25-35	5-15
	31-60	Loam, sandy clay loam, clay loam	CL-ML	A-4	0	100	100	85-95	50-60	20-30	5-10
Redona	0-5	Loam	ML	A-4	0	100	100	85-100	60-75	15-25	NP-5
	5-60	Sandy clay loam, clay loam, silty clay loam	SM-SC, SC, CL-ML, CL	A-4, A-6	0	100	100	80-100	35-55	20-35	5-15
LE*:											
Laporte	0-5	Channery loam	ML, GM	A-4	0-15	50-90	50-75	45-70	35-60	20-30	NP-5
	5-13	Channery loam, channery clay loam, stony loam.	GM	A-2, A-4, A-1	0-15	50-70	50-70	35-65	20-45	20-30	NP-5
	13	Weathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

A texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
	Unified	AASHTO		4	10	40	200		
			Pct					Pct	
ery loam---	SM, ML, GM	A-4	0-10	65-80	55-75	50-70	35-60	20-30	NP-5
lly loam, ly loam, ly clay	CL-ML, GM-GC, CL, SC	A-4, A-6	0-30	65-80	60-75	50-70	40-60	25-40	5-20
thered ock.	---	---	---	---	---	---	---	---	---
loam------	GM, ML	A-2, A-4	25-35	50-90	50-90	40-70	25-60	20-30	NP-5
ery loam, nery clay , loam.	GM	A-2, A-4, A-1	0-15	50-70	50-70	35-65	20-45	20-30	NP-5
ered ock.	---	---	---	---	---	---	---	---	---
loam------	SM, ML, GM	A-4	0-10	65-80	55-75	50-70	35-60	20-30	NP-5
lly loam, ly loam, ly clay .	CL-ML, GM-GC, CL, SC	A-4, A-6	0-30	65-80	60-75	50-70	40-60	25-40	5-20
athered ock.	---	---	---	---	---	---	---	---	---
sandy loam athered ock.	SM	A-4, A-2	0-5	80-100	75-100	70-90	25-45	20-25	NP-5
	---	---	---	---	---	---	---	---	---
sandy loam y clay loam, y loam.	SM, ML	A-2, A-4	0-5	85-100	80-100	50-85	25-55	20-30	NP-5
	SM-SC, CL-ML, SC, CL	A-2, A-4, A-6	0-5	85-100	80-100	65-95	30-75	25-40	5-15
athered rock.	---	---	---	---	---	---	---	---	---
loam-------	CL	A-6, A-7	0	100	100	90-100	70-80	30-45	10-20
, silty y, clay loam	CL, CH	A-7	0	100	100	90-100	80-95	40-55	15-30
hered rock.	---	---	---	---	---	---	---	---	---
y fine sand	SM	A-2, A-4, A-1	0	95-100	75-100	45-85	15-45	---	NP
sandy loam, dy loam.	SM, ML	A-2, A-4	0	95-100	75-100	50-85	30-55	15-25	NP-5
y loam, my fine sand	SM	A-2, A-4, A-1	0	95-100	75-100	40-85	15-50	---	NP
sandy loam	SM, ML	A-4	0	100	100	70-85	40-55	20-25	NP
, clay loam	CL, CL-ML	A-4, A-6	0	100	100	85-100	60-85	25-40	5-15
----------	CL-ML, CL	A-4	0	100	100	85-100	60-80	20-30	5-10
, clay loam	CL, CL-ML	A-4, A-6	0	100	100	85-100	60-85	25-40	5-15
loam-------	CL	A-6	0	100	100	90-100	75-85	30-40	10-15
, clay loam	CL, CL-ML	A-4, A-6	0	100	100	85-100	60-85	25-40	5-15

ple.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
ME*:											
Mion	0-4	Silty clay loam	CL	A-6	0	100	100	90-100	65-95	30-40	10-15
	4-12	Silty clay, clay	CL, CH	A-7	0	100	100	90-100	75-95	40-55	15-25
	12	Weathered bedrock.	---	---	---	---	---	---	---	---	---
Penrose	0-4	Channery loam	ML, CL-ML, GM	A-4	5-20	60-75	60-75	50-75	40-60	15-25	NP-10
	4-14	Clay loam, loam.	CL-ML	A-4	5-20	85-95	80-90	70-80	50-75	20-30	5-10
	14	Weathered bedrock.	---	---	---	---	---	---	---	---	---
Litle	0-5	Clay loam	CL	A-6, A-7	0	100	100	90-100	70-80	30-45	10-20
	5-23	Clay, silty clay, clay loam	CL, CH	A-7	0	100	100	90-100	80-95	40-55	15-30
	23	Weathered bedrock.	---	---	---	---	---	---	---	---	---
MF*:											
Montoya	0-4	Clay loam	CL, CH	A-6, A-7	0	100	100	90-100	70-80	30-55	10-35
	4-60	Clay, clay loam.	CL, CH	A-7	0	100	100	90-100	75-95	45-55	25-35
Tucumcari	0-4	Loam	CL, CL-ML	A-4, A-6	0	100	100	85-95	65-75	25-35	5-15
	4-51	Clay loam, silty clay, silty clay loam.	CL, CH	A-6, A-7	0	100	100	90-100	60-90	35-55	20-30
	51-60	Clay loam, silty clay loam, clay	CL	A-6	0	100	100	90-100	60-90	30-40	10-20
Lacita	0-4	Silty clay loam	CL-ML, CL	A-4, A-6	0	100	100	95-100	80-95	25-35	5-15
	4-60	Silt loam, silty clay loam, clay loam.	CL-ML, CL	A-4, A-6	0	100	100	95-100	80-95	25-35	5-15
MG*:											
Moreno	0-4	Loam	ML, CL-ML	A-4	5-10	95-100	90-95	75-90	55-70	25-35	5-10
	4-53	Clay loam, clay.	CL	A-6, A-7	5-15	95-100	75-95	65-90	50-75	35-50	15-25
	53-60	Gravelly clay, gravelly sandy clay, clay loam	CL, CH, SC	A-7	10-20	80-90	60-80	50-70	40-55	40-55	20-30
Brycan	0-5	Loam	CL-ML, ML	A-4	0	100	100	85-95	60-75	25-35	5-10
	5-50	Loam, clay loam.	SM-SC, SC, CL-ML, CL	A-4, A-6	0-10	95-100	90-100	75-90	35-55	25-35	5-15
	50-60	Clay loam, loam, sandy clay loam	CL, ML	A-6, A-4	0-15	90-100	85-100	70-90	60-80	30-40	5-20
NW*:											
Newkirk	0-4	Sandy loam	SM, ML	A-2, A-4	0-5	85-100	80-100	50-85	25-55	20-30	NP-5
	4-13	Sandy clay loam, clay loam.	SM-SC, CL-ML, SC, CL	A-2, A-4, A-6	0-5	85-100	80-100	65-95	30-75	25-40	5-15
	13	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Walkon	0-4	Fine sandy loam	SM	A-2, A-4	0-5	90-100	90-100	55-70	25-40	15-20	NP-5
	4-31	Clay loam, silt loam, sandy clay loam.	CL	A-6, A-7	0-5	95-100	95-100	95-100	95-100	35-50	15-25
	31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

NG INDEX PROPERTIES--Continued

fication	AASHTO	Frag-ments > 3 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plas-ticity index
		Pct					Pct	
L	A-4, A-6	0	100	100	85-100	60-90	25-35	5-15
	A-6, A-7	0	100	100	95-100	75-90	30-45	10-20
	---	---	---	---	---	---	---	---
	A-4	0	100	100	90-100	70-95	20-30	NP-10
	A-6, A-7	0	95-100	90-100	80-100	70-85	30-50	10-30
ML	A-4	0	100	100	90-100	70-95	20-30	NP-10
	A-6, A-7	0	95-100	90-100	80-100	70-85	30-50	10-30
	A-6	0-30	60-100	55-100	45-95	45-80	30-40	10-20
CL	A-4, A-6	0	100	100	85-100	70-90	20-35	5-15
	A-6, A-7	0	100	100	90-100	75-95	35-55	15-30
	---	---	---	---	---	---	---	---
	A-4	5-10	60-75	60-75	50-75	40-60	15-25	NP-5
ML	A-4	5-10	60-80	60-80	50-75	40-60	15-25	NP-10
	---	---	---	---	---	---	---	---
	A-7	0	100	100	90-100	80-95	40-55	15-30
	A-7	0	100	100	90-100	80-95	40-55	15-30
	---	---	---	---	---	---	---	---
	A-4, A-6	0	100	100	90-100	65-95	30-40	10-15
	A-7	0	100	100	90-100	75-95	40-55	15-25
	---	---	---	---	---	---	---	---
	A-4	0	65-80	60-75	50-70	35-50	25-35	NP-10
	A-4, A-6	0	95-100	90-100	75-95	35-75	25-40	5-15
	A-1, A-2	0	80-90	75-85	45-60	20-35	20-25	NP-5
	A-1, A-2	0	35-65	30-50	20-40	5-30	20-25	NP-5

]EERING INDEX PROPERTIES--Continued

.assification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
.fied	AASHTO		4	10	40	200		
		Pct					Pct	
	A-4	0	100	100	85-100	60-75	15-25	NP-5
SC,	A-4, A-6	0	100	100	80-100	35-55	20-35	5-15
-ML,								
	A-4	0	100	100	85-100	55-70	25-35	5-10
-ML								
CL-ML	A-4, A-6	0	100	100	85-100	75-85	25-35	5-15
SM	A-4	0	100	100	70-90	40-60	20-25	NP-5
ML, CL	A-4	0	100	100	85-95	50-75	25-30	5-10
SM	A-4	0	100	100	70-90	45-60	20-25	NP-5
---	---	---	---	---	---	---	---	---
SM	A-1, A-2, A-4	25-40	60-100	55-95	40-65	15-40	---	NP
CH	A-6, A-7	40-95	85-100	80-100	70-100	50-90	35-55	20-30
---	---	---	---	---	---	---	---	---
ML	A-4	0	100	100	60-85	35-55	20-30	NP-5
SC,	A-4, A-6	0	100	100	80-90	35-55	25-35	5-15
-ML,								
	A-2, A-4	0	100	100	60-70	30-40	20-30	NP-5
	A-2, A-4	10-15	70-95	65-80	55-80	25-40	---	NP
GM	A-2, A-4	10-15	60-80	55-75	45-65	25-40	---	NP
	A-7	0-10	90-100	90-100	75-100	50-95	50-60	25-35
SM	A-4	5-15	90-100	70-90	55-85	35-65	---	NP-5
MH	A-7	5-15	90-100	70-100	65-90	60-80	50-60	20-30
---	---	---	---	---	---	---	---	---
	A-2	25-35	95-100	90-100	50-70	20-35	---	NP
	A-2, A-4	30-40	95-100	90-100	55-75	30-45	---	NP
---	---	---	---	---	---	---	---	---

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
*:											
tout----------	0-4	Cobbly fine sandy loam.	SM	A-2	25-35	95-100	90-100	50-70	20-35	---	NP
	4-10	Cobbly fine sandy loam, cobbly sandy loam.	SM	A-2, A-4	30-40	95-100	90-100	55-75	30-45	---	NP
	10	Weathered bedrock.	---	---	---	---	---	---	---	---	---
ocio----------	0-5	Gravelly loam---	SM	A-2, A-4	0-10	70-95	65-80	55-80	25-40	---	NP
	5-18	Gravelly fine sandy loam.	SM, GM	A-2, A-4	0-10	60-80	55-75	45-65	25-40	---	NP
	18-60	Clay, sandy clay	CH	A-7	0-10	90-100	90-100	75-100	50-95	50-60	25-35
argol----------	0-12	Stony loam------	ML	A-4	10-20	90-100	75-100	75-95	60-75	20-30	NP-5
	12-22	Clay, clay loam	CH, MH	A-7	5-15	90-100	70-100	65-90	60-80	50-60	20-30
	22	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
----------	0-7	Silt loam-------	ML, CL, CL-ML	A-4, A-6	0	100	100	90-100	70-90	25-35	NP-15
wastika	7-30	Clay loam, clay, silty clay loam	CL, CH	A-6, A-7	0	100	100	95-100	90-95	35-55	15-30
	30-60	Silty clay loam, clay loam.	CL	A-6	0	100	100	95-100	85-95	30-40	10-20
----------	0-3	Clay loam-------	ML, CL, CL-ML	A-4, A-6	0	100	100	90-100	70-90	25-35	NP-15
wastika	3-31	Clay loam, clay, silty clay loam	CL, CH	A-6, A-7	0	100	100	95-100	90-95	35-55	15-30
	31-60	Silty clay loam, clay loam.	CL	A-6	0	100	100	95-100	85-95	30-40	10-20
----------	0-2	Clay loam-------	ML, CL, CL-ML	A-4, A-6	0	100	100	90-100	70-90	25-35	NP-15
wastika	2-30	Clay loam, clay, silty clay loam	CL, CH	A-6, A-7	0	100	100	95-100	90-95	35-55	15-30
	30-60	Silty clay loam, clay loam.	CL, CH	A-6, A-7	0	100	100	95-100	90-95	35-55	15-30
*:											
apia----------	0-5	Loam----------	ML, CL-ML	A-4	0	100	100	85-100	55-80	20-30	NP-10
	5-22	Clay loam, sandy clay loam, loam.	CL	A-6, A-7	0	100	100	85-100	55-85	30-45	10-20
	22-60	Gravelly loam, very gravelly loam.	SM, SM-SC	A-4, A-2	5-15	50-70	45-65	35-55	25-40	20-35	NP-10
ean----------	0-13	Loam----------	ML, CL-ML	A-4	0	80-100	75-100	65-95	60-85	20-30	NP-10
	13-60	Gravelly loam, loam.	GM, SM	A-4	5-10	60-80	55-80	50-65	35-50	20-30	NP-5
----------	0-6	Loam----------	CL-ML	A-4	0	100	100	85-95	65-85	15-25	5-10
eco	6-36	Silty clay loam, clay, clay loam	CL, CH	A-7	0	95-100	90-100	80-100	70-95	40-55	15-30
	36-60	Gravelly fine sandy loam, sandy loam, clay loam.	SM-SC, SM, GM-GC, GM, Cl	A-1, A-2, A-4, A-6	0-5	55-95	50-90	30-80	15-60	15-30	5-15

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
6---	0-7	Gravelly loam---	SM	A-2, A-4	0-5	70-90	60-75	45-70	25-50	20-30	NP-5
	7-14	Gravelly clay loam, gravelly sandy clay loam, gravelly loam.	SM, SM-SC	A-2, A-4	0-10	70-90	60-80	45-70	25-50	20-30	NP-10
	14-42	Very gravelly sandy clay loam, very gravelly loam, very gravelly sandy loam.	GM, SM	A-1, A-2	0-5	50-70	30-50	25-50	10-35	20-30	NP-5
	42-60	Very gravelly loamy sand, very gravelly sand, very gravelly sandy loam.	GP, GP-GM	A-1	0-5	20-45	15-35	5-20	0-10	---	NP
7---	0-3	Stony sandy loam	SM	A-2, A-4	20-25	80-90	75-85	50-65	25-40	15-20	NP-5
	3-11	Very stony fine sandy loam, very stony loam, stony loam.	GM, GM-GC	A-1, A-2, A-4	35-45	55-65	50-60	35-55	20-40	15-30	NP-10
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
8---	0-7	Very stony fine sandy loam.	GM, SM	A-1, A-2, A-4	25-40	60-100	55-95	40-65	15-40	---	NP
	7-16	Extremely stony clay, very stony sandy clay.	CL, CH	A-6, A-7	40-95	85-100	80-100	70-100	50-90	35-55	20-30
	16	Weathered bedrock.	---	---	---	---	---	---	---	---	---
9---	0-3	Stony sandy loam	SM	A-2, A-4	20-25	80-90	75-85	50-65	25-40	15-20	NP-5
	3-11	Very stony fine sandy loam, very stony loam, stony loam.	GM, GM-GC	A-1, A-2, A-4	35-45	55-65	50-60	35-55	20-40	15-30	NP-10
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
10---	0-3	Very stony loam.	GM, SM	A-1, A-2, A-4	25-40	60-100	55-95	40-65	15-40	---	NP
	3-11	Very stony clay, very stony sandy clay.	CL, CH	A-6, A-7	40-95	85-100	80-100	70-100	50-90	35-55	20-30
	11	Weathered bedrock.	---	---	---	---	---	---	---	---	---

at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
UR*:											
Ustorthents.											
Rock outcrop.											
Va---------- Vermejo	0-2	Silty clay loam	CL	A-6, A-7	0	100	100	95-100	85-95	35-45	15-20
	2-60	Silty clay, clay	CL, CH	A-7	0	100	100	90-100	75-95	45-55	20-35
VB*:											
Vibo----------	0-8	Fine sandy loam	SM, ML	A-4	0	100	100	60-85	35-55	20-30	NP-5
	8-24	Sandy clay loam, loam, clay loam	SM-SC, SC, CL-ML, CL	A-4, A-6	0	100	100	80-90	35-55	25-35	5-15
	24-60	Sandy loam, loam	SM	A-2, A-4	0	100	100	60-70	30-40	20-30	NP-5
Ribera----------	0-5	Fine sandy loam	ML, SM	A-4	0	100	100	70-90	40-60	20-25	NP-5
	5-26	Clay loam, sandy clay loam.	CL-ML	A-4	0	100	100	85-95	50-75	25-30	5-10
	26-31	Loam, sandy loam	ML, SM	A-4	0	100	100	70-90	45-60	20-25	NP-5
	31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
VC*:											
Vibo----------	0-8	Fine sandy loam	SM, ML	A-4	0	100	100	60-85	35-55	20-30	NP-5
	8-24	Sandy clay loam, loam, clay loam.	SM-SC, CL-ML, CL	A-4, A-6	0	100	100	80-90	35-55	25-35	5-15
	24-60	Sandy loam, loam	SM	A-2, A-4	0	100	100	60-70	30-40	20-30	NP-5
Rock outcrop.											
Ribera----------	0-5	Fine sandy loam	ML, SM	A-4	0	100	100	70-90	40-60	20-25	NP-5
	5-26	Clay loam, sandy clay loam.	CL-ML	A-4	0	100	100	85-95	50-75	25-30	5-10
	26-31	Loam, sandy loam	ML, SM	A-4	0	100	100	70-90	45-60	20-25	NP-5
	31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS

[The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated]

Soil name and map symbol	Depth	Clay <2mm	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors		Wind erodibility group
								K	T	
	In	Pct	In/hr	In/in	pH	Mmhos/cm				
AQ*:										
Andok	0-9	12-18	0.6-2.0	0.09-0.11	7.9-8.4	<2	Low	0.24	5	8
	9-37	24-30	0.6-2.0	0.07-0.10	7.9-8.4	<2	Moderate	0.24		
	37-60	5-15	2.0-6.0	0.05-0.08	7.9-8.4	<2	Low	0.20		
Quintana	0-6	15-27	0.6-2.0	0.17-0.19	7.4-7.8	<2	Low	0.37	5	6
	6-19	20-30	0.6-2.0	0.16-0.19	7.4-8.4	<2	Moderate	0.32		
	19-60	10-23	2.0-6.0	0.09-0.15	7.9-8.4	<2	Low	0.20		
AY*:										
Apache	0-6	20-27	0.6-2.0	0.12-0.16	7.4-8.4	<2	Low	0.28	1	8
	6-19	25-35	0.6-2.0	0.12-0.16	7.4-8.4	<2	Low	0.28		
	19	---	---	---	---	---	---	---		
Ayon	0-11	18-27	0.6-2.0	0.09-0.13	7.4-9.0	<2	Low	0.24	5	8
	11-60	16-30	0.6-2.0	0.09-0.13	7.4-9.0	<2	Low	0.24		
BA*.										
Badland										
Be	0-6	18-27	0.6-2.0	0.18-0.21	6.6-7.8	<2	Moderate	0.28	1	6
Bernal	6-19	25-35	0.6-2.0	0.18-0.21	6.6-7.8	<2	Moderate	0.28		
	19	---	---	---	---	---	---	---		
BR*:										
Bernal	0-5	18-35	0.6-2.0	0.13-0.16	6.6-7.8	<2	Moderate	0.28	1	5
	5-12	18-35	0.6-2.0	0.18-0.21	6.6-7.8	<2	Moderate	0.28		
	12	---	---	---	---	---	---	---		
Rock outcrop.										
CA*:										
Canez	0-10	5-15	2.0-6.0	0.13-0.15	6.6-8.4	<2	Low	0.32	5	3
	10-32	18-25	0.6-2.0	0.12-0.16	6.6-8.4	<2	Low	0.32		
	32-60	18-30	0.6-2.0	0.12-0.16	7.9-8.4	<2	Low	0.32		
Ima	0-7	5-10	2.0-6.0	0.11-0.15	7.4-8.4	<2	Low	0.37	5	3
	7-46	8-18	2.0-6.0	0.11-0.15	7.4-8.4	<2	Low	0.43		
	46-60	30-35	0.6-2.0	0.15-0.20	7.9-8.4	<2	Low	0.32		
Cb, Cc	0-4	20-27	0.2-0.6	0.17-0.19	6.6-7.8	<2	Moderate	0.24	2	6
Carnero	4-24	35-50	0.06-0.2	0.13-0.20	6.6-8.4	<2	High	0.24		
	24-32	20-25	0.6-2.0	0.17-0.19	6.6-7.8	<2	Moderate	0.24		
	32	---	---	---	---	---	---	---		
CD*:										
Carnero	0-4	20-27	0.2-0.6	0.17-0.19	6.6-7.8	<2	Moderate	0.24	2	6
	4-27	35-50	0.06-0.2	0.13-0.20	6.6-8.4	<2	High	0.24		
	27	---	---	---	---	---	---	---		
Partri	0-9	18-27	0.6-2.0	0.16-0.21	6.6-8.4	<2	Low	0.37	5	6
	9-34	35-55	0.06-0.2	0.14-0.21	6.6-8.4	<2	High	0.32		
	34-60	35-40	0.2-0.6	0.15-0.17	7.9-8.4	<2	High	0.28		
Cf, Cg	0-8	20-27	0.2-0.6	0.19-0.21	7.4-8.4	<2	Moderate	0.37	5	4L
Colmor	8-32	24-35	0.2-0.6	0.19-0.21	7.4-8.4	<2	Moderate	0.49		
	32-60	17-27	0.2-2.0	0.16-0.18	7.9-8.4	<2	Low	0.43		

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Soil name and map symbol	Depth	Clay <2mm	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors		Wind erodibility group
								K	T	
	In	Pct	In/hr	In/in	pH	Mmhos/cm				
CH----------	0-4	20-27	0.2-0.6	0.19-0.21	7.4-8.4	<2	Moderate-----	0.37	5	4L
Colmor	4-32	24-35	0.2-0.6	0.19-0.21	7.4-8.4	<2	Moderate-----	0.49		
	32-60	17-27	0.2-2.0	0.16-0.18	7.9-8.4	<2	Low----------	0.43		
CK*:										
Conchas----------	0-2	12-25	0.6-2.0	0.16-0.21	7.4-8.4	<2	Low----------	0.37	2	5
	2-30	22-35	0.2-0.6	0.19-0.21	7.9-9.0	<2	Moderate-----	0.49		
	30	---	---	---	---	---	----------	---		
CK*:										
Latom----------	0-10	8-15	0.6-2.0	0.10-0.15	7.9-8.4	<2	Low----------	0.24	1	3
	10	---	---	---	---	---	----------	---		
CT*:										
Crews----------	0-5	10-25	0.6-2.0	0.16-0.21	6.6-7.8	<2	Moderate-----	0.32	1	6
	5-16	35-50	0.2-0.6	0.14-0.20	6.6-7.8	<2	High----------	0.37		
	16	---	---	---	---	---	----------	---		
Tricon----------	0-7	20-27	0.2-2.0	0.19-0.21	6.6-7.8	<2	Low----------	0.32	2	6
	7-33	35-50	0.06-0.2	0.14-0.21	6.6-8.4	<2	High----------	0.28		
	33	---	---	---	---	---	----------	---		
DA*:										
Dioxice----------	0-4	15-27	0.6-2.0	0.16-0.18	7.4-8.4	<2	Moderate-----	0.37	3	4L
	4-24	20-35	0.2-0.6	0.16-0.21	7.4-8.4	<2	Moderate-----	0.37		
	24-60	20-30	0.2-0.6	0.08-0.16	7.4-8.4	<2	Moderate-----	0.37		
Dean----------	0-8	10-25	0.6-2.0	0.11-0.17	7.9-8.4	<2	Low----------	0.32	1	4L
	8-60	18-25	0.06-0.2	0.04-0.06	7.9-8.4	2-4	Low----------	0.28		
DB*:										
Dumas----------	0-4	15-25	0.6-2.0	0.14-0.19	6.6-7.8	<2	Low----------	0.32	5	5
	4-60	25-35	0.6-2.0	0.15-0.20	7.4-8.4	<2	Low----------	0.32		
La Brier---------	0-4	18-27	0.6-2.0	0.13-0.19	6.6-8.4	<2	Moderate-----	0.32	5	6
	4-40	35-60	<0.06	0.13-0.17	7.4-8.4	<2	High----------	0.32		
	40-60	30-40	0.06-0.2	0.15-0.19	7.9-8.4	<2	Moderate-----	0.37		
GA----------	0-3	10-20	2.0-6.0	0.07-0.13	6.6-8.4	<2	Low----------	0.20	2	7
Gallegos	3-13	20-30	2.0-6.0	0.04-0.10	7.4-8.4	<2	Low----------	0.10		
	13-60	5-15	6.0-20	0.03-0.05	7.9-8.4	<2	Low----------	0.10		
GB*:										
Gullied land.										
Manzano----------	0-14	10-25	0.6-2.0	0.16-0.18	6.6-8.4	<2	Low----------	0.28	5	6
	14-60	18-34	0.2-0.6	0.16-0.21	7.4-8.4	<2	Moderate-----	0.32		
GC*:										
Gullied land.										
Montoya----------	0-2	30-40	0.2-0.6	0.19-0.21	7.4-8.4	2-8	High----------	0.37	5	4
	2-60	35-60	<0.06	0.14-0.16	7.4-8.4	2-8	High----------	0.37		
KA*:										
Karde----------	0-6	15-25	0.6-2.0	0.13-0.17	7.9-8.4	2-8	Low----------	0.37	5	4L
	6-60	20-35	0.6-2.0	0.13-0.17	7.9-9.0	2-8	Low----------	0.37		
Vermejo----------	0-3	30-40	0.2-0.6	0.19-0.21	7.9-9.0	>2	Moderate-----	0.28	5	4L
	3-60	40-50	<0.06	0.15-0.17	7.9-9.0	>2	High----------	0.32		

See footnote at end of table.

nued

swell ial	Erosion factors		Wind erodibility group
	K	T	
------	0.28	1	8
------	0.28		
------	---		
------	0.32	5	7
------	0.32		
------	0.49	5	4L
------	0.49		
------	0.28	5	3
------	0.32		
------	0.37	5	5
------	0.32		
------	0.32		
------	0.32	5	5
------	0.32		
------	0.10	1	8
------	0.10		
------	---		
------	0.24	2	8
------	0.32		
------	---		
------	0.10	1	8
------	0.10		
------	---		
------	0.24	2	8
------	0.32		
------	---		
------	0.24	1	3
------	---		
------	0.24	1	3
------	0.28		
------	---		
------	0.37	3	4L
------	0.32		
------	---		
------	0.10	5	2
------	0.15		
------	0.15		
------	0.24	5	3
------	0.32		

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

and	Depth	Clay <2mm	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors		Wind erodibility group
								K	T	
	In	Pct	In/hr	In/in	pH	Mmhos/cm				
-----	0-3	10-25	0.6-2.0	0.16-0.18	6.6-7.8	<2	Low----------	0.28	5	6
	3-60	18-34	0.2-0.6	0.16-0.21	7.4-8.4	<2	Moderate-----	0.32		
-----	0-11	28-35	0.2-2.0	0.19-0.21	6.6-7.8	<2	Moderate-----	0.28	5	6
	11-60	18-34	0.2-0.6	0.16-0.21	7.4-8.4	<2	Moderate-----	0.32		
-----	0-4	27-35	0.6-2.0	0.19-0.21	7.9-8.4	<2	Moderate-----	0.37	1	5
	4-12	35-55	<0.06	0.15-0.17	7.9-8.4	<2	High----------	0.32		
	12	---	---	---	---	---	----------	---		
-----	0-4	15-20	0.6-2.0	0.14-0.16	7.9-8.4	<2	Low----------	0.10	1	8
	4-14	18-30	0.6-2.0	0.13-0.16	7.9-8.4	<2	Low----------	0.28		
	14	---	---	---	---	---	----------	---		
-----	0-5	30-40	0.2-0.6	0.15-0.21	7.4-8.4	<2	Moderate-----	0.37	3	4L
	5-23	38-55	<0.06	0.12-0.16	7.9-8.4	2-8	High----------	0.32		
	23	---	---	---	---	---	----------	---		
-----	0-4	30-40	0.2-0.6	0.19-0.21	7.4-8.4	2-8	High----------	0.37	5	4
	4-60	35-60	<0.06	0.14-0.16	7.4-8.4	2-8	High----------	0.37		
-----	0-4	18-35	0.2-2.0	0.16-0.21	6.6-8.4	2-4	Moderate-----	0.37	5	4L
	4-51	35-45	0.2-0.6	0.14-0.21	7.4-8.4	2-4	High----------	0.32		
	51-60	35-45	0.2-0.6	0.19-0.21	7.9-8.4	2-4	Moderate-----	0.32		
-----	0-4	28-35	0.2-0.6	0.19-0.21	7.9-8.4	<2	Moderate-----	0.49	5	4L
	4-60	20-35	0.2-0.6	0.19-0.21	7.9-8.4	<2	Moderate-----	0.49		
-----	0-4	18-27	0.6-2.0	0.14-0.17	6.6-7.3	<2	Moderate-----	0.24	5	6
	4-53	35-50	0.2-0.6	0.16-0.20	6.6-7.3	<2	Moderate-----	0.28		
	53-60	35-50	0.06-0.2	0.10-0.14	6.6-7.3	<2	High----------	0.15		
-----	0-5	15-20	0.6-2.0	0.15-0.18	7.4-7.8	<2	Low----------	0.32	5	5
	5-50	20-30	0.6-2.0	0.14-0.19	7.4-7.8	<2	Low----------	0.20		
	50-60	20-30	0.2-0.6	0.16-0.19	7.4-8.4	<2	Moderate-----	0.37		
-----	0-4	10-20	2.0-6.0	0.11-0.15	6.6-8.4	<2	Low----------	0.24	1	3
	4-13	20-35	0.6-2.0	0.13-0.20	7.4-8.4	<2	Moderate-----	0.28		
	13	---	---	---	---	---	----------	---		
-----	0-4	15-20	2.0-6.0	0.14-0.16	6.6-7.8	<2	Low----------	0.32	2	5
	4-31	25-30	0.06-0.2	0.15-0.21	6.6-8.4	<2	High----------	0.32		
	31	---	---	---	---	---	----------	---		
-----	0-5	12-25	0.6-2.0	0.16-0.21	7.4-8.4	<2	Low----------	0.37	2	5
	5-30	22-35	0.2-0.6	0.19-0.21	7.9-9.0	<2	Moderate-----	0.49		
	30	---	---	---	---	---	----------	---		
-----	0-4	18-27	0.6-2.0	0.16-0.21	6.6-8.4	<2	Low----------	0.37	5	6
	4-60	35-55	0.06-0.2	0.14-0.21	6.6-8.4	<2	High----------	0.32		
-----	0-4	18-27	0.6-2.0	0.16-0.21	6.6-8.4	<2	Low----------	0.37	5	6
	4-29	35-55	0.06-0.2	0.14-0.21	6.6-8.4	<2	High----------	0.32		
	29-60	35-40	0.2-0.6	0.15-0.17	7.9-8.4	<2	High----------	0.28		
-----	0-7	20-27	0.2-2.0	0.19-0.21	6.6-7.8	<2	Low----------	0.32	2	6
	7-33	35-50	0.06-0.2	0.14-0.21	6.6-8.4	<2	High----------	0.28		
	33	---	---	---	---	---	----------	---		

note at end of table.

ES OF SOILS--Continued

Salinity	Shrink-swell potential	Erosion factors		Wind erodibility group
		K	T	
Mmhos/cm				
<2	Low	0.10	1	8
<2	Low	0.28		
---	---	---		
<4	High	0.32	3	4
2-8	High	0.32		
---	---	---		
<2	Moderate	0.37	1	5
<2	High	0.32		
---	---	---		
<2	Low	0.28	5	8
<2	Moderate	0.32		
<2	Low	0.24		
<2	Low	0.20		
<2	Low	0.32	5	5
<2	Moderate	0.32		
<2	Low	0.37	5	4L
<2	Moderate	0.37		
<2	Low	0.24	2	3
<2	Low	0.32		
<2	Low	0.24		
---	---	---		
<2	Low	0.37	1	8
<2	High	0.24		
---	---	---		
<2	Low	0.24	5	3
<2	Moderate	0.32		
<2	Low	0.24		
<2	Low	0.28	5	7
<2	Low	0.28		
<2	High	0.37		
<2	Low	0.24	3	7
<2	High	0.28		
---	---	---		
<2	Low	0.32	1	3
<2	Low	0.37		
---	---	---		

SOILS--Continued

ity /cm	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodibility group
	Low	0.32	1	3
	Low	0.37		

	Low	0.28	5	7
	Low	0.28		
	High	0.37		
	Low	0.24	3	7
	High	0.28		

	Moderate	0.37	5	6
	High	0.32		
	Moderate	0.43		
	Moderate	0.37	5	6
	High	0.32		
	Moderate	0.43		
	Moderate	0.37	5	6
	Moderate	0.37		
	High	0.32		
	Low	0.24	3	4L
	Moderate	0.20		
	Low	0.24		
	Low	0.32	1	4L
	Low	0.28		
	Moderate	0.43	5	5
	High	0.28		
	Low	0.28		
	Low	0.10	5	7
	Low	0.10		
	Low	0.10		
	Low	0.10		
	Low	0.17	1	8
	Low	0.17		

	Low	0.37	1	8
	High	0.24		

	Low	0.17	1	8
	Low	0.17		

	Low	0.37	1	8
	High	0.24		

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Soil name and map symbol	Depth	Clay <2mm	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors		Wind erodibility group
								K	T	
	In	Pct	In/hr	In/in	pH	Mmhos/cm				
UF*.										
Ustifluvents										
UR*:										
Ustorthents.										
Rock outcrop.										
Va	0-2	30-40	0.2-0.6	0.19-0.21	7.9-9.0	>2	Moderate	0.28	5	4L
Vermejo	2-60	40-50	<0.06	0.15-0.17	7.9-9.0	>2	High	0.32		
VB*:										
Vibo	0-8	10-20	2.0-6.0	0.11-0.15	6.6-8.4	<2	Low	0.24	5	3
	8-24	20-30	0.6-2.0	0.14-0.16	6.6-8.4	<2	Moderate	0.32		
	24-60	16-20	0.6-6.0	0.11-0.13	6.6-8.4	<2	Low	0.24		
Ribera	0-5	12-18	0.6-2.0	0.13-0.16	6.6-7.8	<2	Low	0.24	2	3
	5-26	20-30	0.6-2.0	0.16-0.19	6.6-8.4	<2	Low	0.32		
	26-31	12-18	0.6-2.0	0.13-0.16	7.9-8.4	<2	Low	0.24		
	31	---	---	---	---	---	---	---		
VC*:										
Vibo	0-8	10-20	2.0-6.0	0.11-0.15	6.6-8.4	<2	Low	0.24	5	3
	8-24	20-30	0.6-2.0	0.14-0.16	6.6-8.4	<2	Moderate	0.32		
	24-60	16-20	0.6-6.0	0.11-0.13	6.6-8.4	<2	Low	0.24		
Rock outcrop.										
Ribera	0-5	12-18	0.6-2.0	0.13-0.16	6.6-7.8	<2	Low	0.24	2	3
	5-26	20-30	0.6-2.0	0.16-0.19	6.6-8.4	<2	Low	0.32		
	26-31	12-18	0.6-2.0	0.13-0.16	7.9-8.4	<2	Low	0.24		
	31	---	---	---	---	---	---	---		

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 16.--SOIL AND WATER FEATURES

[The definitions of "flooding" and "water table" in the Glossary explain terms such as "rare," "brief," "apparent," and "perched." The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern]

Soil name and map symbol	Hydrologic group	Flooding			Bedrock		Cemented pan		Potential frost action	Risk of corrosion	
		Frequency	Duration	Months	Depth	Hardness	Depth	Hardness		Uncoated steel	Concrete
					In		In				
AQ*:											
Andok	C	None	---	---	>60	---	---	---	---	Moderate	Low.
Quintana	C	None	---	---	>60	---	---	---	Moderate	Moderate	Low.
AY*:											
Apache	D	None	---	---	4-20	Hard	---	---	Moderate	High	Low.
Ayon	B	None	---	---	>60	---	---	---	Moderate	High	Low.
BA*. Badland											
Be. Bernal	D	None	---	---	8-20	Hard	---	---	Moderate	Moderate	Low.
BR*:											
Bernal	D	None	---	---	8-20	Hard	---	---	Moderate	Moderate	Low.
Rock outcrop.											
CA*:											
Canez	B	None	---	---	>60	---	---	---	---	High	Low.
Ima	B	None	---	---	>60	---	---	---	---	High	Low.
Cb, Cc. Carnero	C	None	---	---	20-40	Hard	---	---	Low	High	Low.
CD*:											
Carnero	C	None	---	---	20-40	Hard	---	---	Low	High	Low.
Partri	C	None	---	---	>60	---	---	---	Low	High	Low.
Cf, Cg, CH. Colmor	B	None	---	---	>60	---	---	---	Moderate	High	Low.
CK*:											
Conchas	C	None	---	---	20-40	Hard	---	---	---	High	Low.
Latom	D	None	---	---	8-20	Rippable	---	---	---	Low	Low.
CT*:											
Crews	D	None	---	---	>60	---	8-20	Hard	Low	High	Low.
Tricon	C	None	---	---	>60	---	20-40	Hard	Low	High	Low.
DA*:											
Dioxice	B	None	---	---	>60	---	---	---	Moderate	High	Low.
Dean	C	None	---	---	>60	---	---	---	---	High	Low.
DB*:											
Dumas	B	None	---	---	>60	---	---	---	---	Moderate	Low.
La Brier	C	Rare	---	---	>60	---	---	---	Low	High	Low.
GA. Gallegos	B	None	---	---	>60	---	---	---	---	High	Low.

See footnote at end of table.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			Bedrock		Cemented pan		Potential frost action	Risk of corrosion	
		Frequency	Duration	Months	Depth	Hardness	Depth	Hardness		Uncoated steel	Concrete
					In		In				
GB*:											
Gullied land.											
Manzano	C	Rare	Very brief	May-Oct	>60	---	---	---	Moderate	High	Low.
GC*:											
Gullied land.											
Montoya	D	Rare	Very brief	Jun-Sep	>60	---	---	---	Low	High	Moderate.
KA*:											
Karde	B	Rare	---	---	>60	---	---	---	Low	High	Low.
Vermejo	D	Rare	---	---	>60	---	---	---	Low	High	Low.
KR*	D	None	---	---	10-20	Hard	---	---	Moderate	Moderate	Low.
Kiln											
Rock outcrop.											
La	C	Rare	---	---	>60	---	---	---	Low	High	Low.
La Brier											
LB*:											
Lacita	B	Common	Very brief	Jul-Sep	>60	---	---	---	Moderate	High	Low.
San Jose	B	Common	Very brief	Jul-Sep	>60	---	---	---	Low	Moderate	Low.
LC*:											
La Lande	B	None	---	---	>60	---	---	---	Moderate	High	Low.
Redona	B	None	---	---	>60	---	---	---	---	Moderate	Low.
LE*:											
Laporte	D	None	---	---	10-20	Ripable	---	---	Low	High	Low.
Escabosa	C	None	---	---	20-40	Hard	---	---	Moderate	Moderate	Low.
LF*:											
Laporte	D	None	---	---	10-20	Ripable	---	---	Low	High	Low.
Rock outcrop.											
Escabosa	C	None	---	---	20-40	Hard	---	---	Moderate	Moderate	Low.
LN*:											
Latom	D	None	---	---	8-20	Ripable	---	---	---	Low	Low.
Newkirk	D	None	---	---	8-20	Hard	---	---	---	High	Low.
Rock outcrop.											
Lo, Lp	C	None	---	---	20-40	Ripable	---	---	Low	High	Moderate.
Litle											
MA	B	None	---	---	>60	---	---	---	Moderate	High	Low.
Manter											
Mb	C	None	---	---	>60	---	---	---	Moderate	High	Low.
Manzano											
MC	C	Rare	Very brief	May-Oct	>60	---	---	---	Moderate	High	Low.
Manzano											

See footnote at end of table.

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nted n Hard-ness	Potential frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
---	Moderate	High-----	Low.
---	Low------	High-----	Low.
---	Low------	High-----	Low.
---	Low------	High-----	Moderate.
---	Low------	High-----	Moderate.
---	---	High-----	Low.
---	Moderate	High-----	Low.
---	Moderate	Moderate	Low.
---	Moderate	High-----	Moderate.
---	---	High-----	Low.
---	Low------	Moderate	Low.
---	---	High-----	Low.
---	Low------	High-----	Low.
---	Low------	High-----	Low.
Hard	Low------	High-----	Low.
---	Low------	High-----	Low.
---	Low------	High-----	Moderate.
---	Low------	High-----	Low.
---	Moderate	Moderate	Low.
---	---	Moderate	Low.
---	---	High-----	Low.
---	Moderate	Moderate	Low.
---	Low------	High-----	Low.
---	Moderate	High-----	Low.

orrosion Concrete
Moderate.
Moderate.
Moderate.
Moderate.
Moderate.
Moderate.
Low.
Low.
Low.
Low.
Low.
Low.
Low.
Low.
Low.
Low.
Low.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			Bedrock		Cemented pan		Potential frost action	Risk of corrosion	
		Frequency	Duration	Months	Depth	Hardness	Depth	Hardness		Uncoated steel	Concrete
					In		In				
VB*:											
Ribera	B	None	---	---	20-40	Hard	---	---	Moderate	Moderate	Low.
VC*:											
Vibo	B	None	---	---	>60	---	---	---	Moderate	High	Low.
Rock outcrop.											
Ribera	B	None	---	---	20-40	Hard	---	---	Moderate	Moderate	Low.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 17.--CLASSIFICATION OF THE SOILS

Soil name	Family or higher taxonomic class
Andok	Loamy-skeletal, mixed, mesic Typic Ustochrepts
Apache	Loamy, mixed, mesic Lithic Haplustolls
Ayon	Loamy-skeletal, mixed, mesic Aridic Calciustolls
Bernal	Loamy, mixed, mesic Lithic Argiustolls
Brycan	Fine-loamy, mixed Cumulic Haploborolls
Canez	Fine-loamy, mixed, thermic Ustollic Haplargids
Carnero	Fine, mixed, mesic Aridic Argiustolls
Colmor	Fine-silty, mixed, mesic Torriorthentic Haplustolls
Conchas	Fine-silty, mixed, thermic Ustollic Calciorthids
Crews	Clayey, mixed, mesic, shallow Petrocalcic Paleustolls
Dargol	Fine, mixed Typic Eutroboralfs
Dean	Fine-loamy, carbonatic, mesic Ustollic Calciorthids
Dioxice	Fine-loamy, mixed, mesic Aridic Calciustolls
Dumas	Fine-loamy, mixed, mesic Aridic Paleustolls
Escabosa	Fine-loamy, mixed, mesic Aridic Calciustolls
Gallegos	Loamy-skeletal, mixed, thermic Ustollic Camborthids
Ima	Coarse-loamy, mixed, thermic Ustochreptic Camborthids
Karde	Fine-silty, carbonatic, mesic Ustic Torriorthents
Kiln	Loamy, mixed Lithic Argiborolls
La Brier	Fine, mixed, mesic Torrertic Argiustolls
Lacita	Fine-silty, mixed (calcareous), thermic Ustic Torriorthents
La Lande	Fine-loamy, mixed, thermic Ustollic Camborthids
Laporte	Loamy, mixed, mesic Lithic Haplustolls
Latom	Loamy, mixed (calcareous), thermic Lithic Ustic Torriorthents
Litle	Fine, mixed, mesic Ustollic Camborthids
Manter	Coarse-loamy, mixed, mesic Aridic Argiustolls
Manzano	Fine-loamy, mixed, mesic Cumulic Haplustolls
Mion	Clayey, mixed (calcareous), mesic, shallow Ustic Torriorthents
Montoya	Fine, mixed, thermic Mollic Torrerts
Moreno	Fine, mixed Typic Argiborolls
Newkirk	Loamy, mixed, thermic Lithic Ustollic Haplargids
Partri	Fine, mixed, mesic Aridic Argiustolls
Penrose	Loamy, mixed (calcareous), mesic Lithic Ustic Torriorthents
Quay	Fine-silty, mixed, thermic Ustochreptic Calciorthids
Quintana	Fine-loamy, mixed, mesic Typic Ustochrepts
Redona	Fine-loamy, mixed, thermic Ustollic Haplargids
Ribera	Fine-loamy, mixed, mesic Typic Haplustalfs
Rocio	Fine, mixed Mollic Eutroboralfs
San Jose	Coarse-loamy, mixed (calcareous), thermic Ustic Torrifluvents
Sombordoro	Clayey-skeletal, mixed, mesic Lithic Haplustalfs
Stout	Loamy, mixed, nonacid, frigid Lithic Ustorthents
Swastika	Fine, mixed, mesic Aridic Argiustolls
Tapia	Fine-loamy, mixed, mesic Ustollic Haplargids
Teco	Fine, mixed, mesic Aridic Haplustalfs
Tinaja	Loamy-skeletal, mixed, mesic Aridic Ustochrepts
Tricon	Fine, mixed, mesic Petrocalcic Paleustolls
Tucumcari	Fine, mixed, thermic Ustollic Haplargids
Tuloso	Loamy-skeletal, mixed, mesic Lithic Ustochrepts
Vermejo	Fine, mixed (calcareous), mesic Ustic Torriorthents
Vibo	Fine-loamy, mixed, mesic Typic Haplustalfs
Walkon	Fine-loamy, mixed, thermic Ustollic Haplargids

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