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Department of
Agriculture



NRCS

Natural
Resources
Conservation
Service

In cooperation with
Washington State
Department of Natural
Resources, Washington
State University, and
Okanogan Conservation
District

Soil Survey of Okanogan County Area, Washington



How To Use This Soil Survey

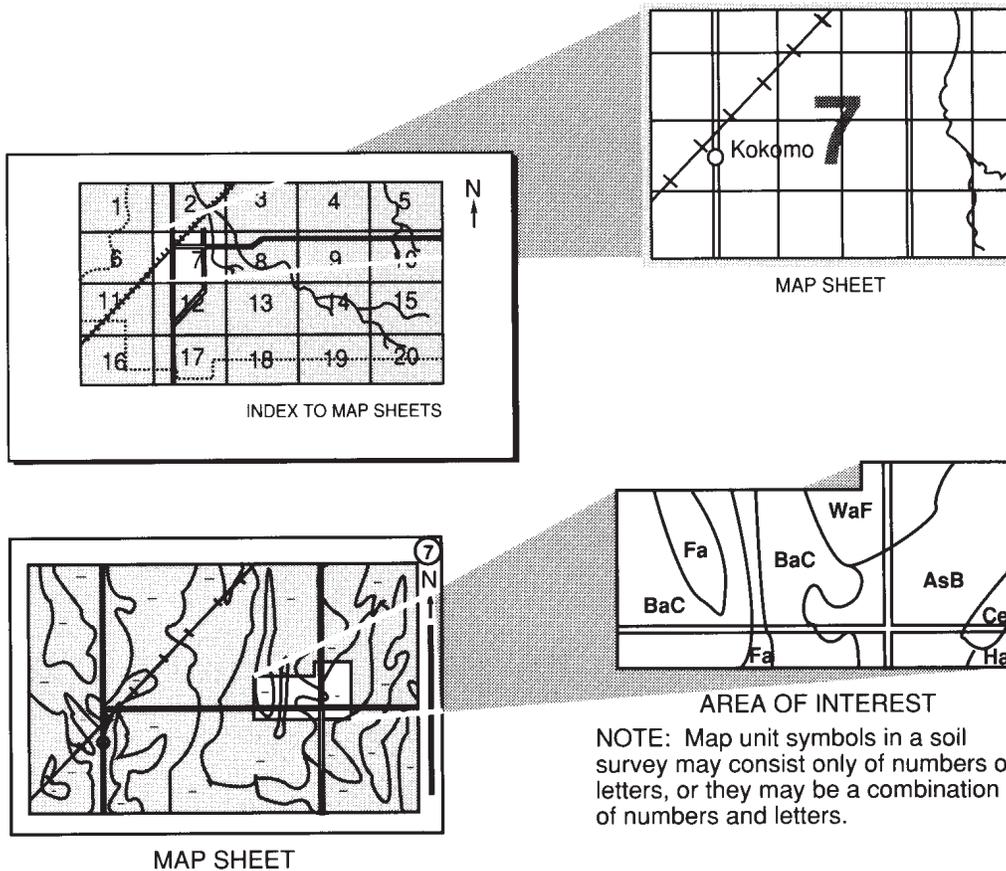
Detailed Soil Maps

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

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

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

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



National Cooperative Soil Survey

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey. This survey was made cooperatively by the Natural Resources Conservation Service and the Washington State Department of Natural Resources, Washington State University, and the Okanogan Conservation District. The survey is part of the technical assistance furnished to the Okanogan Conservation District.

This soil survey updates the survey of Okanogan County Area, Washington, published in 1980 (USDA, 1980). It provides additional information and includes State and private land not previously mapped.

Major fieldwork for this soil survey was completed in 2007. Soil names and descriptions were approved in 2008. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 2008. The most current official data are available at <http://websoilsurvey.nrcs.usda.gov/app/>.

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

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Cover Caption

Tunk Valley, looking toward the Cascade Mountains.

Additional information about the Nation's natural resources is available online from the Natural Resources Conservation Service at <http://www.nrcs.usda.gov>.

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Foreword

Soil surveys contain information that affects land use planning in survey areas. They include predictions of soil behavior for selected land uses. The surveys highlight soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

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

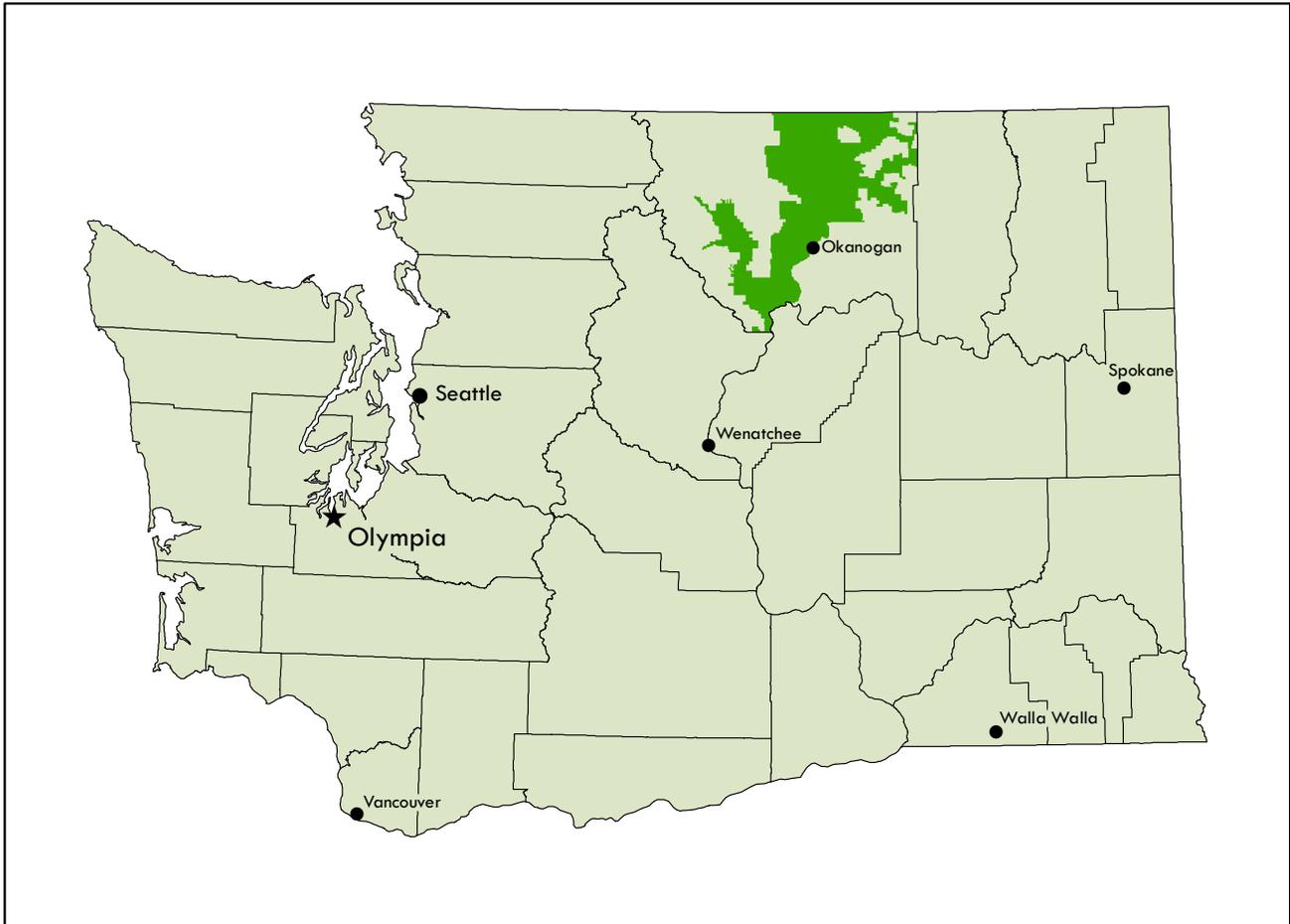
Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report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

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://soils.usda.gov/sqi/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<http://offices.sc.egov.usda.gov/locator/app>) or your NRCS State Soil Scientist (http://soils.usda.gov/contact/state_offices/).

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

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

Roylene Rides at the Door
State Conservationist
Natural Resources Conservation Service



Location of Okanogan County Area in Washington.

Soil Survey of Okanogan County Area, Washington

By Keith Harrington, Natural Resources Conservation Service

Fieldwork by Keith Harrington and Rebecca Morris, Natural Resources Conservation Service

United States Department of Agriculture, Natural Resources Conservation Service,
in cooperation with
Washington State Department of Natural Resources,
Washington State University, and Okanogan Conservation District

OKANOGAN COUNTY AREA is in the north-central part of Washington. The majority of the approximately 1,225,000 acres is in the Okanogan and Methow Valley drainageways. About one-third of the area is woodland, and the rest is mainly rangeland with some nonirrigated cultivated areas on the higher terraces and plateaus. Narrow strips along the major streams and tributaries are irrigated and used for hay, pasture, and orchards.

The survey area is bordered by British Columbia, Canada, to the north; Ferry County and Okanogan National Forest, Washington, to the east; Colville Indian Reservation and Chelan County, Washington, to the south; and Okanogan National Forest to the west.

The climate is varied within the area. The mean annual air temperature ranges from 35 to 52 degrees F, the mean annual precipitation ranges from 10 to 35 inches, and the frost-free season ranges from 40 to 190 days. Elevation ranges from 700 to 7,800 feet. Vegetation varies from shrub/grassland steppe to subalpine forest. The major tree species are ponderosa pine at the lower elevations, Douglas fir and lodgepole pine at the middle elevations, and subalpine fir at the higher elevations.

Soil scientists have identified about 157 different soils in the survey area and about 370 soil map units. The soils vary widely in texture, depth, content of rock fragments, drainage, and climatic features. They are comprised primarily of glacial till, glacial outwash, colluvium, and residuum derived from various rock sources. The majority of the soils are blanketed with a mantle of volcanic ash that varies in thickness.

Climate

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

The climate tables were created from data recorded at the Mazama, Omak, and Winthrop, Washington, climate stations during the period 1971 to 2000. Thunderstorm days, relative humidity, percent sunshine, and wind information were estimated from the First Order stations at Yakima and Spokane, Washington.

[Table 1](#) gives data on temperature and precipitation. [Table 2](#) shows probable dates of the first freeze in fall and the last freeze in spring. [Table 3](#) provides data on the length of the growing season.

In winter, the average temperature ranges from 22.9 degrees F at Mazama to 26.2 degrees at Winthrop, and the average daily minimum temperature ranges from 19.2 degrees at Omak to 14.7 degrees at Winthrop. The lowest temperature on record, which occurred at Mazama on December 30, 1968, is -48 degrees. In summer, the average temperature ranges from 64.3 degrees at Mazama to 68.5 degrees at Omak. The average daily maximum temperature ranges from 79.2 degrees at Mazama to 83.1 degrees at Winthrop. The highest temperature on record, which occurred at Omak on July 27, 1939, is 109 degrees.

Growing degree days are shown in table 1. They are equivalent to “heat units.” During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total average annual precipitation ranges from 12.72 inches at Omak to 22.69 inches at Mazama. Of this, about 15 percent usually falls in June through September at Mazama and about 36 percent at Omak. The growing season for most crops falls within this period. The heaviest 1-day rainfall during the period of record was 5.06 inches at Mazama on November 27, 1950. Thunderstorms occur on about 7 days each year, and most occur in June.

The average seasonal snowfall is 119.7 inches at Mazama, 62.4 inches at Winthrop, and 35.4 inches at Omak. The greatest snow depth at any one time during the period of record, 62 inches, was recorded on January 1, 1997, at Mazama. On average, the number of days per year that have at least 1 inch of snow on the ground is 136 at Mazama, 110 at Winthrop, and 34 at Omak. The heaviest 1-day snowfall on record, 69.5 inches, was recorded on January 15, 2000, at Omak.

The average relative humidity in midafternoon is about 44 percent. Humidity is higher at night, and the average at dawn is about 77 percent. The sun shines 74 percent of the time in summer and 30 percent in winter. The prevailing wind is from the west-northwest. The average windspeed is highest, 8.6 miles per hour, in April. Additional data is available at <http://www.wcc.nrcs.usda.gov/climate/>.

How This Survey Was Made

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

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in the survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments

of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

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

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

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

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

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

The survey area is comprised of the private and State land in Okanogan County, Washington. The survey excludes the land in the county that is in the Colville Indian Reservation and Okanogan National Forest. These areas are covered in the soil surveys of Colville Indian Reservation, Washington, Parts of Ferry and Okanogan Counties (USDA, 2002), and Okanogan National Forest Area, Washington (USDA, 2008).

The survey area includes all of the land that was included in the soil survey of Okanogan County Area, Washington, that was published in 1980 (USDA, 1980). In addition, it includes the private land in the Aeneas Valley and Toroda Creek areas and the Washington State Department of Natural Resources (DNR) land in the Loomis

Soil Survey of Okanogan County Area, Washington

and Louploup Blocks. For this private and State land, the Private Forest Land Grading (PFLG) Program mapping completed late in the 1970's to early in the 1980's by DNR was used to assist in the current mapping.

The mapping for the 1980 soil survey report was completed at a scale of 1:20,000. The PFLG mapping was completed at a scale of 1:12,000. All of the land in Okanogan County is now mapped at a scale of 1:24,000.

The update of the private and State DNR land was completed by analyzing the existing PFLG mapping. Polygons of soil map units were located and evaluated using Geographic Information Systems (GIS). Map unit polygons were displayed and plotted and then reviewed to determine consistency in delineating the polygons in relation to landform, steepness of slope, elevation, aspect, vegetation, and other map unit design criteria. After review of the map products derived from the GIS analysis, onsite investigation of representative polygons of the map units was completed to confirm the proper map unit symbol assignment. If the field visits to the polygons confirmed the map unit, then all polygons were considered to be properly identified. If the field visits to the polygons did not confirm the proper map unit symbol assignment, then the polygons were assigned to the appropriate map unit or a new map unit was established.

The main focus of the update to the 1980 soil survey information was to identify map units and map unit polygons where more detailed information was needed for planning purposes and evaluate polygons of map units that appeared to be out-of-place from "typical" landscape positions for the map unit. The intent of the survey was not to remap areas covered by the older survey but to enhance existing information, update mapping where users identified concerns, and update the database to be current with the National Cooperative Soil Survey (NCSS) standards. With this update, the soil information is current and consistent with the information in the recently published Okanogan National Forest Area and Colville Indian Reservation soil surveys.

Two orders of soil survey mapping intensity were used in this survey—Orders 2 and 3. Order 2 is a more intensive investigation of the map unit polygons. A discussion on orders of soil mapping intensity and field documentation is contained in the National Soil Survey Handbook (<http://soils.usda.gov/technical/handbook/>). Generally, the Order 2 intensity of mapping was used in areas of cropland and land used for development, where more intensive management and planning is required. The map units are typically consociations. The Order 3 intensity of mapping was used in areas of rangeland and forestland, where less intensive management and planning is required. The map units are typically associations or complexes, although consociations were used if the soils were consistent and uniform.

Detailed Soil Map Units

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

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

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

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

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

Soils that have profiles that are almost alike make up a *soil series*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. The soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name

of a soil phase commonly indicates a feature that affects use or management. For example, Disautel silt loam, 0 to 8 percent slopes, is a phase of the Disautel series.

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

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Peka-Donavan complex, 15 to 35 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Nevine-Rock outcrop association, 20 to 40 percent slopes, is an example.

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

Each detailed soil map unit is assigned to a major land resource area (MLRA) (USDA Agriculture Handbook 296). The MLRA for each detailed soil map unit is given in this section. Some map units, such as Rock outcrop, Water, and other miscellaneous areas, may not be assigned to a single MLRA because the unit can occur in any MLRA.

[Table 4](#) gives the acreage and proportionate extent of each map unit. Other tables give properties of the soils. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

200—Aeneas fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 700 to 1,600 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 140 to 190 days

Map Unit Composition

Aeneas and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Aeneas

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Glacial outwash

Slope range: 0 to 3 percent

Depth to restrictive feature: 21 to 36 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 2e
Ecological site: SANDY 10-16 PZ (R008XY501WA)

Typical profile

A1—0 to 2 inches; fine sandy loam
A2—2 to 8 inches; fine sandy loam
Bw—8 to 16 inches; fine sandy loam
C1—16 to 26 inches; fine sandy loam
2C2—26 to 30 inches; loamy sand
2C3—30 to 60 inches; sand

Dissimilar Minor Components

Cashmere soils

Percentage of map unit: 5 percent

Ewall soils

Percentage of map unit: 5 percent

Major Use

Crop production

201—Aeneas fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau
Elevation: 700 to 1,600 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Aeneas and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Aeneas

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Glacial outwash
Slope range: 3 to 8 percent
Depth to restrictive feature: 21 to 36 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity to transmit water (Ksat): High or very high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 5.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 3e

Ecological site: SANDY 10-16 PZ (R008XY501WA)

Typical profile

A1—0 to 2 inches; fine sandy loam
A2—2 to 8 inches; fine sandy loam
Bw—8 to 16 inches; fine sandy loam
C1—16 to 26 inches; fine sandy loam
2C2—26 to 30 inches; loamy sand
2C3—30 to 60 inches; sand

Dissimilar Minor Components

Cashmere soils

Percentage of map unit: 5 percent

Ewall soils

Percentage of map unit: 5 percent

Major Use

Crop production

202—Aits ashy loam, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 4,000 to 4,600 feet

Mean annual precipitation: 22 to 30 inches

Mean annual air temperature: 41 to 43 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Aits and similar soils: 100 percent

Characteristics of Aits

Setting

Landform: Mountains and hills

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 8.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/ninebark (CDS715)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 3 inches; ashy loam
Bw1—3 to 12 inches; ashy loam

2Bw2—12 to 17 inches; gravelly loam
2Bw3—17 to 34 inches; gravelly loam
2Bw4—34 to 45 inches; gravelly loam
2Bt—45 to 60 inches; very gravelly clay loam

Major Uses

Livestock grazing and timber production

203—Andic Dystrocryepts-Rock outcrop-Rubble land complex, 35 to 90 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 6,600 to 7,700 feet
Mean annual precipitation: 30 to 35 inches
Mean annual air temperature: 35 to 40 degrees F
Frost-free period: 40 to 70 days

Map Unit Composition

Andic Dystrocryepts, forested, and similar soils: 55 percent
Rock outcrop: 25 percent
Rubble land: 20 percent

Characteristics of Andic Dystrocryepts, Forested

Setting

Landform: Glacial trough valleys of mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over glacial till, colluvium, or residuum
Slope range: 35 to 90 percent
Depth to restrictive feature: 20 to 81 inches to lithic bedrock
Drainage class: Well drained
Capacity to transmit water (Ksat): High or very high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Moderate (about 6.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Subalpine fir/Cascade azalea (CES214)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material
C—1 to 2 inches; ashy silt loam
2A—2 to 5 inches; ashy fine sandy loam
2Bw—5 to 11 inches; ashy fine sandy loam
3C1—11 to 22 inches; cobbly sandy loam
3C2—22 to 60 inches; gravelly loamy sand

Characteristics of Rock Outcrop

Landform: Mountains
Slope range: 35 to 90 percent
Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Characteristics of Rubble Land

Landform: Mountains

Slope range: 35 to 90 percent

Description of areas: Colluvial deposits of rock fragments; voids and spaces between fragments contain little, if any, soil material; bedrock typically is present, but depth to bedrock is highly variable

Land capability subclass (nonirrigated): 8

Typical profile: C—fragmental material

Major Uses

Livestock grazing and timber production

204—Andic Dystrocryepts-Vitrandid Humicryepts complex, 20 to 80 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 6,600 to 7,700 feet

Mean annual precipitation: 30 to 35 inches

Mean annual air temperature: 35 to 40 degrees F

Frost-free period: 40 to 70 days

Map Unit Composition

Andic Dystrocryepts, forested, and similar soils: 55 percent

Vitrandid Humicryepts, nonforested, and similar soils: 30 percent

Dissimilar minor components: 15 percent

Characteristics of Andic Dystrocryepts, Forested

Setting

Landform: Glacial trough valleys of mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over glacial till, colluvium, or residuum

Slope range: 20 to 80 percent

Depth to restrictive feature: 20 to 81 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 6.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Subalpine fir/Cascade azalea/smooth woodrush (CES213)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

C—1 to 2 inches; ashy silt loam

2A—2 to 5 inches; ashy fine sandy loam
2Bw—5 to 11 inches; ashy fine sandy loam
3C1—11 to 22 inches; cobbly sandy loam
3C2—22 to 60 inches; gravelly loamy sand

Characteristics of Vitrandic Humicryepts, Nonforested

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 25 inches thick) over colluvium and residuum derived from metamorphic, sedimentary, and volcanic rock

Slope range: 20 to 80 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Alpine Zone series, Eastern Washington (CA)

Typical profile

A1—0 to 4 inches; gravelly ashy fine sandy loam

A2—4 to 12 inches; gravelly ashy sandy loam

Bw—12 to 20 inches; very gravelly ashy sandy loam

2C—20 to 31 inches; very gravelly sandy loam

2R—31 to 35 inches; unweathered bedrock

Dissimilar Minor Components

Rock outcrop

Percentage of map unit: 10 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

205—Aquandic Endoaquolls, 0 to 5 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 1,500 to 3,700 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 39 to 44 degrees F

Frost-free period: 80 to 100 days

Map Unit Composition

Aquandic Endoaquolls and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Aquandic Endoaquolls

Setting

Landform: Bottoms of drainageways of mountains, valley floors of mountains, and basin floors of mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over alluvium or glacial till

Slope range: 0 to 5 percent

Depth to restrictive feature: 20 to 50 inches to strongly contrasting textural stratification

Drainage class: Very poorly drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: Occasional (see Water Features table)

Frequency of ponding: Occasional (see Water Features table)

Seasonal high water table (minimum depth): At the soil surface to a depth of 6 inches (see Water Features table)

Available water capacity (entire profile): Moderate (about 7.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6w

Plant community class: Quaking aspen series - wetland (HQM0)

Typical profile

Oe—0 to 4 inches; mucky peat

A1—4 to 11 inches; ashy silt loam

2A2—11 to 18 inches; silt loam

2A3—18 to 23 inches; silt loam

2Cg1—23 to 39 inches; fine sandy loam

3Cg2—39 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Haplosaprists

Percentage of map unit: 5 percent

Landform: Bottoms, basin floors of bottoms, and drainageways of valleys

Unnamed soils

Percentage of map unit: 5 percent

Major Use

Wildlife habitat

206—Aquandic Endoaquolls-Haplosaprists, 0 to 10 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 2,100 to 4,400 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 39 to 44 degrees F

Frost-free period: 80 to 100 days

Map Unit Composition

Aquandic Endoaquolls and similar soils: 65 percent

Haplosaprists and similar soils: 25 percent

Dissimilar minor component: 10 percent

Characteristics of Aquandic Endoaquolls

Setting

Landform: Basin floors, bottoms of drainageways, and valley floors of mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over alluvium or glacial till

Slope range: 0 to 10 percent

Depth to restrictive feature: 20 to 50 inches to strongly contrasting textural stratification

Drainage class: Very poorly drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: Occasional (see Water Features table)

Frequency of ponding: Occasional (see Water Features table)

Seasonal high water table (minimum depth): At the soil surface to a depth of 6 inches (see Water Features table)

Available water capacity (entire profile): Moderate (about 7.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6w

Plant community class: Willow series - wetland (SW10)

Typical profile

Oe—0 to 4 inches; mucky peat

A1—4 to 11 inches; ashy silt loam

2A2—11 to 18 inches; silt loam

2A3—18 to 23 inches; silt loam

2Cg1—23 to 39 inches; fine sandy loam

3Cg2—39 to 60 inches; very gravelly sandy loam

Characteristics of Haplosaprists

Setting

Landform: Depressions of mountains

Properties and qualities

Parent material: Organic material over alluvium or glaciolacustrine deposits

Slope range: 0 to 5 percent

Depth to restrictive feature: 16 to 60 inches to strongly contrasting textural stratification

Drainage class: Very poorly drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: Occasional (see Water Features table)

Frequency of ponding: Frequent (see Water Features table)

Seasonal high water table (minimum depth): At the soil surface (see Water Features table)

Available water capacity (entire profile): Very high (about 17.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6w

Ecological site: SUBALPINE WET SHRUB MEADOW 24+ PZ (R006XY604WA)

Plant community class: Sedge plant associations (meadow series) - wetland (MW)

Typical profile

Oe—0 to 8 inches; mucky peat
Oa—8 to 18 inches; muck
A—18 to 34 inches; silt loam
Cg1—34 to 44 inches; silt loam
Cg2—44 to 55 inches; fine sandy loam
O'a—55 to 60 inches; muck

Dissimilar Minor Component

Unnamed soils

Percentage of map unit: 10 percent

Major Use

Wildlife habitat

207—Aquandic Xerofluvents, 0 to 5 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 700 to 4,100 feet
Mean annual precipitation: 10 to 24 inches
Mean annual air temperature: 40 to 44 degrees F
Frost-free period: 100 to 130 days

Map Unit Composition

Aquandic Xerofluvents and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Aquandic Xerofluvents

Setting

Landform: Low stream terraces of mountains and flood plains of mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over alluvium
Slope range: 0 to 5 percent
Depth to restrictive feature: 40 to 60 inches to strongly contrasting textural stratification
Drainage class: Somewhat poorly drained
Capacity to transmit water (Ksat): High or very high (see Physical Properties table)
Frequency of flooding: Occasional (see Water Features table)
Frequency of ponding: None
Seasonal high water table (minimum depth): About 24 to 48 inches (see Water Features table)
Available water capacity (entire profile): Moderate (about 7.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3w
Plant community class: Douglas-fir/common snowberry, flood plain, riparian (CDS628)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 5 inches; ashy sandy loam
C—5 to 9 inches; ashy sandy loam
Ab—9 to 14 inches; ashy sandy loam
2C1—14 to 25 inches; gravelly loamy sand

2C2—25 to 45 inches; sandy loam
2C3—45 to 51 inches; very gravelly loamy sand
2C4—51 to 60 inches; very gravelly loamy sand

Dissimilar Minor Components

Riverwash

Percentage of map unit: 10 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Use

Wildlife habitat

208—Badland

Major land resource area (MLRA): 8—Columbia Plateau
Map unit composition: Badland—100 percent
Description of areas: Barren glacial till and silty lake sediment
Slope range: 1 to 99 percent
Land capability subclass (nonirrigated): 8
Typical profile: C—weathered bedrock

209—Baldknob-Rock outcrop complex, 35 to 90 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains
Elevation: 2,500 to 4,500 feet
Mean annual precipitation: 20 to 24 inches
Mean annual air temperature: 40 to 44 degrees F
Frost-free period: 90 to 120 days

Map Unit Composition

Baldknob and similar soils: 55 percent
Rock outcrop: 35 percent
Dissimilar minor component: 10 percent

Characteristics of Baldknob

Setting

Landform: Mountains

Properties and qualities

Parent material: Colluvium and residuum derived from volcanic rock
Slope range: 35 to 65 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Very low (about 1.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: DRY STONY 16-24 PZ (R006XY201WA)

Typical profile

A1—0 to 3 inches; gravelly ashy loam

A2—3 to 12 inches; very flaggy loam

R—12 to 16 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 35 to 90 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Component

Unnamed soils

Percentage of map unit: 10 percent

Major Use

Livestock grazing

210—Baldknob-Rubble land-Thout complex, 35 to 90 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,500 to 4,500 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Baldknob and similar soils: 45 percent

Rubble land: 20 percent

Thout and similar soils: 15 percent

Dissimilar minor components: 20 percent

Characteristics of Baldknob

Setting

Landform: Mountains

Properties and qualities

Parent material: Colluvium and residuum derived from volcanic rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 1.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: DRY STONY 16-24 PZ (R006XY201WA)

Typical profile

A1—0 to 3 inches; gravelly ashy loam

A2—3 to 12 inches; very flaggy loam

R—12 to 16 inches; unweathered bedrock

Characteristics of Rubble Land

Landform: Mountains

Slope range: 35 to 90 percent

Description of areas: Colluvial deposits of rock fragments; voids and spaces between fragments contain little, if any, soil material; bedrock typically is present, but depth to bedrock is highly variable

Land capability subclass (nonirrigated): 8

Typical profile: C—fragmental material

Characteristics of Thout

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 14 inches thick) over colluvium and residuum derived from volcanic and sedimentary rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 2.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/mountain snowberry (CDS629)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 5 inches; gravelly ashy sandy loam

Bw1—5 to 12 inches; very gravelly ashy sandy loam

2Bw2—12 to 25 inches; very gravelly sandy loam

2R—25 to 29 inches; unweathered bedrock

Dissimilar Minor Components

Rock outcrop

Percentage of map unit: 10 percent

Conconully soils

Percentage of map unit: 5 percent

Lithic Haploxerepts

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

211—Baldknob-Thout-Nicmar complex, 15 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 2,500 to 5,500 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Baldknob and similar soils: 40 percent

Thout and similar soils: 25 percent

Nicmar and similar soils: 20 percent

Dissimilar minor components: 15 percent

Characteristics of Baldknob

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Colluvium and residuum derived from volcanic rock

Slope range: 15 to 65 percent

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 1.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: DRY STONY 16-24 PZ (R006XY201WA)

Typical profile

A1—0 to 3 inches; gravelly ashy loam

A2—3 to 12 inches; very flaggy loam

R—12 to 16 inches; unweathered bedrock

Characteristics of Thout

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 14 inches thick) over colluvium and residuum derived from volcanic and sedimentary rock

Slope range: 15 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Very low (about 2.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Douglas-fir/mountain snowberry (CDS632) and
Douglas-fir/mountain snowberry (CDS629)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 5 inches; gravelly ashy sandy loam
Bw1—5 to 12 inches; very gravelly ashy sandy loam
2Bw2—12 to 25 inches; very gravelly sandy loam
2R—25 to 29 inches; unweathered bedrock

Characteristics of Nicmar

Setting

Landform: North-facing slopes of mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 25 inches thick) over glacial till
Slope range: 15 to 65 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Moderate (about 8.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Douglas-fir/ninebark (CDS715)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 5 inches; ashy loam
Bw—5 to 17 inches; gravelly ashy loam
2Bt1—17 to 24 inches; very cobbly clay loam
2Bt2—24 to 34 inches; very cobbly clay loam
2BC—34 to 60 inches; very gravelly sandy clay loam

Dissimilar Minor Components

Borgeau soils

Percentage of map unit: 7 percent

Rock outcrop

Percentage of map unit: 5 percent

Scoop soils

Percentage of map unit: 3 percent

Major Uses

Livestock grazing and timber production

212—Bearspring gravelly ashy sandy loam, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,800 to 4,300 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Bearspring and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Bearspring

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 15 inches thick) over colluvium derived from granitic rock

Slope range: 35 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/mountain snowberry (CDS632) and Douglas-fir/mountain snowberry (CDS629)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A1—1 to 8 inches; gravelly ashy sandy loam

A2—8 to 13 inches; gravelly ashy sandy loam

2Bw—13 to 20 inches; gravelly sandy loam

2C1—20 to 37 inches; very gravelly sandy loam

2C2—37 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Mineral soils

Percentage of map unit: 5 percent

Newhorn soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

213—Bluebuck stony ashy sandy loam, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 4,600 to 5,900 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 37 to 41 degrees F

Frost-free period: 70 to 90 days

Map Unit Composition

Bluebuck and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Bluebuck

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 14 inches thick) over glacial till

Slope range: 35 to 65 percent

Depth to restrictive feature: 7 to 14 inches to strongly contrasting textural stratification;
40 to 60 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Subalpine fir/grouse huckleberry (CES426)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

C—1 to 2 inches; ashy fine sandy loam

2A—2 to 4 inches; stony ashy sandy loam

2Bw—4 to 12 inches; gravelly ashy sandy loam

3CB—12 to 25 inches; very gravelly loamy sand

4C1—25 to 36 inches; extremely gravelly coarse sand

5C2—36 to 55 inches; very gravelly loamy sand

5Cd—55 to 60 inches; very gravelly loamy sand

Dissimilar Minor Components

Devore soils

Percentage of map unit: 5 percent

Myerscreek soils

Percentage of map unit: 5 percent

Sitdown soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

214—Boesel fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 1,500 to 3,200 feet

Mean annual precipitation: 14 to 18 inches

Mean annual air temperature: 43 to 45 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Boesel and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Boesel

Setting

Landform: Low stream terraces and flood plains

Properties and qualities

Parent material: Alluvium

Slope range: 0 to 3 percent

Depth to restrictive feature: 20 to 33 inches to strongly contrasting textural stratification

Drainage class: Moderately well drained

Capacity to transmit water (Ksat): Moderately high to very high (see Physical Properties table)

Frequency of flooding: Occasional (see Water Features table)

Frequency of ponding: None

Seasonal high water table (minimum depth): About 36 to 48 inches (see Water Features table)

Available water capacity (entire profile): Low (about 5.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3w

Land capability subclass (irrigated): 3w

Plant community class: Ponderosa pine/pinegrass-bluebunch wheatgrass (CPG231)

Typical profile

A—0 to 8 inches; fine sandy loam

AC—8 to 27 inches; fine sandy loam

2C1—27 to 37 inches; loamy sand

2C2—37 to 60 inches; extremely gravelly coarse sand

Dissimilar Minor Component

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Crop production and timber production

215—Boesel-Muckamuck complex, 0 to 5 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 2,100 to 2,500 feet

Mean annual precipitation: 14 to 18 inches

Mean annual air temperature: 43 to 45 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Boesel and similar soils: 50 percent

Muckamuck and similar soils: 40 percent

Dissimilar minor component: 10 percent

Characteristics of Boesel

Setting

Landform: Low stream terraces and flood plains

Properties and qualities

Parent material: Alluvium

Slope range: 0 to 5 percent

Depth to restrictive feature: 20 to 33 inches to strongly contrasting textural stratification

Drainage class: Moderately well drained

Capacity to transmit water (Ksat): Moderately high to very high (see Physical Properties table)

Frequency of flooding: Occasional (see Water Features table)

Frequency of ponding: None

Seasonal high water table (minimum depth): About 36 to 48 inches (see Water Features table)

Available water capacity (entire profile): Low (about 5.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3w

Land capability subclass (irrigated): 3w

Plant community class: Ponderosa pine/pinegrass-bluebunch wheatgrass (CPG231)

Typical profile

A—0 to 8 inches; fine sandy loam

AC—8 to 27 inches; fine sandy loam

2C1—27 to 37 inches; loamy sand

2C2—37 to 60 inches; extremely gravelly coarse sand

Characteristics of Muckamuck

Setting

Landform: Low stream terraces and flood plains

Properties and qualities

Parent material: Alluvium

Slope range: 0 to 5 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: Occasional (see Water Features table)

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): High (about 10.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3w

Land capability subclass (irrigated): 3w

Plant community class: Ponderosa pine/pinegrass-bluebunch wheatgrass (CPG231)

Typical profile

Ap—0 to 7 inches; silt loam
BA—7 to 18 inches; silt loam
Bw—18 to 28 inches; silty clay loam
C—28 to 60 inches; gravelly loam

Dissimilar Minor Component

Unnamed soils

Percentage of map unit: 10 percent

Major Uses

Crop production, livestock grazing, and timber production

216—Borgeau-Johntom-Rock outcrop complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains
Elevation: 2,500 to 4,500 feet
Mean annual precipitation: 18 to 20 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 110 to 140 days

Map Unit Composition

Borgeau and similar soils: 55 percent
Johntom and similar soils: 25 percent
Rock outcrop: 10 percent
Dissimilar minor components: 10 percent

Characteristics of Borgeau

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 14 inches thick) over glacial till and colluvium derived from volcanic rock
Slope range: 35 to 65 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Moderate (about 6.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Ecological site: COOL STONY 16-24 PZ (R006XY203WA)

Typical profile

A1—0 to 5 inches; ashy loam
A2—5 to 14 inches; gravelly ashy loam
2Bw—14 to 27 inches; very gravelly loam

2BC—27 to 41 inches; very gravelly loam
2C—41 to 60 inches; very gravelly sandy loam

Characteristics of Johntom

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Colluvium and residuum derived from sedimentary and volcanic rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 1.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: STONY 16-24 PZ (R006XY202WA)

Typical profile

A1—0 to 3 inches; gravelly loam

A2—3 to 12 inches; very flaggy loam

R—12 to 16 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 35 to 65 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Baldknob soils

Percentage of map unit: 5 percent

Thout soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

217—Borgeau-Nicmar-Johntom complex, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 2,500 to 4,500 feet

Mean annual precipitation: 18 to 20 inches

Mean annual air temperature: 40 to 50 degrees F

Frost-free period: 90 to 140 days

Map Unit Composition

Borgeau and similar soils: 40 percent
Nicmar and similar soils: 30 percent
Johntom and similar soils: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Borgeau

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 14 inches thick) over glacial till and colluvium derived from volcanic rock

Slope range: 15 to 35 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 6.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Ecological site: COOL STONY 16-24 PZ (R006XY203WA)

Typical profile

A1—0 to 5 inches; ashy loam

A2—5 to 14 inches; gravelly ashy loam

2Bw—14 to 27 inches; very gravelly loam

2BC—27 to 41 inches; very gravelly loam

2C—41 to 60 inches; very gravelly sandy loam

Characteristics of Nicmar

Setting

Landform: North-facing slopes of mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 25 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 8.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/ninebark (CDS715)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 5 inches; ashy loam

Bw—5 to 17 inches; gravelly ashy loam
2Bt1—17 to 24 inches; very cobbly clay loam
2Bt2—24 to 34 inches; very cobbly clay loam
2BC—34 to 60 inches; very gravelly sandy clay loam

Characteristics of Johntom

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Colluvium and residuum derived from sedimentary and volcanic rock

Slope range: 15 to 35 percent

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 1.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Ecological site: STONY 16-24 PZ (R006XY202WA)

Typical profile

A1—0 to 3 inches; gravelly loam

A2—3 to 12 inches; very flaggy loam

R—12 to 16 inches; unweathered bedrock

Dissimilar Minor Components

Baldknob soils

Percentage of map unit: 5 percent

Scoop soils

Percentage of map unit: 5 percent

Thout soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

218—Borgeau-Peka complex, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 2,500 to 4,500 feet

Mean annual precipitation: 18 to 20 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Borgeau and similar soils: 35 percent

Peka, moist, and similar soils: 35 percent

Dissimilar minor components: 30 percent

Characteristics of Borgeau

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 14 inches thick) over glacial till and colluvium derived from volcanic rock

Slope range: 15 to 35 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 6.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Ecological site: COOL STONY 16-24 PZ (R006XY203WA)

Typical profile

A1—0 to 5 inches; ashy loam

A2—5 to 14 inches; gravelly ashy loam

2Bw—14 to 27 inches; very gravelly loam

2BC—27 to 41 inches; very gravelly loam

2C—41 to 60 inches; very gravelly sandy loam

Characteristics of Peka, Moist

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 18 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: 40 to 60 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Ponderosa pine-Douglas-fir/bluebunch wheatgrass (CDG311) and ponderosa pine/bluebunch wheatgrass (CPG141)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A1—1 to 7 inches; stony ashy sandy loam

A2—7 to 16 inches; gravelly ashy sandy loam

2Bw—16 to 25 inches; very cobbly sandy loam

2C—25 to 50 inches; very cobbly sandy loam

2Cd—50 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Conconully soils

Percentage of map unit: 8 percent

Donavan soils

Percentage of map unit: 8 percent

Chesaw soils

Percentage of map unit: 5 percent

Disautel soils

Percentage of map unit: 4 percent

Bong soils

Percentage of map unit: 3 percent

Rock outcrop

Percentage of map unit: 2 percent

Major Uses

Livestock grazing and timber production

219—Brevco-Lithic Haploxerepts-Pebcreek complex, 15 to 90 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 3,000 to 4,500 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 45 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Brevco and similar soils: 40 percent

Lithic Haploxerepts, forested, and similar soils: 30 percent

Pebcreek, dry, and similar soils: 15 percent

Dissimilar minor components: 15 percent

Characteristics of Brevco

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 14 inches thick) over colluvium and residuum derived from granitic rock

Slope range: 15 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/kinnikinnick (bearberry)/pinegrass (CDS655)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 4 inches; stony ashy coarse sandy loam
Bw—4 to 12 inches; gravelly ashy coarse sandy loam
2C1—12 to 26 inches; very gravelly sandy loam
2C2—26 to 39 inches; very cobbly coarse sandy loam
2R—39 to 43 inches; unweathered bedrock

Characteristics of Lithic Haploxerepts, Forested

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash or mixed volcanic ash (4 to 12 inches thick) over colluvium and residuum

Slope range: 15 to 90 percent

Depth to restrictive feature: 8 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/kinnikinnick (bearberry)/pinegrass (CDS655) and Douglas-fir/pinegrass (CDG131)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 4 inches; cobbly ashy sandy loam
Bw—4 to 13 inches; cobbly ashy sandy loam
2C—13 to 19 inches; very gravelly sandy loam
2R—19 to 23 inches; unweathered bedrock

Characteristics of Pebcreek, Dry

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 14 inches thick) over glacial till

Slope range: 15 to 65 percent

Depth to restrictive features: 10 to 14 inches to strongly contrasting textural stratification and 30 to 45 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high to very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/kinnikinnick (bearberry)/pinegrass (CDS655)

Typical profile

Oe—0 to 2 inches; moderately decomposed plant material
A—2 to 7 inches; stony ashy sandy loam
Bw—7 to 13 inches; gravelly ashy sandy loam
2C/B—13 to 39 inches; very gravelly sand
2C—39 to 44 inches; very gravelly loamy sand
2Cd—44 to 60 inches; gravelly sandy loam

Dissimilar Minor Components

Koepke soils, moist

Percentage of map unit: 5 percent

Nevine soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

**220—Brevco-Lithic Haploxerepts-Rock outcrop complex,
15 to 35 percent slopes**

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 3,000 to 4,500 feet
Mean annual precipitation: 20 to 24 inches
Mean annual air temperature: 39 to 42 degrees F
Frost-free period: 90 to 120 days

Map Unit Composition

Brevco, cool, and similar soils: 55 percent
Lithic Haploxerepts, forested, and similar soils: 25 percent
Rock outcrop: 10 percent
Dissimilar minor components: 10 percent

Characteristics of Brevco, Cool

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 14 inches thick) over colluvium and
residuum derived from granitic rock
Slope range: 15 to 35 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 3.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e
Plant community class: Douglas-fir/low huckleberry (CDS832)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 4 inches; stony ashy coarse sandy loam
Bw—4 to 12 inches; gravelly ashy coarse sandy loam
2C1—12 to 26 inches; very gravelly sandy loam
2C2—26 to 39 inches; very cobbly coarse sandy loam
2R—39 to 43 inches; unweathered bedrock

Characteristics of Lithic Haploxerepts, Forested

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash or mixed volcanic ash (4 to 12 inches thick) over colluvium and residuum
Slope range: 15 to 35 percent
Depth to restrictive feature: 8 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 3.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e
Plant community class: Douglas-fir/kinnikinnick (bearberry)/pinegrass (CDS655)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 4 inches; cobbly ashy sandy loam
Bw—4 to 13 inches; cobbly ashy sandy loam
2C—13 to 19 inches; very gravelly sandy loam
2R—19 to 23 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains
Slope range: 15 to 35 percent
Description of areas: Barren areas of exposed bedrock
Land capability subclass (nonirrigated): 8
Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Merkel soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

221—Brevco-Lithic Haploxerepts-Rock outcrop complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 3,000 to 5,500 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 45 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Brevco and similar soils: 45 percent

Lithic Haploxerepts, forested, moist, and similar soils: 30 percent

Rock outcrop: 15 percent

Dissimilar minor components: 10 percent

Characteristics of Brevco

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 14 inches thick) over colluvium and residuum derived from granitic rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/kinnikinnick (bearberry)/pinegrass (CDS655)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 4 inches; stony ashy coarse sandy loam

Bw—4 to 12 inches; gravelly ashy coarse sandy loam

2C1—12 to 26 inches; very gravelly sandy loam

2C2—26 to 39 inches; very cobbly coarse sandy loam

2R—39 to 43 inches; unweathered bedrock

Characteristics of Lithic Haploxerepts, Forested, Moist

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash or mixed volcanic ash (4 to 12 inches thick) over colluvium and residuum

Slope range: 35 to 65 percent

Depth to restrictive feature: 8 to 20 inches to lithic bedrock

Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 3.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Douglas-fir/kinnikinnick (bearberry)/pinegrass (CDS655)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 4 inches; cobbly ashy sandy loam
Bw—4 to 13 inches; cobbly ashy sandy loam
2C—13 to 19 inches; very gravelly sandy loam
2R—19 to 23 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains
Slope range: 35 to 65 percent
Description of areas: Barren areas of exposed bedrock
Land capability subclass (nonirrigated): 8
Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Merkel soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

***222—Brevco-Lithic Haploxerepts-Rock outcrop complex,
dry, 35 to 65 percent slopes***

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 3,000 to 4,500 feet
Mean annual precipitation: 18 to 22 inches
Mean annual air temperature: 40 to 45 degrees F
Frost-free period: 90 to 120 days

Map Unit Composition

Brevco, dry, and similar soils: 55 percent
Lithic Haploxerepts, forested, dry, and similar soils: 25 percent
Rock outcrop: 10 percent
Dissimilar minor components: 10 percent

Characteristics of Brevco, Dry

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 14 inches thick) over colluvium and residuum derived from granitic rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/bitterbrush/bluebunch wheatgrass (CDS674)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 4 inches; stony ashy coarse sandy loam

Bw—4 to 12 inches; gravelly ashy coarse sandy loam

2C1—12 to 26 inches; very gravelly sandy loam

2C2—26 to 39 inches; very cobbly coarse sandy loam

2R—39 to 43 inches; unweathered bedrock

Characteristics of Lithic Haploxerepts, Forested, Dry

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash or mixed volcanic ash (4 to 12 inches thick) over colluvium and residuum

Slope range: 35 to 65 percent

Depth to restrictive feature: 8 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/bitterbrush/pinegrass (CDS675)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 4 inches; cobbly ashy sandy loam

Bw—4 to 13 inches; cobbly ashy sandy loam

2C—13 to 19 inches; very gravelly sandy loam

2R—19 to 23 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 35 to 65 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Merkel soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

223—Burnscreek stony sandy loam, 3 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,200 to 2,800 feet

Mean annual precipitation: 18 to 22 inches

Mean annual air temperature: 44 to 47 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Burnscreek and similar soils: 100 percent

Characteristics of Burnscreek

Setting

Landform: Stream terraces and fans

Properties and qualities

Parent material: Alluvium

Slope range: 3 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Plant community class: Ponderosa pine/bitterbrush/bluebunch wheatgrass (CPS241)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 4 inches; stony sandy loam

BA—4 to 14 inches; very stony sandy loam

Bw—14 to 33 inches; extremely cobbly sandy loam

C—33 to 61 inches; extremely cobbly sandy loam

Major Uses

Livestock grazing and timber production

224—Cashmere fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 700 to 2,200 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 140 to 190 days

Map Unit Composition

Cashmere and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Cashmere

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Glaciofluvial deposits

Slope range: 0 to 3 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 6.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 3e

Ecological site: DRY LOAMY 10-16 PZ (R008XY101WA)

Typical profile

A1—0 to 2 inches; fine sandy loam

A2—2 to 8 inches; fine sandy loam

Bw—8 to 25 inches; fine sandy loam

C1—25 to 44 inches; fine sandy loam

C2—44 to 60 inches; loamy fine sand

Dissimilar Minor Components

Aeneas soils

Percentage of map unit: 5 percent

Cashmont soils

Percentage of map unit: 5 percent

Okanogan soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

225—Cashmere fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 700 to 2,200 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 140 to 190 days

Map Unit Composition

Cashmere and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Cashmere

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Glaciofluvial deposits

Slope range: 3 to 8 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 6.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 3e

Ecological site: DRY LOAMY 10-16 PZ (R008XY101WA)

Typical profile

A1—0 to 2 inches; fine sandy loam

A2—2 to 8 inches; fine sandy loam

Bw—8 to 25 inches; fine sandy loam

C1—25 to 44 inches; fine sandy loam

C2—44 to 60 inches; loamy fine sand

Dissimilar Minor Components

Aeneas soils

Percentage of map unit: 5 percent

Cashmont soils

Percentage of map unit: 5 percent

Okanogan soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

226—Cashmere fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 700 to 2,200 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 140 to 190 days

Map Unit Composition

Cashmere and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Cashmere

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Glaciofluvial deposits

Slope range: 8 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 6.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Ecological site: DRY LOAMY 10-16 PZ (R008XY101WA)

Typical profile

A1—0 to 2 inches; fine sandy loam

A2—2 to 8 inches; fine sandy loam

Bw—8 to 25 inches; fine sandy loam

C1—25 to 44 inches; fine sandy loam

C2—44 to 60 inches; loamy fine sand

Dissimilar Minor Components

Aeneas soils

Percentage of map unit: 5 percent

Cashmont soils

Percentage of map unit: 5 percent

Tonasket soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

227—Cashmere fine sandy loam, 15 to 25 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 700 to 2,200 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 140 to 190 days

Map Unit Composition

Cashmere and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Cashmere

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Glaciofluvial deposits

Slope range: 15 to 25 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 6.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Land capability subclass (irrigated): 6e

Ecological site: DRY LOAMY 10-16 PZ (R008XY101WA)

Typical profile

A1—0 to 2 inches; fine sandy loam

A2—2 to 8 inches; fine sandy loam

Bw—8 to 25 inches; fine sandy loam

C1—25 to 44 inches; fine sandy loam

C2—44 to 60 inches; loamy fine sand

Dissimilar Minor Components

Cashmont soils

Percentage of map unit: 10 percent

Tonasket soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

228—Cashmont sandy loam, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 700 to 3,000 feet

Soil Survey of Okanogan County Area, Washington

Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Cashmont and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Cashmont

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Glaciofluvial deposits
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Moderate (about 6.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 3e
Ecological site: SANDY 10-16 PZ (R008XY501WA)

Typical profile

A1—0 to 3 inches; sandy loam
A2—3 to 8 inches; sandy loam
Bw—8 to 23 inches; gravelly sandy loam
C—23 to 60 inches; gravelly sandy loam

Dissimilar Minor Components

Cashmere soils

Percentage of map unit: 5 percent

Conconully soils

Percentage of map unit: 5 percent

Nighthawk soils

Percentage of map unit: 5 percent

Pogue soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

229—Cashmont sandy loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau
Elevation: 700 to 3,000 feet
Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 140 to 190 days

Map Unit Composition

Cashmont and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Cashmont

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Glaciofluvial deposits

Slope range: 3 to 8 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 6.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 3e

Ecological site: SANDY 10-16 PZ (R008XY501WA)

Typical profile

A1—0 to 3 inches; sandy loam

A2—3 to 8 inches; sandy loam

Bw—8 to 23 inches; gravelly sandy loam

C—23 to 60 inches; gravelly sandy loam

Dissimilar Minor Components

Cashmere soils

Percentage of map unit: 5 percent

Conconully soils

Percentage of map unit: 5 percent

Nighthawk soils

Percentage of map unit: 5 percent

Pogue soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

230—Cashmont sandy loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 700 to 3,000 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 140 to 190 days

Map Unit Composition

Cashmont and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Cashmont

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Glaciofluvial deposits

Slope range: 8 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 6.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Ecological site: SANDY 10-16 PZ (R008XY501WA)

Typical profile

A1—0 to 3 inches; sandy loam

A2—3 to 8 inches; sandy loam

Bw—8 to 23 inches; gravelly sandy loam

C—23 to 60 inches; gravelly sandy loam

Dissimilar Minor Components

Cashmere soils

Percentage of map unit: 5 percent

Conconully soils

Percentage of map unit: 5 percent

Nighthawk soils

Percentage of map unit: 5 percent

Pogue soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

231—Cashmont sandy loam, 15 to 25 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 700 to 3,000 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 140 to 190 days

Map Unit Composition

Cashmont and similar soils: 95 percent

Dissimilar minor components: 5 percent

Characteristics of Cashmont

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Glaciofluvial deposits

Slope range: 15 to 25 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 6.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Land capability subclass (irrigated): 6e

Ecological site: SANDY 10-16 PZ (R008XY501WA)

Typical profile

A1—0 to 3 inches; sandy loam

A2—3 to 8 inches; sandy loam

Bw—8 to 23 inches; gravelly sandy loam

C—23 to 60 inches; gravelly sandy loam

Dissimilar Minor Components

Pogue soils

Percentage of map unit: 3 percent

Cashmere soils

Percentage of map unit: 2 percent

Major Uses

Crop production and livestock grazing

232—Cashmont gravelly sandy loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 700 to 3,000 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 140 to 190 days

Map Unit Composition

Cashmont and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Cashmont

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Glaciofluvial deposits

Slope range: 0 to 8 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 6.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 3e

Ecological site: SANDY 10-16 PZ (R008XY501WA)

Typical profile

A1—0 to 3 inches; gravelly sandy loam

A2—3 to 8 inches; sandy loam

Bw—8 to 23 inches; gravelly sandy loam

C—23 to 60 inches; gravelly sandy loam

Dissimilar Minor Components

Cashmere soils

Percentage of map unit: 5 percent

Conconully soils

Percentage of map unit: 5 percent

Pogue soils

Percentage of map unit: 5 percent

Major Uses

Cropland production and livestock grazing

233—Cashmont sandy loam, 0 to 25 percent slopes, extremely stony

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 700 to 3,000 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 140 to 190 days

Map Unit Composition

Cashmont, extremely stony surface, and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Cashmont, Extremely Stony Surface

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Glaciofluvial deposits

Slope range: 0 to 25 percent

Percentage of surface area covered with stones: 3 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 6.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: SANDY 10-16 PZ (R008XY501WA)

Typical profile

A1—0 to 3 inches; sandy loam

A2—3 to 8 inches; sandy loam

Bw—8 to 23 inches; gravelly sandy loam

C—23 to 60 inches; gravelly sandy loam

Dissimilar Minor Components

Cashmere soils

Percentage of map unit: 5 percent

Conconully soils

Percentage of map unit: 5 percent

Nighthawk soils

Percentage of map unit: 5 percent

Pogue soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

234—Cashmont sandy loam, 25 to 45 percent slopes, extremely stony

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 700 to 3,000 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 140 to 190 days

Map Unit Composition

Cashmont, extremely stony surface, and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Cashmont, Extremely Stony Surface

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Glaciofluvial deposits

Slope range: 25 to 45 percent

Percentage of surface area covered with stones: 3 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 6.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: SANDY 10-16 PZ (R008XY501WA)

Typical profile

A1—0 to 3 inches; sandy loam

A2—3 to 8 inches; sandy loam

Bw—8 to 23 inches; gravelly sandy loam

C—23 to 60 inches; gravelly sandy loam

Dissimilar Minor Components

Conconully soils

Percentage of map unit: 5 percent

Nighthawk soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Use

Livestock grazing

235—Cassal ashy loam, 5 to 25 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,100 to 3,900 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Cassal and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Cassal

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (12 to 18 inches thick) over glacial till

Slope range: 5 to 25 percent

Depth to restrictive feature: 40 to 60 inches to dense material

Drainage class: Moderately well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): About 36 to 42 inches (see Water Features table)

Available water capacity (entire profile): Moderate (about 6.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Plant community class: Douglas-fir/common snowberry (CDS633) and Douglas-fir/common snowberry (CDS636)

Typical profile

Oe—0 to 2 inches; moderately decomposed plant material

A1—2 to 6 inches; ashy loam

A2—6 to 15 inches; ashy loam

AB—15 to 20 inches; ashy sandy loam

2C1—20 to 37 inches; very gravelly sandy loam

2C2—37 to 48 inches; very gravelly sandy loam

3Cd—48 to 60 inches; very gravelly sandy loam

Dissimilar Minor Component

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

236—Chesaw gravelly sandy loam, 15 to 45 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 2,500 to 4,000 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 41 to 45 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Chesaw and similar soils: 90 percent

Dissimilar minor component: 10 percent

Characteristics of Chesaw

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Glacial outwash

Slope range: 15 to 45 percent

Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity to transmit water (Ksat): High or very high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Very low (about 2.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Ecological site: LOAMY 10-16 PZ (R008XY102WA)

Typical profile

A—0 to 5 inches; gravelly sandy loam
AC—5 to 17 inches; very gravelly loamy sand
C—17 to 60 inches; very gravelly sand

Dissimilar Minor Component

Haley soils

Percentage of map unit: 10 percent

Major Use

Livestock grazing

237—Chesaw gravelly sandy loam, 15 to 45 percent slopes, extremely stony

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains
Elevation: 2,500 to 4,000 feet
Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 90 to 120 days

Map Unit Composition

Chesaw, extremely stony surface, and similar soils: 100 percent

Characteristics of Chesaw, Extremely Stony Surface

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Glacial outwash
Slope range: 15 to 45 percent
Percentage of surface area covered with stones: 3 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity to transmit water (Ksat): High or very high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Very low (about 2.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Ecological site: LOAMY 10-16 PZ (R008XY102WA)

Typical profile

A—0 to 5 inches; gravelly sandy loam
AC—5 to 17 inches; very gravelly loamy sand
C—17 to 60 inches; very gravelly sand

Major Use

Livestock grazing

238—Chesaw-Bong complex, 3 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains
Elevation: 2,500 to 4,000 feet
Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 43 to 47 degrees F
Frost-free period: 90 to 120 days

Map Unit Composition

Chesaw and similar soils: 55 percent
Bong and similar soils: 45 percent

Characteristics of Chesaw

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Glacial outwash
Slope range: 3 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity to transmit water (Ksat): High or very high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Very low (about 2.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4s
Ecological site: LOAMY 10-16 PZ (R008XY102WA)

Typical profile

A—0 to 5 inches; gravelly sandy loam
AC—5 to 17 inches; very gravelly loamy sand
C—17 to 60 inches; very gravelly sand

Characteristics of Bong

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Mixed volcanic ash (8 to 16 inches thick) over glacial outwash
Slope range: 3 to 15 percent
Depth to restrictive feature: 15 to 30 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Plant community class: Ponderosa pine/bitterbrush/bluebunch wheatgrass (CPS241)

Typical profile

A1—0 to 6 inches; ashy sandy loam

A2—6 to 10 inches; ashy sandy loam

Bw—10 to 16 inches; gravelly ashy sandy loam

2C1—16 to 26 inches; gravelly loamy coarse sand

2C2—26 to 60 inches; gravelly coarse sand

Major Use

Livestock grazing

239—Chesaw-Bong complex, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 2,500 to 4,000 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 43 to 47 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Chesaw and similar soils: 60 percent

Bong and similar soils: 40 percent

Characteristics of Chesaw

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Glacial outwash

Slope range: 15 to 35 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Somewhat excessively drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 2.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: LOAMY 10-16 PZ (R008XY102WA)

Typical profile

A—0 to 5 inches; gravelly sandy loam

AC—5 to 17 inches; very gravelly loamy sand

C—17 to 60 inches; very gravelly sand

Characteristics of Bong

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Mixed volcanic ash (8 to 16 inches thick) over glacial outwash

Slope range: 15 to 35 percent

Depth to restrictive feature: 15 to 30 inches to strongly contrasting textural stratification

Drainage class: Somewhat excessively drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Ponderosa pine/bitterbrush/bluebunch wheatgrass (CPS241)

Typical profile

A1—0 to 6 inches; ashy sandy loam

A2—6 to 10 inches; ashy sandy loam

Bw—10 to 16 inches; gravelly ashy sandy loam

2C1—16 to 26 inches; gravelly loamy coarse sand

2C2—26 to 60 inches; gravelly coarse sand

Major Use

Livestock grazing

240—Chesaw-Bong complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 2,500 to 4,000 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 43 to 47 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Chesaw and similar soils: 60 percent

Bong and similar soils: 40 percent

Characteristics of Chesaw

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Glacial outwash

Slope range: 35 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Somewhat excessively drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Very low (about 2.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Ecological site: LOAMY 10-16 PZ (R008XY102WA)

Typical profile

A—0 to 5 inches; gravelly sandy loam
AC—5 to 17 inches; very gravelly loamy sand
C—17 to 60 inches; very gravelly sand

Characteristics of Bong

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Mixed volcanic ash (8 to 16 inches thick) over glacial outwash
Slope range: 35 to 65 percent
Depth to restrictive feature: 15 to 30 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity to transmit water (Ksat): High or very high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 3.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Ponderosa pine/bitterbrush/bluebunch wheatgrass (CPS241)

Typical profile

A1—0 to 6 inches; ashy sandy loam
A2—6 to 10 inches; ashy sandy loam
Bw—10 to 16 inches; gravelly ashy sandy loam
2C1—16 to 26 inches; gravelly loamy coarse sand
2C2—26 to 60 inches; gravelly coarse sand

Major Use

Livestock grazing

241—Chewack-Sitdown-Rock outcrop complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 6,000 to 6,400 feet
Mean annual precipitation: 25 to 35 inches
Mean annual air temperature: 35 to 39 degrees F
Frost-free period: 60 to 90 days

Map Unit Composition

Chewack and similar soils: 45 percent
Sitdown, cool, and similar soils: 30 percent

Rock outcrop: 15 percent
Dissimilar minor component: 10 percent

Characteristics of Chewack

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (20 to 35 inches thick) over glacial till

Slope range: 35 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Subalpine fir/grouse huckleberry (CES426)

Typical profile

Oe—0 to 2 inches; moderately decomposed plant material

A—2 to 5 inches; very stony ashy sandy loam

Bw—5 to 25 inches; very cobbly ashy sandy loam

2C—25 to 60 inches; very cobbly coarse sandy loam

Characteristics of Sitdown, Cool

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (10 to 14 inches thick) over glacial outwash or glacial till

Slope range: 35 to 65 percent

Depth to restrictive feature: 10 to 14 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Subalpine fir/grouse huckleberry (CES426)

Typical profile

Oe—0 to 2 inches; moderately decomposed plant material

A—2 to 5 inches; stony ashy sandy loam

Bw—5 to 13 inches; gravelly ashy sandy loam

2C1—13 to 26 inches; very cobbly loamy sand

2C2—26 to 60 inches; extremely gravelly loamy sand

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 35 to 65 percent

Description of areas: Barren areas of exposed bedrock
Land capability subclass (nonirrigated): 8
Typical profile: R—unweathered bedrock

Dissimilar Minor Component

Unnamed soils

Percentage of map unit: 10 percent

Major Uses

Livestock grazing and timber production

242—Chumstick-Mineral-Rock outcrop complex, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains
Elevation: 2,500 to 4,900 feet
Mean annual precipitation: 18 to 24 inches
Mean annual air temperature: 41 to 46 degrees F
Frost-free period: 90 to 120 days

Map Unit Composition

Chumstick and similar soils: 50 percent
Mineral and similar soils: 20 percent
Rock outcrop: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Chumstick

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 20 inches thick) over bedrock
Slope range: 15 to 35 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Very low (about 2.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e
Plant community class: Douglas-fir/pinegrass (CDG131) and Douglas-fir/kinnikinnick (bearberry)/pinegrass (CDS655)

Typical profile

A—0 to 5 inches; very stony ashy sandy loam
Bw—5 to 15 inches; very stony ashy sandy loam
2R—15 to 19 inches; unweathered bedrock

Characteristics of Mineral

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 14 inches thick) over colluvium and residuum derived from granitic rock

Slope range: 15 to 35 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/kinnikinnick (bearberry)/pinegrass (CDS655) and Douglas-fir/pinegrass (CDG131)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 7 inches; stony ashy loam

Bw—7 to 13 inches; very gravelly ashy loam

2C—13 to 24 inches; very stony sandy loam

2R—24 to 28 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 15 to 35 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Devore soils

Percentage of map unit: 5 percent

Nevine soils

Percentage of map unit: 5 percent

Vanbrunt soils

Percentage of map unit: 5 percent

Major Use

Timber production

243—Chumstick-Mineral-Rock outcrop complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 2,500 to 4,900 feet

Mean annual precipitation: 18 to 24 inches

Mean annual air temperature: 42 to 46 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Chumstick and similar soils: 50 percent
Mineral and similar soils: 20 percent
Rock outcrop: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Chumstick

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 20 inches thick) over bedrock
Slope range: 35 to 65 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Very low (about 2.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Douglas-fir/kinnikinnick (bearberry)/pinegrass (CDS655) and Douglas-fir/pinegrass (CDG131)

Typical profile

A—0 to 5 inches; very stony ashy sandy loam
Bw—5 to 15 inches; very stony ashy sandy loam
2R—15 to 19 inches; unweathered bedrock

Characteristics of Mineral

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 14 inches thick) over colluvium and residuum derived from granitic rock
Slope range: 35 to 65 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 3.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Douglas-fir/pinegrass (CDG131) and Douglas-fir/kinnikinnick (bearberry)/pinegrass (CDS655)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 7 inches; stony ashy loam

Bw—7 to 13 inches; very gravelly ashy loam

2C—13 to 24 inches; very stony sandy loam

2R—24 to 28 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 35 to 65 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Devore soils

Percentage of map unit: 5 percent

Vanbrunt soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Use

Timber production

244—Chumstick-Rock outcrop complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 2,500 to 4,900 feet

Mean annual precipitation: 18 to 24 inches

Mean annual air temperature: 42 to 46 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Chumstick and similar soils: 50 percent

Rock outcrop: 35 percent

Dissimilar minor components: 15 percent

Characteristics of Chumstick

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 20 inches thick) over bedrock

Slope range: 35 to 65 percent

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 2.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pinegrass (CDG131) and Douglas-fir/kinnikinnick (bearberry)/pinegrass (CDS655)

Typical profile

A—0 to 5 inches; very stony ashy sandy loam

Bw—5 to 15 inches; very stony ashy sandy loam

2R—15 to 19 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 35 to 65 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Merkel soils

Percentage of map unit: 5 percent

Mineral soils

Percentage of map unit: 5 percent

Rubble land

Percentage of map unit: 5 percent

Major Use

Timber production

245—Colville silt loam, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 1,400 to 4,000 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 45 to 47 degrees F

Frost-free period: 100 to 120 days

Map Unit Composition

Colville, poorly drained, and similar soils: 100 percent

Characteristics of Colville, Poorly Drained

Setting

Landform: Depressions and drainageways of flood plains

Properties and qualities

Parent material: Alluvium

Slope range: 0 to 3 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Poorly drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: Occasional (see Water Features table)

Frequency of ponding: None

Seasonal high water table (minimum depth): About 12 to 30 inches (see Water Features table)

Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)

Sodicity (maximum): Sodium adsorption ratio about 3

Available water capacity (entire profile): High (about 11.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6w

Land capability subclass (irrigated): 6w

Ecological site: WET MEADOW 16-24 PZ (R044XY601WA)

Typical profile

Ap1—0 to 4 inches; silt loam

Ap2—4 to 9 inches; silt loam

A—9 to 17 inches; silty clay loam

2Bw—17 to 21 inches; silt loam

2Bg1—21 to 33 inches; silty clay loam

2Bg2—33 to 43 inches; silty clay loam

2Bg3—43 to 60 inches; silty clay loam

Major Uses

Crop production and wildlife habitat

246—Colville silt loam, moderately wet, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 1,400 to 3,000 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 45 to 47 degrees F

Frost-free period: 100 to 120 days

Map Unit Composition

Colville, somewhat poorly drained, and similar soils: 100 percent

Characteristics of Colville, Somewhat Poorly Drained

Setting

Landform: Low stream terraces

Properties and qualities

Parent material: Alluvium

Slope range: 0 to 3 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Somewhat poorly drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: Occasional (see Water Features table)

Frequency of ponding: None

Seasonal high water table (minimum depth): About 36 to 48 inches (see Water Features table)

Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)

Sodicity (maximum): Sodium adsorption ratio about 3
Available water capacity (entire profile): High (about 11.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3w
Land capability subclass (irrigated): 3w
Ecological site: WET MEADOW 16-24 PZ (R044XY601WA)

Typical profile

Ap1—0 to 4 inches; silt loam
Ap2—4 to 9 inches; silt loam
A—9 to 17 inches; silty clay loam
2Bw—17 to 21 inches; silt loam
2Bg1—21 to 33 inches; silty clay loam
2Bg2—33 to 43 inches; silty clay loam
2Bg3—43 to 60 inches; silty clay loam

Major Use

Crop production

247—Conconully gravelly ashy loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau
Elevation: 1,200 to 4,000 feet
Mean annual precipitation: 11 to 15 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 110 to 140 days

Map Unit Composition

Conconully and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Conconully

Setting

Landform: Hills

Properties and qualities

Parent material: Mixed volcanic ash (10 to 14 inches thick) over glacial till
Slope range: 0 to 8 percent
Depth to restrictive feature: 26 to 40 inches to dense material
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately low to high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 5.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3s
Land capability subclass (irrigated): 3e
Ecological site: LOAMY 16-24 PZ (R006XY102WA)

Typical profile

A1—0 to 2 inches; gravelly ashy loam
A2—2 to 13 inches; gravelly ashy loam
2Bw1—13 to 21 inches; gravelly fine sandy loam
2Bw2—21 to 33 inches; gravelly sandy loam
2Cd—33 to 60 inches; gravelly sandy loam

Dissimilar Minor Components

Cashmont soils

Percentage of map unit: 5 percent

Disautel soils

Percentage of map unit: 5 percent

Haley soils

Percentage of map unit: 5 percent

Newbon soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

248—Conconully gravelly ashy loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 1,200 to 4,000 feet

Mean annual precipitation: 11 to 15 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Conconully and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Conconully

Setting

Landform: Hills

Properties and qualities

Parent material: Mixed volcanic ash (10 to 14 inches thick) over glacial till

Slope range: 8 to 15 percent

Depth to restrictive feature: 26 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately low to high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Ecological site: LOAMY 16-24 PZ (R006XY102WA)

Typical profile

A1—0 to 2 inches; gravelly ashy loam
A2—2 to 13 inches; gravelly ashy loam
2Bw1—13 to 21 inches; gravelly fine sandy loam
2Bw2—21 to 33 inches; gravelly sandy loam
2Cd—33 to 60 inches; gravelly sandy loam

Dissimilar Minor Components

Cashmont soils

Percentage of map unit: 5 percent

Disautel soils

Percentage of map unit: 5 percent

Haley soils

Percentage of map unit: 5 percent

Newbon soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

249—Conconully gravelly ashy loam, 15 to 25 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 1,200 to 4,000 feet

Mean annual precipitation: 11 to 15 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Conconully and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Conconully

Setting

Landform: Hills

Properties and qualities

Parent material: Mixed volcanic ash (10 to 14 inches thick) over glacial till

Slope range: 15 to 25 percent

Depth to restrictive feature: 26 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately low to high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Land capability subclass (irrigated): 6e

Ecological site: LOAMY 16-24 PZ (R006XY102WA)

Typical profile

A1—0 to 2 inches; gravelly ashy loam

A2—2 to 13 inches; gravelly ashy loam

2Bw1—13 to 21 inches; gravelly fine sandy loam

2Bw2—21 to 33 inches; gravelly sandy loam

2Cd—33 to 60 inches; gravelly sandy loam

Dissimilar Minor Components

Cashmont soils

Percentage of map unit: 5 percent

Disautel soils

Percentage of map unit: 5 percent

Haley soils

Percentage of map unit: 5 percent

Newbon soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

250—Conconully gravelly ashy loam, 0 to 25 percent slopes, extremely stony

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 1,200 to 4,000 feet

Mean annual precipitation: 11 to 15 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Conconully, extremely stony surface, and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Conconully, Extremely Stony Surface

Setting

Landform: Hills

Properties and qualities

Parent material: Mixed volcanic ash (10 to 14 inches thick) over glacial till

Slope range: 0 to 25 percent

Percentage of surface area covered with stones: 3 to 15 percent

Depth to restrictive feature: 26 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately low to high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 5.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s
Ecological site: LOAMY 16-24 PZ (R006XY102WA)

Typical profile

A1—0 to 2 inches; gravelly ashy loam
A2—2 to 13 inches; gravelly ashy loam
2Bw1—13 to 21 inches; gravelly fine sandy loam
2Bw2—21 to 33 inches; gravelly sandy loam
2Cd—33 to 60 inches; gravelly sandy loam

Dissimilar Minor Components

Disautel soils

Percentage of map unit: 5 percent

Newbon soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Use

Livestock grazing

251—Conconully gravelly ashy loam, 25 to 65 percent slopes, extremely stony

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau
Elevation: 1,200 to 4,000 feet
Mean annual precipitation: 11 to 15 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 110 to 140 days

Map Unit Composition

Conconully, extremely stony surface, and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Conconully, Extremely Stony Surface

Setting

Landform: Hills

Properties and qualities

Parent material: Mixed volcanic ash (10 to 14 inches thick) over glacial till
Slope range: 25 to 65 percent
Percentage of surface area covered with stones: 3 to 15 percent
Depth to restrictive feature: 26 to 40 inches to dense material
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately low to high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: LOAMY 16-24 PZ (R006XY102WA)

Typical profile

A1—0 to 2 inches; gravelly ashy loam

A2—2 to 13 inches; gravelly ashy loam

2Bw1—13 to 21 inches; gravelly fine sandy loam

2Bw2—21 to 33 inches; gravelly sandy loam

2Cd—33 to 60 inches; gravelly sandy loam

Dissimilar Minor Components

Peka soils

Percentage of map unit: 10 percent

Disautel soils

Percentage of map unit: 5 percent

Newbon soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

252—Conconully-Donavan complex, 15 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,200 to 4,000 feet

Mean annual precipitation: 11 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Conconully and similar soils: 70 percent

Donavan and similar soils: 30 percent

Characteristics of Conconully

Setting

Landform: Hills

Properties and qualities

Parent material: Mixed volcanic ash (10 to 14 inches thick) over glacial till

Slope range: 15 to 65 percent

Depth to restrictive feature: 26 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately low to high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Ecological site: LOAMY 16-24 PZ (R006XY102WA)

Typical profile

A1—0 to 2 inches; gravelly ashy loam
A2—2 to 13 inches; gravelly ashy loam
2Bw1—13 to 21 inches; gravelly fine sandy loam
2Bw2—21 to 33 inches; gravelly sandy loam
2Cd—33 to 60 inches; gravelly sandy loam

Characteristics of Donavan

Setting

Landform: Hills

Properties and qualities

Parent material: Mixed volcanic ash (12 to 18 inches thick) over glacial till
Slope range: 15 to 65 percent
Depth to restrictive feature: 20 to 40 inches to dense material
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Ponderosa pine/bluebunch wheatgrass (CPG141)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 7 inches; ashy loam
Bw1—7 to 11 inches; gravelly ashy loam
Bw2—11 to 16 inches; gravelly ashy sandy loam
2BC—16 to 27 inches; gravelly sandy loam
2Cd1—27 to 34 inches; gravelly sandy loam
2Cd2—34 to 60 inches; gravelly sandy loam

Major Uses

Livestock grazing and timber production

253—Coxit-Pelican complex, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,200 to 5,300 feet
Mean annual precipitation: 18 to 22 inches
Mean annual air temperature: 40 to 44 degrees F
Frost-free period: 90 to 120 days

Map Unit Composition

Coxit and similar soils: 60 percent
Pelican and similar soils: 30 percent
Dissimilar minor components: 10 percent

Characteristics of Coxit

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Mixed volcanic ash (14 to 35 inches thick) over colluvium and residuum derived from metasedimentary rock

Slope range: 15 to 35 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 6.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A1—1 to 2 inches; gravelly ashy sandy loam

A2—2 to 8 inches; gravelly ashy sandy loam

Bw1—8 to 24 inches; very cobbly ashy sandy loam

Bw2—24 to 35 inches; very cobbly ashy sandy loam

2C1—35 to 49 inches; very cobbly sandy loam

2C2—49 to 60 inches; extremely cobbly sandy loam

Characteristics of Pelican

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 25 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: 35 to 50 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Ecological site: MOUNTAIN PARK (R006XY702WA)

Typical profile

A—0 to 11 inches; gravelly ashy loam

2Bw1—11 to 18 inches; gravelly sandy loam

2Bw2—18 to 28 inches; very gravelly sandy loam

3C1—28 to 37 inches; very gravelly sandy loam

3C2—37 to 46 inches; very gravelly sandy loam

3Cd—46 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Nahahum soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

254—Crocamp-Burget complex, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 5,200 to 7,000 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 37 to 41 degrees F

Frost-free period: 70 to 90 days

Map Unit Composition

Crocamp and similar soils: 50 percent

Burget and similar soils: 35 percent

Dissimilar minor components: 15 percent

Characteristics of Crocamp

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 20 inches thick) over colluvium derived from granitic rock

Slope range: 15 to 35 percent

Depth to restrictive feature: 40 to 60 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: HIGH MOUNTAIN PARK (R006XY703WA)

Typical profile

A—0 to 10 inches; very stony ashy sandy loam

AB—10 to 17 inches; very cobbly ashy sandy loam

2Bw—17 to 30 inches; extremely cobbly coarse sandy loam

2C—30 to 42 inches; extremely cobbly coarse sandy loam

2R—42 to 46 inches; unweathered bedrock

Characteristics of Burget

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 11 inches thick) over colluvium and residuum derived from granitic rock

Slope range: 15 to 35 percent

Depth to restrictive feature: 10 to 20 inches to paralithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 1.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Ecological site: HIGH MOUNTAIN SHALLOW 24+ PZ (R006XY204WA)

Typical profile

A—0 to 8 inches; stony ashy coarse sandy loam

2Bw—8 to 11 inches; cobbly coarse sandy loam

2Cr—11 to 21 inches; weathered bedrock

Dissimilar Minor Components

Rock outcrop

Percentage of map unit: 10 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

255—Crocamp-Burget complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 5,200 to 7,000 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 37 to 41 degrees F

Frost-free period: 70 to 90 days

Map Unit Composition

Crocamp and similar soils: 60 percent

Burget and similar soils: 25 percent

Dissimilar minor components: 15 percent

Characteristics of Crocamp

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 20 inches thick) over colluvium derived from granitic rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 40 to 60 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 3.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Ecological site: HIGH MOUNTAIN PARK (R006XY703WA)

Typical profile

A—0 to 10 inches; very stony ashy sandy loam
AB—10 to 17 inches; very cobbly ashy sandy loam
2Bw—17 to 30 inches; extremely cobbly coarse sandy loam
2C—30 to 42 inches; extremely cobbly coarse sandy loam
2R—42 to 46 inches; unweathered bedrock

Characteristics of Burget

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 11 inches thick) over colluvium and residuum derived from granitic rock
Slope range: 35 to 65 percent
Depth to restrictive feature: 10 to 20 inches to paralithic bedrock
Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Very low (about 1.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Ecological site: HIGH MOUNTAIN SHALLOW 24+ PZ (R006XY204WA)

Typical profile

A—0 to 8 inches; stony ashy coarse sandy loam
2Bw—8 to 11 inches; cobbly coarse sandy loam
2Cr—11 to 21 inches; weathered bedrock

Dissimilar Minor Components

Rock outcrop

Percentage of map unit: 10 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

256—Crocamp-Lithic Humicryepts-Rock outcrop complex, 35 to 90 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 5,200 to 7,800 feet
Mean annual precipitation: 25 to 35 inches
Mean annual air temperature: 37 to 41 degrees F
Frost-free period: 70 to 90 days

Map Unit Composition

Crocamp and similar soils: 50 percent
Lithic Humicryepts, nonforested, xeric, and similar soils: 25 percent
Rock outcrop: 15 percent
Dissimilar minor component: 10 percent

Characteristics of Crocamp

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 20 inches thick) over colluvium derived from granitic rock
Slope range: 35 to 65 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 3.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Ecological site: HIGH MOUNTAIN PARK (R006XY703WA)

Typical profile

A—0 to 10 inches; very stony ashy sandy loam
AB—10 to 17 inches; very cobbly ashy sandy loam
2Bw—17 to 30 inches; extremely cobbly coarse sandy loam
2C—30 to 42 inches; extremely cobbly coarse sandy loam
2R—42 to 46 inches; unweathered bedrock

Characteristics of Lithic Humicryepts, Nonforested, Xeric

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Mixed volcanic ash or volcanic ash (4 to 12 inches thick) over colluvium and residuum derived from granitic rock
Slope range: 35 to 90 percent
Depth to restrictive feature: 8 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Very low (about 2.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Ecological site: HIGH MOUNTAIN SHALLOW 24+ PZ (R006XY204WA)

Typical profile

A—0 to 5 inches; very stony ashy fine sandy loam
Bw—5 to 11 inches; very stony ashy fine sandy loam
2C—11 to 20 inches; extremely stony sandy loam
2R—20 to 30 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains
Slope range: 35 to 90 percent
Description of areas: Barren areas of exposed bedrock
Land capability subclass (nonirrigated): 8
Typical profile: R—unweathered bedrock

Dissimilar Minor Component

Unnamed soils

Percentage of map unit: 10 percent

Major Use

Livestock grazing

257—Cubhill-Johntom complex, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 2,900 to 4,000 feet
Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 47 to 50 degrees F
Frost-free period: 110 to 140 days

Map Unit Composition

Cubhill and similar soils: 65 percent
Johntom and similar soils: 25 percent
Dissimilar minor components: 10 percent

Characteristics of Cubhill

Setting

Landform: South-facing slopes of hills

Properties and qualities

Parent material: Mixed volcanic ash (12 to 18 inches thick) over glacial till
Slope range: 15 to 35 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Moderate (about 8.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e
Ecological site: LOAMY 16-24 PZ (R006XY102WA)

Typical profile

A1—0 to 9 inches; gravelly ashy loam
A2—9 to 18 inches; gravelly ashy loam
2AB—18 to 25 inches; very gravelly loam
2Bt1—25 to 36 inches; very gravelly clay loam
2Bt2—36 to 60 inches; very gravelly clay loam

Characteristics of Johntom

Setting

Landform: South-facing slopes of hills

Properties and qualities

Parent material: Colluvium and residuum derived from sedimentary and volcanic rock

Slope range: 15 to 35 percent

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 1.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Ecological site: STONY 16-24 PZ (R006XY202WA)

Typical profile

A1—0 to 3 inches; gravelly loam
A2—3 to 12 inches; very flaggy loam
R—12 to 16 inches; unweathered bedrock

Dissimilar Minor Components

Rock outcrop

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

258—Dams

Major land resource area (MLRA): Not assigned because the unit and its polygons can occur throughout the survey area

Map unit composition: Dams—100 percent

Description of areas: Concrete barriers constructed across a waterway to control the flow of water

Land capability subclass (nonirrigated): 8

Major uses: Water impoundments and hydroelectric power generation

259—Devore-Rock outcrop complex, warm, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 4,000 to 5,000 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 39 to 43 degrees F

Frost-free period: 70 to 90 days

Map Unit Composition

Devore, warm, and similar soils: 55 percent

Rock outcrop: 30 percent

Dissimilar minor components: 15 percent

Characteristics of Devore, Warm

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over colluvium and residuum derived from granitic and metamorphic rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Subalpine fir/blue (big) huckleberry (CES313)

Typical profile

Oe—0 to 3 inches; moderately decomposed plant material

C—3 to 4 inches; stony ashy sandy loam

2A—4 to 7 inches; very stony ashy fine sandy loam

2Bw—7 to 14 inches; very stony ashy fine sandy loam

3C1—14 to 26 inches; extremely stony coarse sandy loam

3C2—26 to 35 inches; extremely stony coarse sandy loam

3R—35 to 39 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 35 to 65 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Lithic Dystrocryepts

Percentage of map unit: 5 percent

Manley soils

Percentage of map unit: 5 percent

Sitdown soils

Percentage of map unit: 5 percent

Major Use

Timber production

260—Devore-Trebutte-Rock outcrop complex, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 4,800 to 7,200 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 35 to 40 degrees F

Frost-free period: 60 to 90 days

Map Unit Composition

Devore and similar soils: 45 percent

Trebutte and similar soils: 30 percent

Rock outcrop: 15 percent

Dissimilar minor component: 10 percent

Characteristics of Devore

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over colluvium and residuum derived from granitic and metamorphic rock

Slope range: 15 to 35 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Subalpine fir/grouse huckleberry (CES412) and subalpine fir/grouse huckleberry (CES426)

Typical profile

Oe—0 to 3 inches; moderately decomposed plant material

C—3 to 4 inches; stony ashy sandy loam

2A—4 to 7 inches; very stony ashy fine sandy loam

2Bw—7 to 14 inches; very stony ashy fine sandy loam

3C1—14 to 26 inches; extremely stony coarse sandy loam

3C2—26 to 35 inches; extremely stony coarse sandy loam

3R—35 to 39 inches; unweathered bedrock

Characteristics of Treebutte

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (7 to 10 inches thick) over colluvium and residuum derived from granitic rock

Slope range: 15 to 35 percent

Depth to restrictive feature: 14 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 1.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Subalpine fir/grouse huckleberry (CES426) and subalpine fir/grouse huckleberry (CES412)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 2 inches; very stony ashy sandy loam

Bw—2 to 11 inches; very stony ashy sandy loam

2C—11 to 20 inches; extremely stony coarse sandy loam

2R—20 to 29 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 15 to 35 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Component

Unnamed soils

Percentage of map unit: 10 percent

Major Uses

Livestock grazing and timber production

261—Devore-Treebutte-Rock outcrop complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 4,800 to 7,200 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 35 to 40 degrees F

Frost-free period: 60 to 90 days

Map Unit Composition

Devore and similar soils: 45 percent

Treebutte and similar soils: 25 percent

Rock outcrop: 15 percent

Dissimilar minor components: 15 percent

Characteristics of Devore

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over colluvium and residuum derived from granitic and metamorphic rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Subalpine fir/grouse huckleberry (CES426)

Typical profile

Oe—0 to 3 inches; moderately decomposed plant material

C—3 to 4 inches; stony ashy sandy loam

2A—4 to 7 inches; very stony ashy fine sandy loam

2Bw—7 to 14 inches; very stony ashy fine sandy loam

3C1—14 to 26 inches; extremely stony coarse sandy loam

3C2—26 to 35 inches; extremely stony coarse sandy loam

3R—35 to 39 inches; unweathered bedrock

Characteristics of Treebutte

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (7 to 10 inches thick) over colluvium and residuum derived from granitic rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 14 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 1.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Subalpine fir/grouse huckleberry (CES426)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 2 inches; very stony ashy sandy loam
Bw—2 to 11 inches; very stony ashy sandy loam
2C—11 to 20 inches; extremely stony coarse sandy loam
2R—20 to 29 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains
Slope range: 35 to 65 percent
Description of areas: Barren areas of exposed bedrock
Land capability subclass (nonirrigated): 8
Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Myerscreek soils

Percentage of map unit: 10 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

262—Disautel silt loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau
Elevation: 1,500 to 3,000 feet
Mean annual precipitation: 11 to 15 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 110 to 140 days

Map Unit Composition

Disautel and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Disautel

Setting

Landform: Hills

Properties and qualities

Parent material: Mixed volcanic ash over glacial till
Slope range: 0 to 8 percent
Depth to restrictive feature: 20 to 40 inches to dense material
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Moderate (about 9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3s
Land capability subclass (irrigated): 3e
Ecological site: LOAMY 10-16 PZ (R008XY102WA)

Typical profile

A1—0 to 9 inches; silt loam
A2—9 to 16 inches; silt loam
Bw—16 to 24 inches; loam
2Bk—24 to 31 inches; gravelly loam
2Cd—31 to 60 inches; gravelly loam

Dissimilar Minor Components

Conconully soils

Percentage of map unit: 5 percent

Mobu soils

Percentage of map unit: 5 percent

Nighthawk soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

263—Disautel silt loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 1,500 to 3,000 feet

Mean annual precipitation: 11 to 15 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Disautel and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Disautel

Setting

Landform: Hills

Properties and qualities

Parent material: Mixed volcanic ash over glacial till

Slope range: 8 to 15 percent

Depth to restrictive feature: 20 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Ecological site: LOAMY 10-16 PZ (R008XY102WA)

Typical profile

A1—0 to 9 inches; silt loam
A2—9 to 16 inches; silt loam

Bw—16 to 24 inches; loam
2Bk—24 to 31 inches; gravelly loam
2Cd—31 to 60 inches; gravelly loam

Dissimilar Minor Components

Conconully soils

Percentage of map unit: 5 percent

Mobu soils

Percentage of map unit: 5 percent

Nighthawk soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

264—Disautel silt loam, 0 to 25 percent slopes, extremely stony

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau
Elevation: 1,500 to 3,000 feet
Mean annual precipitation: 11 to 15 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 110 to 140 days

Map Unit Composition

Disautel, extremely stony surface, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Disautel, Extremely Stony Surface

Setting

Landform: Hills

Properties and qualities

Parent material: Mixed volcanic ash over glacial till
Slope range: 0 to 25 percent
Percentage of surface area covered with stones: 3 to 15 percent
Depth to restrictive feature: 20 to 40 inches to dense material
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Moderate (about 9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s
Ecological site: LOAMY 10-16 PZ (R008XY102WA)

Typical profile

A1—0 to 9 inches; silt loam
A2—9 to 16 inches; silt loam
Bw—16 to 24 inches; loam

2Bk—24 to 31 inches; gravelly loam

2Cd—31 to 60 inches; gravelly loam

Dissimilar Minor Components

Conconully soils

Percentage of map unit: 5 percent

Nighthawk soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Use

Livestock grazing

265—Disautel silt loam, 25 to 65 percent slopes, extremely stony

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 1,500 to 3,000 feet

Mean annual precipitation: 11 to 15 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Disautel, extremely stony surface, and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Disautel, Extremely Stony Surface

Setting

Landform: Hills

Properties and qualities

Parent material: Mixed volcanic ash over glacial till

Slope range: 25 to 65 percent

Percentage of surface area covered with stones: 3 to 15 percent

Depth to restrictive feature: 20 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: LOAMY 10-16 PZ (R008XY102WA)

Typical profile

A1—0 to 9 inches; silt loam

A2—9 to 16 inches; silt loam

Bw—16 to 24 inches; loam

2Bk—24 to 31 inches; gravelly loam

2Cd—31 to 60 inches; gravelly loam

Dissimilar Minor Components

Conconully soils

Percentage of map unit: 5 percent

Mobu soils

Percentage of map unit: 5 percent

Nighthawk soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

**266—Disautel cobbly silt loam, 8 to 45 percent slopes,
eroded**

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 1,500 to 3,000 feet

Mean annual precipitation: 11 to 15 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Disautel, eroded, and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Disautel, Eroded

Setting

Landform: Hills

Properties and qualities

Parent material: Mixed volcanic ash over glacial till

Slope range: 8 to 45 percent

Depth to restrictive feature: 20 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: LOAMY 10-16 PZ (R008XY102WA)

Typical profile

A1—0 to 2 inches; cobbly silt loam

A2—2 to 16 inches; silt loam

Bw—16 to 24 inches; loam

2Bk—24 to 31 inches; gravelly loam

2Cd—31 to 60 inches; gravelly loam

Dissimilar Minor Components

Conconully soils

Percentage of map unit: 5 percent

Nighthawk soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Use

Livestock grazing

267—Donavan ashy loam, 3 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 1,800 to 4,500 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 42 to 44 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Donavan and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Donovan

Setting

Landform: Hills

Properties and qualities

Parent material: Mixed volcanic ash (12 to 18 inches thick) over glacial till

Slope range: 3 to 15 percent

Depth to restrictive feature: 20 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Plant community class: Ponderosa pine/bluebunch wheatgrass (CPG141)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 7 inches; ashy loam

Bw1—7 to 11 inches; gravelly ashy loam

Bw2—11 to 16 inches; gravelly ashy sandy loam

2BC—16 to 27 inches; gravelly sandy loam

2Cd1—27 to 34 inches; gravelly sandy loam

2Cd2—34 to 60 inches; gravelly sandy loam

Dissimilar Minor Components

Peka soils

Percentage of map unit: 5 percent

Republic soils

Percentage of map unit: 5 percent

Vanbrunt soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Use

Timber production

268—Donavan ashy loam, 8 to 25 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 1,800 to 4,500 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 42 to 44 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Donavan and similar soils: 75 percent

Dissimilar minor components: 25 percent

Characteristics of Donovan

Setting

Landform: Hills

Properties and qualities

Parent material: Mixed volcanic ash (12 to 18 inches thick) over glacial till

Slope range: 8 to 25 percent

Depth to restrictive feature: 20 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Plant community class: Ponderosa pine/bluebunch wheatgrass (CPG141)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 7 inches; ashy loam

Bw1—7 to 11 inches; gravelly ashy loam

Bw2—11 to 16 inches; gravelly ashy sandy loam

2BC—16 to 27 inches; gravelly sandy loam
2Cd1—27 to 34 inches; gravelly sandy loam
2Cd2—34 to 60 inches; gravelly sandy loam

Dissimilar Minor Components

Conconully soils

Percentage of map unit: 5 percent

Kartar soils

Percentage of map unit: 5 percent

Lani soils

Percentage of map unit: 5 percent

Molson soils

Percentage of map unit: 5 percent

Nevine soils

Percentage of map unit: 5 percent

Major Uses

Cropland and timber production

269—Donavan ashy loam, 30 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 1,800 to 4,500 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 42 to 44 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Donavan and similar soils: 75 percent

Dissimilar minor components: 25 percent

Characteristics of Donovan

Setting

Landform: Hills

Properties and qualities

Parent material: Mixed volcanic ash (12 to 18 inches thick) over glacial till

Slope range: 30 to 65 percent

Depth to restrictive feature: 20 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Ponderosa pine/bluebunch wheatgrass (CPG141)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 7 inches; ashy loam
Bw1—7 to 11 inches; gravelly ashy loam
Bw2—11 to 16 inches; gravelly ashy sandy loam
2BC—16 to 27 inches; gravelly sandy loam
2Cd1—27 to 34 inches; gravelly sandy loam
2Cd2—34 to 60 inches; gravelly sandy loam

Dissimilar Minor Components

Conconully soils

Percentage of map unit: 5 percent

Kartar soils

Percentage of map unit: 5 percent

Lani soils

Percentage of map unit: 5 percent

Molson soils

Percentage of map unit: 5 percent

Nevine soils

Percentage of map unit: 5 percent

Major Use

Timber production

***270—Donavan ashy loam, 0 to 25 percent slopes,
extremely stony***

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 1,800 to 4,500 feet
Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 42 to 44 degrees F
Frost-free period: 110 to 140 days

Map Unit Composition

Donavan, extremely stony surface, and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Donovan, Extremely Stony Surface

Setting

Landform: Hills

Properties and qualities

Parent material: Mixed volcanic ash (12 to 18 inches thick) over glacial till
Slope range: 0 to 25 percent
Percentage of surface area covered with stones: 3 to 15 percent
Depth to restrictive feature: 20 to 40 inches to dense material
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s
Plant community class: Ponderosa pine/bluebunch wheatgrass (CPG141)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 7 inches; ashy loam
Bw1—7 to 11 inches; gravelly ashy loam
Bw2—11 to 16 inches; gravelly ashy sandy loam
2BC—16 to 27 inches; gravelly sandy loam
2Cd1—27 to 34 inches; gravelly sandy loam
2Cd2—34 to 60 inches; gravelly sandy loam

Dissimilar Minor Components

Conconully soils

Percentage of map unit: 5 percent

Lani soils

Percentage of map unit: 5 percent

Molson soils

Percentage of map unit: 5 percent

Nevine soils

Percentage of map unit: 5 percent

Major Use

Timber production

271—Donavan ashy loam, 25 to 65 percent slopes, extremely stony

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 1,800 to 4,500 feet
Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 42 to 44 degrees F
Frost-free period: 110 to 140 days

Map Unit Composition

Donavan, extremely stony surface, and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Donovan, Extremely Stony Surface

Setting

Landform: Hills

Properties and qualities

Parent material: Mixed volcanic ash (12 to 18 inches thick) over glacial till
Slope range: 25 to 65 percent
Percentage of surface area covered with stones: 3 to 15 percent

Soil Survey of Okanogan County Area, Washington

Depth to restrictive feature: 20 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Ponderosa pine/bluebunch wheatgrass (CPG141)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 7 inches; ashy loam

Bw1—7 to 11 inches; gravelly ashy loam

Bw2—11 to 16 inches; gravelly ashy sandy loam

2BC—16 to 27 inches; gravelly sandy loam

2Cd1—27 to 34 inches; gravelly sandy loam

2Cd2—34 to 60 inches; gravelly sandy loam

Dissimilar Minor Components

Conconully soils

Percentage of map unit: 5 percent

Kartar soils

Percentage of map unit: 5 percent

Lani soils

Percentage of map unit: 5 percent

Molson soils

Percentage of map unit: 5 percent

Major Use

Timber production

272—Donavan-Rock outcrop complex, 20 to 40 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 1,800 to 4,500 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 42 to 44 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Donavan, extremely stony surface, and similar soils: 55 percent

Rock outcrop: 20 percent

Dissimilar minor components: 25 percent

Characteristics of Donovan, Extremely Stony Surface

Setting

Landform: Hills

Properties and qualities

Parent material: Mixed volcanic ash (12 to 18 inches thick) over glacial till

Slope range: 20 to 40 percent

Percentage of surface area covered with stones: 3 to 15 percent

Depth to restrictive feature: 20 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Ponderosa pine/bluebunch wheatgrass (CPG141)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 7 inches; ashy loam

Bw1—7 to 11 inches; gravelly ashy loam

Bw2—11 to 16 inches; gravelly ashy sandy loam

2BC—16 to 27 inches; gravelly sandy loam

2Cd1—27 to 34 inches; gravelly sandy loam

2Cd2—34 to 60 inches; gravelly sandy loam

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 20 to 40 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Lithic Haploxerepts

Percentage of map unit: 10 percent

Kartar soils

Percentage of map unit: 5 percent

Molson soils

Percentage of map unit: 5 percent

Nevine soils

Percentage of map unit: 5 percent

Major Use

Timber production

273—Entiat sandy loam, 25 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 870 to 3,000 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 140 to 190 days

Map Unit Composition

Entiat and similar soils: 100 percent

Characteristics of Entiat

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed loess and volcanic ash over colluvium and residuum derived from granodiorite

Slope range: 25 to 65 percent

Depth to restrictive feature: 10 to 20 inches to paralithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 1.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: DRY STONY 10-16 PZ (R008XY201WA)

Typical profile

A—0 to 3 inches; sandy loam

AB—3 to 8 inches; very gravelly sandy loam

Bw—8 to 18 inches; very gravelly sandy loam

Cr—18 to 28 inches; weathered bedrock

Major Use

Livestock grazing

274—Ewall loamy fine sand, 0 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 700 to 3,000 feet

Mean annual precipitation: 11 to 15 inches

Mean annual air temperature: 46 to 52 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Ewall and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Ewall

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Glacial outwash and eolian sand

Slope range: 0 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity to transmit water (Ksat): Very high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 3.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4s
Land capability subclass (irrigated): 4e
Ecological site: SANDS 10-16 PZ (R008XY502WA)

Typical profile

A1—0 to 2 inches; loamy fine sand
A2—2 to 7 inches; loamy fine sand
AC—7 to 15 inches; loamy fine sand
C1—15 to 26 inches; sand
C2—26 to 60 inches; sand

Dissimilar Minor Components

Skaha soils

Percentage of map unit: 10 percent

Aeneas soils

Percentage of map unit: 5 percent

Cashmere soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

275—Ewall loamy fine sand, 15 to 25 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau
Elevation: 700 to 3,000 feet
Mean annual precipitation: 11 to 15 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 110 to 140 days

Map Unit Composition

Ewall and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Ewall

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Glacial outwash and eolian sand
Slope range: 15 to 25 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity to transmit water (Ksat): Very high

Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 3.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e
Land capability subclass (irrigated): 7s
Ecological site: SANDS 10-16 PZ (R008XY502WA)

Typical profile

A1—0 to 2 inches; loamy fine sand
A2—2 to 7 inches; loamy fine sand
AC—7 to 15 inches; loamy fine sand
C1—15 to 26 inches; sand
C2—26 to 60 inches; sand

Dissimilar Minor Components

Skaha soils

Percentage of map unit: 10 percent

Aeneas soils

Percentage of map unit: 5 percent

Cashmere soils

Percentage of map unit: 5 percent

Major Use

Crop production and livestock grazing

276—Ewall loamy fine sand, 25 to 45 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau
Elevation: 700 to 3,000 feet
Mean annual precipitation: 11 to 15 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 110 to 140 days

Map Unit Composition

Ewall and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Ewall

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Glacial outwash and eolian sand
Slope range: 25 to 45 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity to transmit water (Ksat): Very high
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: SANDS 10-16 PZ (R008XY502WA)

Typical profile

A1—0 to 2 inches; loamy fine sand

A2—2 to 7 inches; loamy fine sand

AC—7 to 15 inches; loamy fine sand

C1—15 to 26 inches; sand

C2—26 to 60 inches; sand

Dissimilar Minor Components

Skaha soils

Percentage of map unit: 10 percent

Unnamed soils

Percentage of map unit: 10 percent

Major Use

Livestock grazing

277—Farway gravelly ashy sandy loam, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,400 to 2,600 feet

Mean annual precipitation: 22 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Farway, moist, and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Farway, Moist

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 30 inches thick) over colluvium derived from volcanic and sedimentary rock

Slope range: 15 to 35 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 6.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/pachistima/pinegrass (CDS412)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 5 inches; gravelly ashy sandy loam

Bw1—5 to 10 inches; gravelly ashy sandy loam

Bw2—10 to 21 inches; gravelly ashy sandy loam

2C—21 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Veridge soils

Percentage of map unit: 10 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

278—Finney-Myerscreek complex, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 4,400 to 5,500 feet

Mean annual precipitation: 30 to 35 inches

Mean annual air temperature: 35 to 40 degrees F

Frost-free period: 60 to 90 days

Map Unit Composition

Finney and similar soils: 55 percent

Myerscreek, moist, and similar soils: 30 percent

Dissimilar minor components: 15 percent

Characteristics of Finney

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over colluvium and residuum derived from metasedimentary rock

Slope range: 15 to 35 percent

Depth to restrictive feature: 40 to 60 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Subalpine fir/twinflower (CEF222)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 3 inches; gravelly ashy sandy loam

Bw—3 to 11 inches; gravelly ashy sandy loam
2C1—11 to 21 inches; very gravelly sandy loam
2C2—21 to 33 inches; very gravelly sandy loam
3C3—33 to 44 inches; very gravelly sandy loam
3R—44 to 48 inches; unweathered bedrock

Characteristics of Myerscreek, Moist

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: 20 to 35 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Subalpine fir/twinflower (CEF222)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

C—1 to 2 inches; ashy silt loam

2A—2 to 5 inches; ashy fine sandy loam

2Bw—5 to 13 inches; ashy fine sandy loam

3CB—13 to 32 inches; very gravelly sandy loam

3Cd1—32 to 47 inches; very gravelly sandy loam

3Cd2—47 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Manley soils

Percentage of map unit: 10 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and wildlife habitat

279—Goddard-Lithic Haploxerepts complex, 0 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 2,800 to 4,500 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Goddard and similar soils: 70 percent

Lithic Haploxerepts, forested, and similar soils: 15 percent

Dissimilar minor components: 15 percent

Characteristics of Goddard

Setting

Landform: Outwash terraces of mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over glacial outwash

Slope range: 0 to 15 percent

Depth to restrictive feature: 7 to 14 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Plant community class: Douglas-fir/dwarf huckleberry (CDS831) and Douglas-fir/dwarf huckleberry (CDS813)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 7 inches; ashy fine sandy loam

Bw—7 to 13 inches; gravelly ashy sandy loam

2C1—13 to 26 inches; very gravelly loamy sand

2C2—26 to 60 inches; extremely gravelly loamy coarse sand

Characteristics of Lithic Haploxerepts, Forested

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash or mixed volcanic ash (4 to 12 inches thick) over colluvium and residuum

Slope range: 3 to 15 percent

Depth to restrictive feature: 8 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/kinnikinnick (bearberry)/pinegrass (CDS655) and Douglas-fir/pinegrass (CDG131)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 4 inches; cobbly ashy sandy loam

Bw—4 to 13 inches; cobbly ashy sandy loam
2C—13 to 19 inches; very gravelly sandy loam
2R—19 to 23 inches; unweathered bedrock

Dissimilar Minor Components

Rock outcrop

Percentage of map unit: 10 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

280—Goddard-Parmenter complex, 0 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 3,600 to 4,400 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Goddard and similar soils: 60 percent

Parmenter and similar soils: 30 percent

Dissimilar minor components: 10 percent

Characteristics of Goddard

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over glacial outwash

Slope range: 0 to 15 percent

Depth to restrictive feature: 7 to 14 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Plant community class: Douglas-fir/dwarf huckleberry (CDS813) and Douglas-fir/dwarf huckleberry (CDS831)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 7 inches; ashy fine sandy loam

Bw—7 to 13 inches; gravelly ashy sandy loam

2C1—13 to 26 inches; very gravelly loamy sand

2C2—26 to 60 inches; extremely gravelly loamy coarse sand

Characteristics of Parmenter

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Volcanic ash (14 to 30 inches thick) over glacial outwash

Slope range: 0 to 15 percent

Depth to restrictive feature: 14 to 30 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high to very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 7.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Plant community class: Douglas-fir/dwarf huckleberry (CDS831) and Douglas-fir/dwarf huckleberry (CDS813)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 4 inches; ashy fine sandy loam

Bw1—4 to 13 inches; ashy fine sandy loam

Bw2—13 to 23 inches; ashy fine sandy loam

2C1—23 to 35 inches; very gravelly loamy coarse sand

2C2—35 to 60 inches; very gravelly loamy coarse sand

Dissimilar Minor Components

Sitdown soils

Percentage of map unit: 5 percent

Wapal soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

281—Goddard-Parmenter complex, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 3,600 to 4,100 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 42 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Goddard, warm, and similar soils: 50 percent

Parmenter, dry, and similar soils: 35 percent

Dissimilar minor components: 15 percent

Characteristics of Goddard, Warm

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over glacial outwash

Slope range: 15 to 35 percent

Depth to restrictive feature: 7 to 14 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 7 inches; ashy fine sandy loam

Bw—7 to 13 inches; gravelly ashy sandy loam

2C1—13 to 26 inches; very gravelly loamy sand

2C2—26 to 60 inches; extremely gravelly loamy coarse sand

Characteristics of Parmenter, Dry

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Volcanic ash (14 to 30 inches thick) over glacial outwash

Slope range: 15 to 35 percent

Depth to restrictive feature: 14 to 30 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high to very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 7.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 4 inches; ashy fine sandy loam

Bw1—4 to 13 inches; ashy fine sandy loam

Bw2—13 to 23 inches; ashy fine sandy loam

2C1—23 to 35 inches; very gravelly loamy coarse sand

2C2—35 to 60 inches; very gravelly loamy coarse sand

Dissimilar Minor Components

Nevine soils

Percentage of map unit: 5 percent

Wapal soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

282—Granflat gravelly ashy sandy loam, warm, 0 to 10 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,600 to 3,200 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Granflat and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Granflat

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Mixed volcanic ash (10 to 16 inches thick) over glacial outwash

Slope range: 0 to 10 percent

Depth to restrictive feature: 10 to 16 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Plant community class: Douglas-fir/common snowberry (CDS636)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 7 inches; gravelly ashy sandy loam

AB—7 to 10 inches; very cobbly ashy sandy loam

Bw—10 to 16 inches; very cobbly ashy sandy loam

2C1—16 to 26 inches; extremely cobbly sand

2C2—26 to 60 inches; extremely gravelly sand

Dissimilar Minor Components

Wapal soils

Percentage of map unit: 10 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

283—Haley ashy fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 1,400 to 3,800 feet

Mean annual precipitation: 11 to 15 inches

Mean annual air temperature: 47 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Haley and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Haley

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Mixed volcanic ash (20 to 30 inches thick) over glacial outwash

Slope range: 0 to 8 percent

Depth to restrictive feature: 20 to 30 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 2e

Land capability subclass (irrigated): 3e

Ecological site: SANDY 10-16 PZ (R008XY501WA)

Typical profile

Ap—0 to 8 inches; ashy fine sandy loam

A—8 to 12 inches; ashy fine sandy loam

Bw—12 to 25 inches; ashy fine sandy loam

2C—25 to 60 inches; sand

Dissimilar Minor Components

Conconully soils

Percentage of map unit: 5 percent

Ewall soils

Percentage of map unit: 5 percent

Owhi soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

284—Haley ashy fine sandy loam, 8 to 25 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 1,400 to 3,800 feet

Mean annual precipitation: 11 to 15 inches

Mean annual air temperature: 47 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Haley and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Haley

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Mixed volcanic ash (20 to 30 inches thick) over glacial outwash

Slope range: 8 to 25 percent

Depth to restrictive feature: 20 to 30 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Land capability subclass (irrigated): 6e

Ecological site: SANDY 10-16 PZ (R008XY501WA)

Typical profile

Ap—0 to 8 inches; ashy fine sandy loam

A—8 to 12 inches; ashy fine sandy loam

Bw—12 to 25 inches; ashy fine sandy loam

2C—25 to 60 inches; sand

Dissimilar Minor Components

Conconully soils

Percentage of map unit: 5 percent

Ewall soils

Percentage of map unit: 5 percent

Owhi soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

**285—Haploxerandic Haplocryepts-Cryaquolls complex,
0 to 35 percent slopes**

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 3,600 to 4,500 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 37 to 41 degrees F

Frost-free period: 70 to 90 days

Map Unit Composition

Haploxerandic Haplocryepts, forested, till substratum, and similar soils: 65 percent

Cryaquolls, poorly drained, till substratum, and similar soils: 25 percent

Dissimilar minor component: 10 percent

Characteristics of Haploxerandic Haplocryepts, Forested, Till Substratum

Setting

Landform: Glacial trough valleys of mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over glacial till, colluvium, and residuum

Slope range: 5 to 35 percent

Depth to restrictive feature: 20 to 81 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Subalpine fir/blue (big) huckleberry-twinflower group, Eastern Washington (PCES3F2)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

C—1 to 2 inches; ashy silt loam

2A—2 to 5 inches; ashy fine sandy loam

2Bw—5 to 11 inches; ashy fine sandy loam

3C1—11 to 22 inches; cobbly sandy loam

3C2—22 to 60 inches; gravelly loamy sand

Characteristics of Cryaquolls, Poorly Drained, Till Substratum

Setting

Landform: Depressions and drainageways of mountains

Properties and qualities

Parent material: Mixed alluvium over glacial till and glacial outwash

Slope range: 0 to 5 percent

Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification

Drainage class: Poorly drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: Occasional (see Water Features table)

Frequency of ponding: Rare (see Water Features table)

Seasonal high water table (minimum depth): About 12 to 18 inches (see Water Features table)

Available water capacity (entire profile): Moderate (about 6.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6w

Plant community class: Engelmann spruce series, wetland (CEM0)

Typical profile

Oe—0 to 2 inches; moderately decomposed plant material

A1—2 to 9 inches; loam

A2—9 to 17 inches; loam

Bg—17 to 21 inches; silt loam

2Cg1—21 to 31 inches; sandy loam

2Cg2—31 to 40 inches; gravelly loamy coarse sand

2Cg3—40 to 60 inches; gravelly fine sandy loam

Dissimilar Minor Component

Unnamed soils

Percentage of map unit: 10 percent

Major Uses

Timber production and wildlife habitat

286—Havillah ashy silt loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 2,300 to 4,500 feet

Mean annual precipitation: 14 to 18 inches

Mean annual air temperature: 42 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Havillah and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Havillah

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 20 inches thick) over glacial till

Slope range: 0 to 8 percent

Soil Survey of Okanogan County Area, Washington

Depth to restrictive feature: 20 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): High (about 10.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3s

Land capability subclass (irrigated): 3e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Ap—0 to 12 inches; ashy silt loam

A—12 to 19 inches; ashy silt loam

2Bw1—19 to 24 inches; gravelly silt loam

2Bw2—24 to 27 inches; gravelly silt loam

2Cd—27 to 60 inches; gravelly loam

Dissimilar Minor Components

Molson soils

Percentage of map unit: 10 percent

Hunters soils

Percentage of map unit: 5 percent

Koepke soils

Percentage of map unit: 5 percent

Major Uses

Crop production, livestock grazing, and timber production

287—Havillah ashy silt loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 2,300 to 4,500 feet

Mean annual precipitation: 14 to 18 inches

Mean annual air temperature: 42 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Havillah and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Havillah

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 20 inches thick) over glacial till

Slope range: 8 to 15 percent

Depth to restrictive feature: 20 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): High (about 10.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Ap—0 to 12 inches; ashy silt loam

A—12 to 19 inches; ashy silt loam

2Bw1—19 to 24 inches; gravelly silt loam

2Bw2—24 to 27 inches; gravelly silt loam

2Cd—27 to 60 inches; gravelly loam

Dissimilar Minor Components

Molson soils

Percentage of map unit: 10 percent

Hunters soils

Percentage of map unit: 5 percent

Koepke soils

Percentage of map unit: 5 percent

Major Uses

Crop production, livestock grazing, and timber production

288—Havillah ashy silt loam, 15 to 25 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 2,300 to 4,500 feet

Mean annual precipitation: 14 to 18 inches

Mean annual air temperature: 42 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Havillah and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Havillah

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 20 inches thick) over glacial till

Slope range: 15 to 25 percent

Depth to restrictive feature: 20 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): High (about 10.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e
Land capability subclass (irrigated): 6e
Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Ap—0 to 12 inches; ashy silt loam
A—12 to 19 inches; ashy silt loam
2Bw1—19 to 24 inches; gravelly silt loam
2Bw2—24 to 27 inches; gravelly silt loam
2Cd—27 to 60 inches; gravelly loam

Dissimilar Minor Components

Molson soils

Percentage of map unit: 10 percent

Hunters soils

Percentage of map unit: 5 percent

Koepke soils

Percentage of map unit: 5 percent

Major Uses

Crop production, livestock grazing, and timber production

**289—Havillah ashy silt loam, 15 to 45 percent slopes,
eroded**

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains
Elevation: 2,300 to 4,500 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 42 to 44 degrees F
Frost-free period: 90 to 120 days

Map Unit Composition

Havillah, eroded, and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Havillah, Eroded

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 20 inches thick) over glacial till
Slope range: 15 to 45 percent
Depth to restrictive feature: 20 to 40 inches to dense material
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)
Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): High (about 10.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Ap—0 to 5 inches; ashy silt loam

A—5 to 19 inches; ashy silt loam

2Bw1—19 to 24 inches; gravelly silt loam

2Bw2—24 to 27 inches; gravelly silt loam

2Cd—27 to 60 inches; gravelly loam

Dissimilar Minor Components

Hunters soils, eroded

Percentage of map unit: 10 percent

Molson soils

Percentage of map unit: 10 percent

Major Uses

Livestock grazing and timber production

290—Havillah ashy silt loam, 15 to 45 percent slopes, extremely stony

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 2,300 to 4,500 feet

Mean annual precipitation: 14 to 18 inches

Mean annual air temperature: 42 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Havillah, extremely stony surface, and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Havillah, Extremely Stony Surface

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 20 inches thick) over glacial till

Slope range: 15 to 45 percent

Percentage of surface area covered with stones: 3 to 15 percent

Depth to restrictive feature: 20 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): High (about 10.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Ap—0 to 12 inches; ashy silt loam

A—12 to 19 inches; ashy silt loam

2Bw1—19 to 24 inches; gravelly silt loam

2Bw2—24 to 27 inches; gravelly silt loam

2Cd—27 to 60 inches; gravelly loam

Dissimilar Minor Components

Koepke soils

Percentage of map unit: 10 percent

Molson soils, extremely stony surface

Percentage of map unit: 10 percent

Major Uses

Livestock grazing and timber production

291—Histic Cryaquepts-Cryohemists complex, 0 to 10 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 5,000 to 5,600 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 37 to 42 degrees F

Frost-free period: 60 to 80 days

Map Unit Composition

Histic Cryaquepts and similar soils: 50 percent

Cryohemists and similar soils: 40 percent

Dissimilar minor component: 10 percent

Characteristics of Histic Cryaquepts

Setting

Landform: Depressions and drainageways of mountains

Properties and qualities

Parent material: Organic soil material over alluvium and glacial till

Slope range: 0 to 10 percent

Depth to restrictive feature: 8 to 16 inches to strongly contrasting textural stratification

Drainage class: Very poorly drained

Capacity to transmit water (Ksat): Moderately high to very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: Frequent (see Water Features table)

Seasonal high water table (minimum depth): At the soil surface (see Water Features table)

Available water capacity (entire profile): Moderate (about 7.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Farr's willow/saw-leaved (firethread) sedge (SW1215)

Typical profile

Oe—0 to 8 inches; mucky peat
2A—8 to 10 inches; silt loam
3Bw—10 to 15 inches; ashy fine sandy loam
4Cg1—15 to 21 inches; very gravelly sandy loam
4Cg2—21 to 34 inches; gravelly sandy loam
4Cg3—34 to 60 inches; very gravelly loamy sand

Characteristics of Cryohemists

Setting

Landform: Depressions of mountains

Properties and qualities

Parent material: Organic soil material over alluvium and glacial till

Slope range: 0 to 5 percent

Depth to restrictive feature: 16 to 40 inches to strongly contrasting textural stratification

Drainage class: Very poorly drained

Capacity to transmit water (Ksat): Moderately high to very high (see Physical Properties table)

Frequency of flooding: Occasional (see Water Features table)

Frequency of ponding: Frequent (see Water Features table)

Seasonal high water table (minimum depth): At the soil surface (see Water Features table)

Available water capacity (entire profile): High (about 11.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6w

Plant community class: Farr's willow/saw-leaved (firethread) sedge (SW1215)

Typical profile

Oe—0 to 14 inches; mucky peat
Oa—14 to 19 inches; muck
2Cg1—19 to 26 inches; fine sandy loam
2Cg2—26 to 33 inches; gravelly sandy loam
3Cg3—33 to 60 inches; very gravelly loamy sand

Dissimilar Minor Component

Unnamed soils

Percentage of map unit: 10 percent

Major Uses

Livestock grazing and wildlife habitat

292—Histosols, ponded

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 1,500 to 4,000 feet

Mean annual precipitation: 12 to 30 inches

Mean annual air temperature: 44 to 46 degrees F

Frost-free period: 100 to 140 days

Map Unit Composition

Histosols, ponded, and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Histosols, Pondered

Setting

Landform: Depressions of mountains and backswamps of flood plains

Properties and qualities

Parent material: Organic soil material over alluvium that commonly contains a large component of volcanic ash

Slope range: 0 to 1 percent

Depth to restrictive feature: 16 to 60 inches to strongly contrasting textural stratification

Drainage class: Very poorly drained

Capacity to transmit water (Ksat): Moderately high to very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: Frequent (see Water Features table)

Seasonal high water table (minimum depth): At the soil surface to a depth of 4 inches (see Water Features table)

Available water capacity (entire profile): Very high (about 15.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 5w

Plant community class: EMERGENT WETLAND/PERMANENTLY FLOODED

Typical profile

Oe—0 to 4 inches; mucky peat

Oa—4 to 20 inches; muck

2C—20 to 32 inches; silt loam

2Cg—32 to 60 inches; silt loam

Dissimilar Minor Components

Leavenworth soils

Percentage of map unit: 5 percent

Xerofluvents

Percentage of map unit: 5 percent

Colville soils, poorly drained

Percentage of map unit: 3 percent

Colville soils, somewhat poorly drained

Percentage of map unit: 2 percent

Major Use

Wildlife habitat

293—Hodgson ashy silt loam, 3 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 1,300 to 3,800 feet

Mean annual precipitation: 18 to 22 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Hodgson and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Hodgson

Setting

Landform: Glacial lake terraces of mountains and hills

Properties and qualities

Parent material: Mixed volcanic ash (7 to 14 inches thick) over glacial lake sediment

Slope range: 3 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Moderately well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): About 30 to 42 inches (see Water Features table)

Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)

Sodicity (maximum): Sodium adsorption ratio about 3

Available water capacity (entire profile): Very high (about 12.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Plant community class: Douglas-fir/common snowberry (CDS636)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 7 inches; ashy silt loam

Bw—7 to 10 inches; ashy silt loam

2Bt—10 to 16 inches; silt loam

2C—16 to 26 inches; silt loam

2Ck1—26 to 41 inches; silty clay loam

2Ck2—41 to 60 inches; silty clay loam

Dissimilar Minor Component

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Crop production, livestock grazing, and timber production

294—Humic Vitricryands-Typic Humicryepts complex, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 7,200 to 7,600 feet

Mean annual precipitation: 30 to 35 inches

Mean annual air temperature: 35 to 40 degrees F

Frost-free period: 40 to 70 days

Map Unit Composition

Humic Vitricryands, nonforested, and similar soils: 55 percent

Typic Humicryepts, nonforested, and similar soils: 45 percent

Characteristics of Humic Vitricryands, Nonforested

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 25 inches thick) over colluvium derived from granitic rock

Slope range: 15 to 35 percent

Depth to restrictive features: 20 to 50 inches to paralithic bedrock and 24 to 50 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Alpine Zone series, Eastern Washington (CA)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A1—1 to 5 inches; ashy silt loam

A2—5 to 16 inches; ashy silt loam

2Bw1—16 to 27 inches; gravelly fine sandy loam

2Bw2—27 to 33 inches; very gravelly sandy loam

3Cr—33 to 41 inches; weathered bedrock

3R—41 to 45 inches; unweathered bedrock

Characteristics of Typic Humicryepts, Nonforested

Setting

Landform: Glacial valley walls of mountains

Properties and qualities

Parent material: Volcanic ash (3 to 7 inches thick) over colluvium derived from granitic rock

Slope range: 15 to 35 percent

Depth to restrictive feature: 20 to 81 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high to very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Alpine Zone series, Eastern Washington (CA)

Typical profile

A1—0 to 7 inches; ashy silt loam

A2—7 to 12 inches; silt loam

A3—12 to 24 inches; gravelly silt loam

2Bw—24 to 30 inches; very gravelly coarse sandy loam

2R—30 to 34 inches; unweathered bedrock

Major Uses

Livestock grazing and timber production

295—Hunters ashy silt loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 2,000 to 4,100 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 42 to 45 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Hunters and similar soils: 100 percent

Characteristics of Hunters

Setting

Landform: Glacial lake terraces

Properties and qualities

Parent material: Mixed volcanic ash (18 to 30 inches thick) over glacial lake sediment

Slope range: 0 to 8 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very high (about 12.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 3e

Plant community class: Ponderosa pine-Douglas-fir/bluebunch wheatgrass (CDG311)

Typical profile

A1—0 to 3 inches; ashy silt loam

A2—3 to 15 inches; ashy silt loam

Bw—15 to 24 inches; ashy silt loam

2C—24 to 30 inches; stratified very fine sandy loam to silty clay

2Ck—30 to 60 inches; stratified very fine sandy loam to silty clay

Major Uses

Crop production, livestock grazing, and timber production

296—Hunters ashy silt loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 2,000 to 4,100 feet

Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 42 to 45 degrees F
Frost-free period: 110 to 140 days

Map Unit Composition

Hunters and similar soils: 100 percent

Characteristics of Hunters

Setting

Landform: Glacial lake terraces

Properties and qualities

Parent material: Mixed volcanic ash (18 to 30 inches thick) over glacial lake sediment

Slope range: 8 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very high (about 12.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Plant community class: Ponderosa pine-Douglas-fir/bluebunch wheatgrass (CDG311)

Typical profile

A1—0 to 3 inches; ashy silt loam

A2—3 to 15 inches; ashy silt loam

Bw—15 to 24 inches; ashy silt loam

2C—24 to 30 inches; stratified very fine sandy loam to silty clay

2Ck—30 to 60 inches; stratified very fine sandy loam to silty clay

Major Uses

Crop production, livestock grazing, and timber production

297—Hunters ashy silt loam, 8 to 25 percent slopes, eroded

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 2,000 to 4,100 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 42 to 45 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Hunters, eroded, and similar soils: 100 percent

Characteristics of Hunters, Eroded

Setting

Landform: Glacial lake terraces

Properties and qualities

Parent material: Mixed volcanic ash (18 to 30 inches thick) over glacial lake sediment

Slope range: 8 to 25 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very high (about 12.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Land capability subclass (irrigated): 6e

Plant community class: Ponderosa pine-Douglas-fir/bluebunch wheatgrass (CDG311)

Typical profile

A1—0 to 1 inch; ashy silt loam

A2—1 to 15 inches; ashy silt loam

Bw—15 to 24 inches; ashy silt loam

2C—24 to 30 inches; stratified very fine sandy loam to silty clay

2Ck—30 to 60 inches; stratified very fine sandy loam to silty clay

Major Uses

Crop production, livestock grazing, and timber production

298—Jimbluff ashy sandy loam, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,200 to 3,000 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Jimbluff and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Jimbluff

Setting

Landform: Footslopes of mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 20 inches thick) over alluvium and glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 4.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e
Plant community class: Douglas-fir/pachistima/pinegrass (CDS412)

Typical profile

Oe—0 to 2 inches; moderately decomposed plant material
A—2 to 6 inches; ashy sandy loam
Bw1—6 to 11 inches; gravelly ashy sandy loam
Bw2—11 to 19 inches; very cobbly ashy sandy loam
2C1—19 to 26 inches; very cobbly sandy loam
2C2—26 to 37 inches; extremely cobbly coarse sandy loam
3C3—37 to 60 inches; extremely gravelly loamy sand

Dissimilar Minor Components

Longort soils

Percentage of map unit: 5 percent

Nicmar soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

299—Jimbluff gravelly ashy sandy loam, 5 to 25 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 2,200 to 3,000 feet
Mean annual precipitation: 20 to 24 inches
Mean annual air temperature: 40 to 44 degrees F
Frost-free period: 90 to 120 days

Map Unit Composition

Jimbluff and similar soils: 90 percent
Dissimilar minor component: 10 percent

Characteristics of Jimbluff

Setting

Landform: Footslopes of mountains, and alluvial fans

Properties and qualities

Parent material: Mixed volcanic ash (10 to 20 inches thick) over alluvium and glacial till
Slope range: 5 to 25 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity to transmit water (Ksat): High or very high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4s

Plant community class: Douglas-fir/common snowberry/pinegrass (CDS638)

Typical profile

Oe—0 to 2 inches; moderately decomposed plant material

A—2 to 6 inches; gravelly ashy sandy loam

Bw1—6 to 11 inches; gravelly ashy sandy loam

Bw2—11 to 19 inches; very cobbly ashy sandy loam

2C1—19 to 26 inches; very cobbly sandy loam

2C2—26 to 37 inches; extremely gravelly sandy loam

3C3—37 to 60 inches; extremely gravelly loamy sand

Dissimilar Minor Component

Unnamed soils

Percentage of map unit: 10 percent

Major Uses

Livestock grazing and timber production

300—Johntom-Borgeau-Rock outcrop complex, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 2,500 to 4,500 feet

Mean annual precipitation: 15 to 20 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Johntom and similar soils: 45 percent

Borgeau and similar soils: 30 percent

Rock outcrop: 10 percent

Dissimilar minor components: 15 percent

Characteristics of Johntom

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Colluvium and residuum derived from sedimentary and volcanic rock

Slope range: 15 to 35 percent

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 1.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e
Ecological site: STONY 16-24 PZ (R006XY202WA)

Typical profile

A1—0 to 3 inches; gravelly loam
A2—3 to 12 inches; very flaggy loam
R—12 to 16 inches; unweathered bedrock

Characteristics of Borgeau

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 14 inches thick) over glacial till and colluvium derived from volcanic rock
Slope range: 15 to 35 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Moderate (about 6.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e
Ecological site: COOL STONY 16-24 PZ (R006XY203WA)

Typical profile

A1—0 to 5 inches; ashy loam
A2—5 to 14 inches; gravelly ashy loam
2Bw—14 to 27 inches; very gravelly loam
2BC—27 to 41 inches; very gravelly loam
2C—41 to 60 inches; very gravelly sandy loam

Characteristics of Rock Outcrop

Landform: Mountains
Slope range: 15 to 35 percent
Description of areas: Barren areas of exposed bedrock
Land capability subclass (nonirrigated): 8
Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Baldknob soils

Percentage of map unit: 5 percent

Scoop soils

Percentage of map unit: 5 percent

Thout soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

301—Johntom-Foggydew-Rock outcrop complex, 35 to 75 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,600 to 4,000 feet

Mean annual precipitation: 15 to 20 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Johntom and similar soils: 50 percent

Foggydew and similar soils: 25 percent

Rock outcrop: 15 percent

Dissimilar minor component: 10 percent

Characteristics of Johntom

Setting

Landform: Mountains

Properties and qualities

Parent material: Colluvium and residuum derived from sedimentary and volcanic rock

Slope range: 35 to 75 percent

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 1.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: STONY 16-24 PZ (R006XY202WA)

Typical profile

A1—0 to 3 inches; gravelly loam

A2—3 to 12 inches; very flaggy loam

R—12 to 16 inches; unweathered bedrock

Characteristics of Foggydew

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (20 to 30 inches thick) over colluvium, residuum, and glacial till derived from volcanic and sedimentary rock

Slope range: 35 to 75 percent

Depth to restrictive feature: 40 to 60 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 3.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Ecological site: LOAMY 16-24 PZ (R006XY102WA)

Typical profile

A1—0 to 7 inches; gravelly ashy sandy loam
A2—7 to 12 inches; very gravelly ashy sandy loam
A3—12 to 20 inches; very gravelly ashy sandy loam
2Bw1—20 to 27 inches; extremely gravelly sandy loam
2Bw2—27 to 42 inches; extremely gravelly sandy loam
2Bw3—42 to 53 inches; extremely gravelly sandy loam
2R—53 to 57 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains
Slope range: 35 to 75 percent
Description of areas: Barren areas of exposed bedrock
Land capability subclass (nonirrigated): 8
Typical profile: R—unweathered bedrock

Dissimilar Minor Component

Unnamed soils

Percentage of map unit: 10 percent

Major Use

Livestock grazing

302—Johntom-Rock outcrop complex, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 1,800 to 4,000 feet
Mean annual precipitation: 15 to 20 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 110 to 140 days

Map Unit Composition

Johntom and similar soils: 60 percent
Rock outcrop: 30 percent
Dissimilar minor components: 10 percent

Characteristics of Johntom

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Colluvium and residuum derived from sedimentary and volcanic rock
Slope range: 15 to 35 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 1.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Ecological site: STONY 16-24 PZ (R006XY202WA)

Typical profile

A1—0 to 3 inches; gravelly loam

A2—3 to 12 inches; very flaggy loam

R—12 to 16 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 15 to 35 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Lithic Ultic Haploxerolls

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

303—Johntom-Rock outcrop complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 1,800 to 4,000 feet

Mean annual precipitation: 15 to 20 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Johntom and similar soils: 70 percent

Rock outcrop: 10 percent

Dissimilar minor components: 20 percent

Characteristics of Johntom

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Colluvium and residuum derived from sedimentary and volcanic rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Very low (about 1.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Ecological site: STONY 16-24 PZ (R006XY202WA)

Typical profile

A1—0 to 3 inches; gravelly loam
A2—3 to 12 inches; very flaggy loam
R—12 to 16 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains
Slope range: 35 to 65 percent
Description of areas: Barren areas of exposed bedrock
Land capability subclass (nonirrigated): 8
Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Baldknob soils

Percentage of map unit: 5 percent

Borgeau soils

Percentage of map unit: 5 percent

Thout soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

304—Karamin ashy fine sandy loam, 0 to 20 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains
Elevation: 3,000 to 3,800 feet
Mean annual precipitation: 18 to 22 inches
Mean annual air temperature: 40 to 45 degrees F
Frost-free period: 90 to 120 days

Map Unit Composition

Karamin and similar soils: 90 percent
Dissimilar minor component: 10 percent

Characteristics of Karamin

Setting

Landform: Outwash terraces of mountains

Properties and qualities

Parent material: Mixed volcanic ash (12 to 23 inches thick) over glacial outwash

Slope range: 0 to 20 percent

Depth to restrictive feature: 12 to 23 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Land capability subclass (irrigated): 6e

Plant community class: Douglas-fir/common snowberry (CDS636)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 6 inches; ashy fine sandy loam

Bw—6 to 18 inches; ashy fine sandy loam

2C1—18 to 28 inches; loamy fine sand

2C2—28 to 43 inches; sand

2C3—43 to 60 inches; sand

Dissimilar Minor Component

Unnamed soils

Percentage of map unit: 10 percent

Major Uses

Crop production, livestock grazing, and timber production

305—Kartar ashy sandy loam, 3 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 1,000 to 4,000 feet

Mean annual precipitation: 14 to 20 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Kartar and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Kartar

Setting

Landform: Outwash terraces of mountains and hills

Properties and qualities

Parent material: Mixed volcanic ash (10 to 30 inches thick) over glacial till and glacial outwash

Slope range: 3 to 15 percent

Depth to restrictive feature: 20 to 30 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Ecological site: LOAMY 10-16 PZ (R008XY102WA)

Typical profile

A—0 to 6 inches; ashy sandy loam

Bw1—6 to 16 inches; ashy sandy loam

Bw2—16 to 28 inches; gravelly ashy sandy loam

2C1—28 to 50 inches; very gravelly loamy sand

2C2—50 to 60 inches; very gravelly sand

Dissimilar Minor Components

Conconully soils

Percentage of map unit: 5 percent

Donavan soils

Percentage of map unit: 5 percent

Lani soils

Percentage of map unit: 3 percent

Merkel soils

Percentage of map unit: 2 percent

Major Uses

Crop production, livestock grazing, and timber production

306—Kartar ashy sandy loam, 15 to 25 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 1,000 to 4,000 feet

Mean annual precipitation: 14 to 20 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Kartar and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Kartar

Setting

Landform: Outwash terraces of mountains and hills

Properties and qualities

Parent material: Mixed volcanic ash (10 to 30 inches thick) over glacial till and glacial outwash

Slope range: 15 to 25 percent

Depth to restrictive feature: 20 to 30 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Ecological site: LOAMY 10-16 PZ (R008XY102WA)

Typical profile

A—0 to 6 inches; ashy sandy loam

Bw1—6 to 16 inches; ashy sandy loam

Bw2—16 to 28 inches; gravelly ashy sandy loam

2C1—28 to 50 inches; very gravelly loamy sand

2C2—50 to 60 inches; very gravelly sand

Dissimilar Minor Components

Conconully soils

Percentage of map unit: 5 percent

Donavan soils

Percentage of map unit: 5 percent

Merkel soils

Percentage of map unit: 5 percent

Major Uses

Cropland, livestock grazing, and timber production

307—Kartar ashy sandy loam, cool, 15 to 45 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 1,000 to 4,000 feet

Mean annual precipitation: 14 to 20 inches

Mean annual air temperature: 45 to 47 degrees F

Frost-free period: 100 to 120 days

Map Unit Composition

Kartar, cool, and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Kartar, Cool

Setting

Landform: Outwash terraces of mountains and hills

Properties and qualities

Parent material: Mixed volcanic ash (10 to 30 inches thick) over glacial till and glacial outwash

Slope range: 15 to 45 percent

Depth to restrictive feature: 20 to 30 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: LOAMY 10-16 PZ (R008XY102WA)

Typical profile

A—0 to 8 inches; ashy sandy loam

Bw1—8 to 16 inches; ashy sandy loam

Bw2—16 to 28 inches; gravelly ashy sandy loam

2C1—28 to 50 inches; very gravelly loamy sand

2C2—50 to 60 inches; very gravelly sand

Dissimilar Minor Components

Lani soils

Percentage of map unit: 5 percent

Newbon soils

Percentage of map unit: 5 percent

Nevine soils

Percentage of map unit: 3 percent

Merkel soils

Percentage of map unit: 2 percent

Major Uses

Livestock grazing and timber production

308—Kartar ashy fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,500 to 4,000 feet

Mean annual precipitation: 14 to 20 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Kartar and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Kartar

Setting

Landform: Outwash terraces of mountains and hills

Properties and qualities

Parent material: Mixed volcanic ash (10 to 30 inches thick) over glacial till and glacial outwash

Slope range: 0 to 8 percent

Depth to restrictive feature: 20 to 30 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Ecological site: LOAMY 10-16 PZ (R008XY102WA)

Typical profile

A—0 to 6 inches; ashy fine sandy loam

Bw1—6 to 16 inches; ashy sandy loam

Bw2—16 to 28 inches; gravelly ashy sandy loam

2C1—28 to 50 inches; very gravelly loamy sand

2C2—50 to 60 inches; very gravelly sand

Dissimilar Minor Components

Ewall soils

Percentage of map unit: 5 percent

Haley soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

309—Kartar ashy fine sandy loam, 8 to 25 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,500 to 4,000 feet

Mean annual precipitation: 14 to 20 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Kartar and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Kartar

Setting

Landform: Outwash terraces of mountains and hills

Properties and qualities

Parent material: Mixed volcanic ash (10 to 30 inches thick) over glacial till and glacial outwash

Slope range: 8 to 25 percent

Depth to restrictive feature: 20 to 30 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Ecological site: LOAMY 10-16 PZ (R008XY102WA)

Typical profile

A—0 to 6 inches; ashy fine sandy loam

Bw1—6 to 16 inches; ashy sandy loam

Bw2—16 to 28 inches; gravelly ashy sandy loam

2C1—28 to 50 inches; very gravelly loamy sand

2C2—50 to 60 inches; very gravelly sand

Dissimilar Minor Components

Ewall soils

Percentage of map unit: 5 percent

Haley soils

Percentage of map unit: 5 percent

Major Uses

Cropland, livestock grazing, and timber production

310—Kartar ashy fine sandy loam, 25 to 45 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,500 to 4,000 feet

Mean annual precipitation: 14 to 20 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Kartar and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Kartar

Setting

Landform: Outwash terraces of mountains and hills

Properties and qualities

Parent material: Mixed volcanic ash (10 to 30 inches thick) over glacial till and glacial outwash

Slope range: 25 to 45 percent

Depth to restrictive feature: 20 to 30 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: LOAMY 10-16 PZ (R008XY102WA)

Typical profile

A—0 to 6 inches; ashy fine sandy loam

Bw1—6 to 16 inches; ashy sandy loam

Bw2—16 to 28 inches; gravelly ashy sandy loam

2C1—28 to 50 inches; very gravelly loamy sand

2C2—50 to 60 inches; very gravelly sand

Dissimilar Minor Components

Ewall soils

Percentage of map unit: 5 percent

Haley soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

311—Kartar cobbly ashy sandy loam, 0 to 25 percent slopes, extremely stony

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 1,000 to 4,000 feet

Mean annual precipitation: 14 to 20 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Kartar, extremely stony surface, and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Kartar, Extremely Stony Surface

Setting

Landform: Outwash terraces of mountains and hills

Properties and qualities

Parent material: Mixed volcanic ash (10 to 30 inches thick) over glacial till and glacial outwash

Slope range: 0 to 25 percent

Percentage of surface area covered with stones: 3 to 15 percent

Depth to restrictive feature: 20 to 30 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: LOAMY 10-16 PZ (R008XY102WA)

Typical profile

A—0 to 6 inches; cobbly ashy sandy loam

Bw1—6 to 16 inches; cobbly ashy sandy loam

Bw2—16 to 28 inches; gravelly ashy sandy loam

2C1—28 to 50 inches; very gravelly loamy sand

2C2—50 to 60 inches; very gravelly sand

Dissimilar Minor Components

Conconully soils

Percentage of map unit: 5 percent

Donavan soils

Percentage of map unit: 5 percent

Lani soils

Percentage of map unit: 5 percent

Merkel soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

312—Kartar cobbly ashy sandy loam, 25 to 65 percent slopes, extremely stony

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 1,000 to 4,000 feet

Mean annual precipitation: 14 to 20 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Kartar, extremely stony surface, and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Kartar, Extremely Stony Surface

Setting

Landform: Outwash terraces of mountains and hills

Properties and qualities

Parent material: Mixed volcanic ash (10 to 30 inches thick) over glacial till and glacial outwash

Slope range: 25 to 65 percent

Percentage of surface area covered with stones: 3 to 15 percent

Depth to restrictive feature: 20 to 30 inches to strongly contrasting textural stratification

Drainage class: Well drained
Capacity to transmit water (Ksat): High or very high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 4.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Ecological site: LOAMY 10-16 PZ (R008XY102WA)

Typical profile

A—0 to 6 inches; cobbly ashy sandy loam
Bw1—6 to 16 inches; cobbly ashy sandy loam
Bw2—16 to 28 inches; gravelly ashy sandy loam
2C1—28 to 50 inches; very gravelly loamy sand
2C2—50 to 60 inches; very gravelly sand

Dissimilar Minor Components

Conconully soils

Percentage of map unit: 5 percent

Donavan soils

Percentage of map unit: 5 percent

Lani soils

Percentage of map unit: 5 percent

Merkel soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

313—Karu gravelly ashy sandy loam, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,300 to 6,000 feet
Mean annual precipitation: 25 to 35 inches
Mean annual air temperature: 35 to 41 degrees F
Frost-free period: 60 to 90 days

Map Unit Composition

Karu and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Karu

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 20 inches thick) over colluvium and glacial till
Slope range: 35 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 5.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Subalpine fir/pinegrass (CEG310)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 5 inches; gravelly ashy sandy loam
Bw—5 to 17 inches; cobbly ashy sandy loam
2C1—17 to 23 inches; very cobbly sandy loam
2C2—23 to 34 inches; very cobbly sandy loam
3C3—34 to 60 inches; very gravelly loamy sand

Dissimilar Minor Components

Finney soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

314—Karu stony ashy sandy loam, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,300 to 6,000 feet
Mean annual precipitation: 25 to 35 inches
Mean annual air temperature: 35 to 41 degrees F
Frost-free period: 60 to 90 days

Map Unit Composition

Karu and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Karu

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 20 inches thick) over colluvium and glacial till
Slope range: 35 to 65 percent
Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 5.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Subalpine fir/pinegrass (CEG310)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 5 inches; stony ashy sandy loam
Bw—5 to 17 inches; cobbly ashy sandy loam
2C1—17 to 23 inches; very cobbly sandy loam
2C2—23 to 34 inches; very cobbly sandy loam
3C3—34 to 60 inches; very gravelly loamy sand

Dissimilar Minor Components

Lekrem soils

Percentage of map unit: 10 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

315—Koepke ashy silt loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains
Elevation: 2,000 to 5,000 feet
Mean annual precipitation: 14 to 24 inches
Mean annual air temperature: 40 to 44 degrees F
Frost-free period: 90 to 120 days

Map Unit Composition

Koepke and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Koepke

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (20 to 30 inches thick) over glacial till
Slope range: 0 to 8 percent
Depth to restrictive feature: 40 to 60 inches to dense material
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately low to high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Moderate (about 6.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3s
Land capability subclass (irrigated): 3e
Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material
A1—1 to 9 inches; ashy silt loam
A2—9 to 22 inches; ashy loam
A3—22 to 24 inches; gravelly ashy loam
2Bw—24 to 34 inches; gravelly sandy loam
2C—34 to 42 inches; very gravelly sandy loam
2Cd—42 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Havillah soils

Percentage of map unit: 5 percent

Hunters soils

Percentage of map unit: 5 percent

Molson soils

Percentage of map unit: 5 percent

Republic soils

Percentage of map unit: 5 percent

Major Uses

Crop production, livestock grazing, and timber production

316—Koepke ashy silt loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains
Elevation: 2,000 to 5,000 feet
Mean annual precipitation: 14 to 24 inches
Mean annual air temperature: 40 to 44 degrees F
Frost-free period: 90 to 120 days

Map Unit Composition

Koepke and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Koepke

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (20 to 30 inches thick) over glacial till
Slope range: 8 to 15 percent
Depth to restrictive feature: 40 to 60 inches to dense material
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately low to high (see Physical Properties table)

Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Moderate (about 6.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 4e
Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material
A1—1 to 9 inches; ashy silt loam
A2—9 to 22 inches; ashy loam
A3—22 to 24 inches; gravelly ashy loam
2Bw—24 to 34 inches; gravelly sandy loam
2C—34 to 42 inches; very gravelly sandy loam
2Cd—42 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Havillah soils

Percentage of map unit: 5 percent

Hunters soils

Percentage of map unit: 5 percent

Molson soils

Percentage of map unit: 5 percent

Republic soils

Percentage of map unit: 5 percent

Major Uses

Crop production, livestock grazing, and timber production

317—Koepe ashy silt loam, 15 to 25 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains
Elevation: 2,000 to 5,000 feet
Mean annual precipitation: 14 to 24 inches
Mean annual air temperature: 40 to 44 degrees F
Frost-free period: 90 to 120 days

Map Unit Composition

Koepe and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Koepe

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (20 to 30 inches thick) over glacial till
Slope range: 15 to 25 percent
Depth to restrictive feature: 40 to 60 inches to dense material
Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately low to high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 6.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Land capability subclass (irrigated): 6e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A1—1 to 9 inches; ashy silt loam

A2—9 to 22 inches; ashy loam

A3—22 to 24 inches; gravelly ashy loam

2Bw—24 to 34 inches; gravelly sandy loam

2C—34 to 42 inches; very gravelly sandy loam

2Cd—42 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Havillah soils

Percentage of map unit: 5 percent

Hunters soils

Percentage of map unit: 5 percent

Molson soils

Percentage of map unit: 5 percent

Republic soils

Percentage of map unit: 5 percent

Major Uses

Crop production, livestock grazing, and timber production

318—Koepe ashy silt loam, 25 to 45 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 2,000 to 5,000 feet

Mean annual precipitation: 14 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Koepe and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Koepe

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (20 to 30 inches thick) over glacial till

Slope range: 25 to 45 percent

Depth to restrictive feature: 40 to 60 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately low to high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 6.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A1—1 to 9 inches; ashy silt loam

A2—9 to 22 inches; ashy loam

A3—22 to 24 inches; gravelly ashy loam

2Bw—24 to 34 inches; gravelly sandy loam

2C—34 to 42 inches; very gravelly sandy loam

2Cd—42 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Havillah soils

Percentage of map unit: 8 percent

Molson soils

Percentage of map unit: 7 percent

Republic soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

319—Koepeke complex, 3 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 3,000 to 5,000 feet

Mean annual precipitation: 14 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Koepeke, well drained, and similar soils: 55 percent

Koepeke, moderately well drained, and similar soils: 30 percent

Dissimilar minor components: 15 percent

Characteristics of Koepeke, Well Drained

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (20 to 30 inches thick) over glacial till

Slope range: 3 to 15 percent

Soil Survey of Okanogan County Area, Washington

Depth to restrictive feature: 40 to 60 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately low to high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 6.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A1—1 to 9 inches; ashy silt loam

A2—9 to 22 inches; ashy loam

A3—22 to 24 inches; gravelly ashy loam

2Bw—24 to 34 inches; gravelly sandy loam

2C—34 to 42 inches; very gravelly sandy loam

2Cd—42 to 60 inches; very gravelly sandy loam

Characteristics of Koepke, Moderately Well Drained

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (20 to 30 inches thick) over glacial till

Slope range: 3 to 15 percent

Depth to restrictive feature: 40 to 60 inches to dense material

Drainage class: Moderately well drained

Capacity to transmit water (Ksat): Moderately low to high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): About 36 to 54 inches (see Water Features table)

Available water capacity (entire profile): Moderate (about 6.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Plant community class: Quaking aspen/pinegrass (HQG111)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A1—1 to 9 inches; ashy silt loam

A2—9 to 22 inches; ashy loam

A3—22 to 24 inches; gravelly ashy loam

2Bw—24 to 34 inches; gravelly sandy loam

2C—34 to 42 inches; very gravelly sandy loam

2Cd—42 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Brevco soils

Percentage of map unit: 5 percent

Pebcreek soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

320—Koepke complex, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 3,000 to 5,000 feet

Mean annual precipitation: 14 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Koepke, well drained, and similar soils: 55 percent

Koepke, moderately well drained, and similar soils: 30 percent

Dissimilar minor components: 15 percent

Characteristics of Koepke, Well Drained

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (20 to 30 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: 40 to 60 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately low to high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 6.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A1—1 to 9 inches; ashy silt loam

A2—9 to 22 inches; ashy loam

A3—22 to 24 inches; gravelly ashy loam

2Bw—24 to 34 inches; gravelly sandy loam

2C—34 to 42 inches; very gravelly sandy loam

2Cd—42 to 60 inches; very gravelly sandy loam

Characteristics of Koepke, Moderately Well Drained

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (20 to 30 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: 40 to 60 inches to dense material

Drainage class: Moderately well drained

Capacity to transmit water (Ksat): Moderately low to high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): About 36 to 54 inches (see Water Features table)

Available water capacity (entire profile): Moderate (about 6.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Quaking aspen/pinegrass (HQG111)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A1—1 to 9 inches; ashy silt loam

A2—9 to 22 inches; ashy loam

A3—22 to 24 inches; gravelly ashy loam

2Bw—24 to 34 inches; gravelly sandy loam

2C—34 to 42 inches; very gravelly sandy loam

2Cd—42 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Brevco soils

Percentage of map unit: 5 percent

Pebcreek soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

321—Koepke complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 3,000 to 5,000 feet

Mean annual precipitation: 14 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Koepke, well drained, and similar soils: 55 percent

Koepke, moderately well drained, and similar soils: 30 percent

Dissimilar minor components: 15 percent

Characteristics of Koepke, Well Drained

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (20 to 30 inches thick) over glacial till

Slope range: 35 to 65 percent

Depth to restrictive feature: 40 to 60 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately low to high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 6.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A1—1 to 9 inches; ashy silt loam

A2—9 to 22 inches; ashy loam

A3—22 to 24 inches; gravelly ashy loam

2Bw—24 to 34 inches; gravelly sandy loam

2C—34 to 42 inches; very gravelly sandy loam

2Cd—42 to 60 inches; very gravelly sandy loam

Characteristics of Koepke, Moderately Well Drained

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (20 to 30 inches thick) over glacial till

Slope range: 35 to 65 percent

Depth to restrictive feature: 40 to 60 inches to dense material

Drainage class: Moderately well drained

Capacity to transmit water (Ksat): Moderately low to high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): About 36 to 54 inches (see Water Features table)

Available water capacity (entire profile): Moderate (about 6.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Quaking aspen/pinegrass (HQG111)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A1—1 to 9 inches; ashy silt loam

A2—9 to 22 inches; ashy loam
A3—22 to 24 inches; gravelly ashy loam
2Bw—24 to 34 inches; gravelly sandy loam
2C—34 to 42 inches; very gravelly sandy loam
2Cd—42 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Brevco soils

Percentage of map unit: 5 percent

Pebcreek soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

322—Lani ashy sandy loam, 0 to 25 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau
Elevation: 1,800 to 3,700 feet
Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 90 to 120 days

Map Unit Composition

Lani and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Lani

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 15 inches thick) over colluvium and residuum derived from gneiss, granite, or schist
Slope range: 0 to 25 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Moderate (about 7.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e
Plant community class: Douglas-fir/common snowberry (CDS636)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material
A1—1 to 9 inches; ashy sandy loam
A2—9 to 15 inches; ashy sandy loam

2Bw—15 to 29 inches; fine sandy loam
2C—29 to 60 inches; gravelly fine sandy loam

Dissimilar Minor Components

Conconully soils

Percentage of map unit: 5 percent

Donavan soils

Percentage of map unit: 5 percent

Kartar soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

323—Lani ashy sandy loam, 25 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 1,800 to 3,700 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 43 to 45 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Lani and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Lani

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 15 inches thick) over colluvium and residuum derived from gneiss, granite, or schist

Slope range: 25 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 7.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/common snowberry (CDS636)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A1—1 to 9 inches; ashy sandy loam

A2—9 to 15 inches; ashy sandy loam

2Bw—15 to 29 inches; fine sandy loam

2C—29 to 60 inches; gravelly fine sandy loam

Dissimilar Minor Components

Conconully soils

Percentage of map unit: 5 percent

Donavan soils

Percentage of map unit: 5 percent

Kartar soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

324—Lani ashy sandy loam, 0 to 25 percent slopes, extremely stony

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 1,800 to 3,700 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 43 to 45 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Lani, extremely stony surface, and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Lani, Extremely Stony Surface

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 15 inches thick) over colluvium and residuum derived from gneiss, granite, or schist

Slope range: 0 to 25 percent

Percentage of surface area covered with stones: 3 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 7.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Plant community class: Douglas-fir/common snowberry (CDS636)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A1—1 to 9 inches; ashy sandy loam

A2—9 to 15 inches; ashy sandy loam

2Bw—15 to 29 inches; fine sandy loam

2C—29 to 60 inches; gravelly fine sandy loam

Dissimilar Minor Components

Donavan soils

Percentage of map unit: 5 percent

Kartar soils

Percentage of map unit: 5 percent

Merkel soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

325—Lani ashy sandy loam, 25 to 65 percent slopes, extremely stony

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 1,800 to 3,700 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 43 to 45 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Lani, extremely stony surface, and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Lani, Extremely Stony Surface

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 15 inches thick) over colluvium and residuum derived from gneiss, granite, or schist

Slope range: 25 to 65 percent

Percentage of surface area covered with stones: 3 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 7.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/common snowberry (CDS636)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A1—1 to 9 inches; ashy sandy loam

A2—9 to 15 inches; ashy sandy loam

2Bw—15 to 29 inches; fine sandy loam

2C—29 to 60 inches; gravelly fine sandy loam

Dissimilar Minor Components

Donavan soils

Percentage of map unit: 5 percent

Kartar soils

Percentage of map unit: 5 percent

Merkel soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

326—Leavenworth silt loam, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 1,500 to 4,200 feet

Mean annual precipitation: 15 to 20 inches

Mean annual air temperature: 43 to 48 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Leavenworth and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Leavenworth

Setting

Landform: Flood plains

Properties and qualities

Parent material: Alluvium

Slope range: 0 to 3 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Moderately well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: Occasional (see Water Features table)

Frequency of ponding: None

Seasonal high water table (minimum depth): About 24 to 48 inches (see Water Features table)

Available water capacity (entire profile): High (about 9.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3w

Land capability subclass (irrigated): 3w

Plant community class: Douglas-fir/bluebunch wheatgrass (CDG322)

Typical profile

A1—0 to 3 inches; silt loam

A2—3 to 21 inches; silt loam

C—21 to 60 inches; stratified coarse sand to fine sandy loam

Dissimilar Minor Components

Colville soils, poorly drained

Percentage of map unit: 5 percent

Xerofluvents

Percentage of map unit: 5 percent

Colville soils, somewhat poorly drained

Percentage of map unit: 3 percent

Histosols

Percentage of map unit: 2 percent

Major Use

Crop production

327—Leftcreek-Rock outcrop complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 800 to 3,500 feet

Mean annual precipitation: 12 to 18 inches

Mean annual air temperature: 47 to 52 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Leftcreek and similar soils: 75 percent

Rock outcrop: 15 percent

Dissimilar minor components: 10 percent

Characteristics of Leftcreek

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (10 to 20 inches thick) over bedrock

Slope range: 35 to 65 percent

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 2.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: STONY 16-24 PZ (R006XY202WA)

Typical profile

A—0 to 5 inches; cobbly ashy sandy loam

Bw—5 to 14 inches; very cobbly ashy sandy loam

2R—14 to 18 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 35 to 65 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Thow soils

Percentage of map unit: 5 percent

Vingulch soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

328—Leiko ashy sandy loam, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 1,400 to 3,500 feet

Mean annual precipitation: 15 to 20 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Leiko and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Leiko

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Mixed volcanic ash (7 to 14 inches thick) over glacial outwash

Slope range: 0 to 3 percent

Depth to restrictive feature: 10 to 30 inches to strongly contrasting textural stratification

Drainage class: Somewhat excessively drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4s

Plant community class: Ponderosa pine/bitterbrush/bluebunch wheatgrass (CPS241)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A1—1 to 2 inches; ashy sandy loam

A2—2 to 9 inches; ashy sandy loam

2C1—9 to 30 inches; very gravelly sandy loam

2C2—30 to 60 inches; very gravelly sand

Dissimilar Minor Components

Kartar soils

Percentage of map unit: 5 percent

Owhi soils

Percentage of map unit: 5 percent

Winthrop soils

Percentage of map unit: 5 percent

Major Uses

Crop production and timber production

329—Leiko ashy sandy loam, 3 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 1,400 to 3,500 feet

Mean annual precipitation: 15 to 20 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Leiko and similar soils: 100 percent

Characteristics of Leiko

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Mixed volcanic ash (7 to 14 inches thick) over glacial outwash

Slope range: 3 to 15 percent

Depth to restrictive feature: 10 to 30 inches to strongly contrasting textural stratification

Drainage class: Somewhat excessively drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4s

Plant community class: Ponderosa pine/bitterbrush/bluebunch wheatgrass (CPS241)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A1—1 to 2 inches; ashy sandy loam

A2—2 to 9 inches; ashy sandy loam

2C1—9 to 30 inches; very gravelly sandy loam

2C2—30 to 60 inches; very gravelly sand

Major Use

Timber production

330—Leiko ashy sandy loam, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 1,400 to 3,500 feet
Mean annual precipitation: 15 to 20 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 110 to 140 days

Map Unit Composition

Leiko and similar soils: 100 percent

Characteristics of Leiko

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Mixed volcanic ash (7 to 14 inches thick) over glacial outwash

Slope range: 15 to 35 percent

Depth to restrictive feature: 10 to 30 inches to strongly contrasting textural stratification

Drainage class: Somewhat excessively drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Ponderosa pine/bitterbrush/bluebunch wheatgrass (CPS241)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A1—1 to 2 inches; ashy sandy loam

A2—2 to 9 inches; ashy sandy loam

2C1—9 to 30 inches; very gravelly sandy loam

2C2—30 to 60 inches; very gravelly sand

Major Use

Timber production

331—Leiko ashy sandy loam, 0 to 25 percent slopes, extremely stony

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 1,400 to 3,500 feet

Mean annual precipitation: 15 to 20 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Leiko, extremely stony surface, and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Leiko, Extremely Stony Surface

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Mixed volcanic ash (7 to 14 inches thick) over glacial outwash

Slope range: 0 to 25 percent

Percentage of surface area covered with stones: 3 to 15 percent

Depth to restrictive feature: 10 to 30 inches to strongly contrasting textural stratification

Drainage class: Somewhat excessively drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Plant community class: Ponderosa pine/bitterbrush/bluebunch wheatgrass (CPS241)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A1—1 to 2 inches; ashy sandy loam

A2—2 to 9 inches; ashy sandy loam

2C1—9 to 30 inches; very gravelly sandy loam

2C2—30 to 60 inches; very gravelly sand

Dissimilar Minor Components

Kartar soils

Percentage of map unit: 10 percent

Winthrop soils

Percentage of map unit: 5 percent

Major Use

Timber production

332—Leiko ashy sandy loam, 25 to 45 percent slopes, extremely stony

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 1,400 to 3,500 feet

Mean annual precipitation: 15 to 20 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Leiko, extremely stony surface, and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Leiko, Extremely Stony Surface

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Mixed volcanic ash (7 to 14 inches thick) over glacial outwash

Slope range: 25 to 45 percent

Soil Survey of Okanogan County Area, Washington

Percentage of surface area covered with stones: 3 to 15 percent
Depth to restrictive feature: 10 to 30 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity to transmit water (Ksat): High or very high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 3.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Ponderosa pine/bitterbrush/bluebunch wheatgrass (CPS241)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 2 inches; ashy sandy loam
A2—2 to 9 inches; ashy sandy loam
2C1—9 to 30 inches; very gravelly sandy loam
2C2—30 to 60 inches; very gravelly sand

Dissimilar Minor Components

Kartar soils

Percentage of map unit: 10 percent

Winthrop soils

Percentage of map unit: 5 percent

Major Use

Timber production

333—Leiko cobbly ashy coarse sandy loam, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 1,400 to 3,500 feet
Mean annual precipitation: 15 to 20 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 110 to 140 days

Map Unit Composition

Leiko and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Leiko

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Mixed volcanic ash (7 to 14 inches thick) over glacial outwash
Slope range: 15 to 35 percent
Depth to restrictive feature: 10 to 30 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Ponderosa pine/bitterbrush/bluebunch wheatgrass (CPS241)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 4 inches; cobbly ashy coarse sandy loam

Bw—4 to 12 inches; gravelly ashy coarse sandy loam

2C1—12 to 25 inches; very gravelly sandy loam

2C2—25 to 60 inches; very gravelly coarse sand

Dissimilar Minor Components

Peka soils

Percentage of map unit: 10 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Use

Timber production

***334—Leiko ashy sandy loam, 3 to 15 percent slopes,
extremely stony***

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 1,400 to 3,500 feet

Mean annual precipitation: 15 to 20 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Leiko, extremely stony surface, and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Leiko, Extremely Stony Surface

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Mixed volcanic ash (7 to 14 inches thick) over glacial outwash

Slope range: 3 to 15 percent

Percentage of surface area covered with stones: 3 to 15 percent

Depth to restrictive feature: 10 to 30 inches to strongly contrasting textural stratification

Drainage class: Somewhat excessively drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Plant community class: Ponderosa pine/bitterbrush/bluebunch wheatgrass (CPS241)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A1—1 to 2 inches; ashy sandy loam

A2—2 to 9 inches; ashy sandy loam

2C1—9 to 30 inches; very gravelly sandy loam

2C2—30 to 60 inches; very gravelly sand

Dissimilar Minor Components

Kartar soils

Percentage of map unit: 10 percent

Winthrop soils

Percentage of map unit: 5 percent

Major Use

Timber production

335—Leiko-Rock outcrop complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 1,400 to 3,500 feet

Mean annual precipitation: 15 to 20 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Leiko and similar soils: 70 percent

Rock outcrop: 15 percent

Dissimilar minor components: 15 percent

Characteristics of Leiko

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Mixed volcanic ash (7 to 14 inches thick) over glacial outwash

Slope range: 35 to 65 percent

Depth to restrictive feature: 10 to 30 inches to strongly contrasting textural stratification

Drainage class: Somewhat excessively drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Ponderosa pine/bitterbrush/bluebunch wheatgrass (CPS241)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 4 inches; cobbly ashy coarse sandy loam

Bw—4 to 12 inches; gravelly ashy coarse sandy loam

2C1—12 to 25 inches; very gravelly sandy loam

2C2—25 to 60 inches; very gravelly coarse sand

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 35 to 65 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Peka soils

Percentage of map unit: 5 percent

Vanbrunt soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Use

Timber production

336—Lekrem-Chumstick-Rock outcrop complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,700 to 3,700 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 42 to 46 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Lekrem, extremely stony surface, and similar soils: 50 percent

Chumstick, moist, and similar soils: 20 percent

Rock outcrop: 15 percent

Dissimilar minor components: 15 percent

Characteristics of Lekrem, Extremely Stony Surface

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (12 to 25 inches thick) over colluvium and glacial till derived from granitic rock

Slope range: 35 to 65 percent
Percentage of surface area covered with stones: 3 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 4.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Douglas-fir/kinnikinnick (bearberry)/pinegrass (CDS655)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 5 inches; stony ashy sandy loam
Bw—5 to 17 inches; gravelly ashy sandy loam
2BC—17 to 30 inches; very gravelly sandy loam
2C1—30 to 41 inches; very gravelly sandy loam
2C2—41 to 60 inches; very gravelly loamy coarse sand

Characteristics of Chumstick, Moist

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 20 inches thick) over bedrock
Slope range: 35 to 65 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Very low (about 2.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Douglas-fir/kinnikinnick (bearberry)/pinegrass (CDS655)

Typical profile

A—0 to 5 inches; very stony ashy sandy loam
Bw—5 to 15 inches; very stony ashy sandy loam
2R—15 to 19 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains
Slope range: 35 to 65 percent
Description of areas: Barren areas of exposed bedrock
Land capability subclass (nonirrigated): 8
Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Brevco soils

Percentage of map unit: 5 percent

Lithic Haploxerepts

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

337—Lithic Humicryepts-Rock outcrop complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 5,200 to 5,700 feet

Mean annual precipitation: 30 to 35 inches

Mean annual air temperature: 35 to 40 degrees F

Frost-free period: 40 to 70 days

Map Unit Composition

Lithic Humicryepts, forested, udic, and similar soils: 50 percent

Rock outcrop: 40 percent

Dissimilar minor components: 10 percent

Characteristics of Lithic Humicryepts, Forested, Udic

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash or volcanic ash (4 to 12 inches thick) over colluvium and residuum

Slope range: 35 to 65 percent

Depth to restrictive feature: 8 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 2.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Subalpine fir/grouse huckleberry (CES412) and subalpine fir/grouse huckleberry/smooth woodrush (CES425)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 5 inches; very stony ashy fine sandy loam

Bw—5 to 11 inches; very stony ashy fine sandy loam

2C—11 to 20 inches; extremely stony sandy loam

2R—20 to 30 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 35 to 65 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Devore soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

338—Lithic Haploxerepts-Cashmont complex, 15 to 45 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 700 to 3,000 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 140 to 190 days

Map Unit Composition

Lithic Haploxerepts, range, and similar soils: 45 percent

Cashmont, extremely stony surface, and similar soils: 30 percent

Dissimilar minor components: 25 percent

Characteristics of Lithic Haploxerepts, Range

Setting

Landform: Hills

Properties and qualities

Parent material: Volcanic ash or mixed volcanic ash (4 to 12 inches thick) over colluvium and residuum

Slope range: 15 to 45 percent

Depth to restrictive feature: 8 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 2.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: VERY SHALLOW 10-16 PZ (R008XY301WA)

Typical profile

A—0 to 3 inches; cobbly ashy sandy loam

Bw—3 to 12 inches; cobbly ashy sandy loam

2C—12 to 18 inches; very gravelly sandy loam

2R—18 to 22 inches; unweathered bedrock

Characteristics of Cashmont, Extremely Stony Surface

Setting

Landform: Outwash terraces of hills

Properties and qualities

Parent material: Glaciofluvial deposits

Slope range: 15 to 45 percent

Percentage of surface area covered with stones: 3 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 6.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: SANDY 10-16 PZ (R008XY501WA)

Typical profile

A1—0 to 3 inches; sandy loam

A2—3 to 8 inches; sandy loam

Bw—8 to 23 inches; gravelly sandy loam

C—23 to 60 inches; gravelly sandy loam

Dissimilar Minor Components

Rock outcrop

Percentage of map unit: 10 percent

Conconully soils

Percentage of map unit: 5 percent

Donavan soils

Percentage of map unit: 5 percent

Vallan soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

339—Lithic Haploxerepts-Conconully complex, 15 to 45 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 1,200 to 4,000 feet

Mean annual precipitation: 11 to 15 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Lithic Haploxerepts, range, and similar soils: 50 percent

Conconully, extremely stony surface, and similar soils: 25 percent

Dissimilar minor components: 25 percent

Characteristics of Lithic Haploxerepts, Range

Setting

Landform: Hills

Properties and qualities

Parent material: Volcanic ash or mixed volcanic ash (4 to 12 inches thick) over colluvium and residuum

Slope range: 15 to 45 percent

Depth to restrictive feature: 8 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 2.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: VERY SHALLOW 10-16 PZ (R008XY301WA)

Typical profile

A—0 to 3 inches; cobbly ashy sandy loam

Bw—3 to 12 inches; cobbly ashy sandy loam

2C—12 to 18 inches; very gravelly sandy loam

2R—18 to 22 inches; unweathered bedrock

Characteristics of Conconully, Extremely Stony Surface

Setting

Landform: Hills

Properties and qualities

Parent material: Mixed volcanic ash (10 to 14 inches thick) over glacial till

Slope range: 15 to 45 percent

Percentage of surface area covered with stones: 3 to 15 percent

Depth to restrictive feature: 26 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately low to high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: LOAMY 16-24 PZ (R006XY102WA)

Typical profile

A1—0 to 2 inches; gravelly ashy loam

A2—2 to 13 inches; gravelly ashy loam

2Bw1—13 to 21 inches; gravelly fine sandy loam

2Bw2—21 to 33 inches; gravelly sandy loam

2Cd—33 to 60 inches; gravelly sandy loam

Dissimilar Minor Components

Rock outcrop

Percentage of map unit: 10 percent

Cashmont soils

Percentage of map unit: 5 percent

Donavan soils

Percentage of map unit: 5 percent

Vallan soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

340—Lithic Haploxerepts-Donavan-Rock outcrop complex, 15 to 45 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 1,500 to 4,500 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 42 to 44 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Lithic Haploxerepts, range, and similar soils: 35 percent

Donavan, extremely stony surface, and similar soils: 30 percent

Rock outcrop: 20 percent

Dissimilar minor components: 15 percent

Characteristics of Lithic Haploxerepts, Range

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash or mixed volcanic ash (4 to 12 inches thick) over colluvium and residuum

Slope range: 15 to 45 percent

Depth to restrictive feature: 8 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 2.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: VERY SHALLOW 10-16 PZ (R008XY301WA)

Typical profile

A—0 to 3 inches; cobbly ashy sandy loam

Bw—3 to 12 inches; cobbly ashy sandy loam

2C—12 to 18 inches; very gravelly sandy loam

2R—18 to 22 inches; unweathered bedrock

Characteristics of Donavan, Extremely Stony Surface

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (12 to 18 inches thick) over glacial till

Slope range: 15 to 45 percent

Percentage of surface area covered with stones: 3 to 15 percent

Depth to restrictive feature: 20 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Ponderosa pine/bluebunch wheatgrass (CPG141)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 7 inches; ashy loam

Bw1—7 to 11 inches; gravelly ashy loam

Bw2—11 to 16 inches; gravelly ashy sandy loam

2BC—16 to 27 inches; gravelly sandy loam

2Cd1—27 to 34 inches; gravelly sandy loam

2Cd2—34 to 60 inches; gravelly sandy loam

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 15 to 45 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Conconully soils

Percentage of map unit: 5 percent

Peka soils

Percentage of map unit: 5 percent

Molson soils

Percentage of map unit: 3 percent

Vallan soils

Percentage of map unit: 2 percent

Major Uses

Livestock grazing and timber production

341—Lithic Haploxerepts-Kartar complex, 15 to 90 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 2,000 to 4,000 feet

Soil Survey of Okanogan County Area, Washington

Mean annual precipitation: 14 to 20 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 110 to 140 days

Map Unit Composition

Lithic Haploxerepts, range, and similar soils: 50 percent
Kartar, extremely stony surface, and similar soils: 30 percent
Dissimilar minor components: 20 percent

Characteristics of Lithic Haploxerepts, Range

Setting

Landform: Mountains and hills

Properties and qualities

Parent material: Volcanic ash or mixed volcanic ash (4 to 12 inches thick) over colluvium and residuum
Slope range: 15 to 90 percent
Depth to restrictive feature: 8 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Very low (about 2.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Ecological site: VERY SHALLOW 10-16 PZ (R008XY301WA)

Typical profile

A—0 to 3 inches; cobbly ashy sandy loam
Bw—3 to 12 inches; cobbly ashy sandy loam
2C—12 to 18 inches; very gravelly sandy loam
2R—18 to 22 inches; unweathered bedrock

Characteristics of Kartar, Extremely Stony Surface

Setting

Landform: Outwash terraces of mountains and hills

Properties and qualities

Parent material: Mixed volcanic ash (10 to 30 inches thick) over glacial till and glacial outwash
Slope range: 15 to 90 percent
Percentage of surface area covered with stones: 3 to 15 percent
Depth to restrictive feature: 20 to 30 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity to transmit water (Ksat): High or very high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 4.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Ecological site: STONY 10-16 PZ (R008XY202WA)

Typical profile

A—0 to 6 inches; cobbly ashy sandy loam
Bw1—6 to 16 inches; cobbly ashy sandy loam
Bw2—16 to 28 inches; gravelly ashy sandy loam
2C1—28 to 50 inches; very gravelly loamy sand
2C2—50 to 60 inches; very gravelly sand

Dissimilar Minor Components

Rock outcrop

Percentage of map unit: 10 percent

Conconully soils

Percentage of map unit: 4 percent

Donavan soils

Percentage of map unit: 3 percent

Nevine soils

Percentage of map unit: 3 percent

Major Uses

Livestock grazing and timber production

342—Lithic Haploxerepts-Molson complex, 15 to 45 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 1,800 to 5,000 feet

Mean annual precipitation: 14 to 18 inches

Mean annual air temperature: 43 to 45 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Lithic Haploxerepts, range, and similar soils: 50 percent

Molson, extremely stony surface, and similar soils: 30 percent

Dissimilar minor components: 20 percent

Characteristics of Lithic Haploxerepts, Range

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash or mixed volcanic ash (4 to 12 inches thick) over colluvium and residuum

Slope range: 15 to 45 percent

Depth to restrictive feature: 8 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 2.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: VERY SHALLOW 10-16 PZ (R008XY301WA)

Typical profile

A—0 to 3 inches; cobbly ashy sandy loam
Bw—3 to 12 inches; cobbly ashy sandy loam
2C—12 to 18 inches; very gravelly sandy loam
2R—18 to 22 inches; unweathered bedrock

Characteristics of Molson, Extremely Stony Surface

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 20 inches thick) over glacial till
Slope range: 15 to 45 percent
Percentage of surface area covered with stones: 3 to 15 percent
Depth to restrictive feature: 40 to 60 inches to dense material
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): High (about 10.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

A1—0 to 8 inches; ashy silt loam
A2—8 to 18 inches; ashy silt loam
2Bw—18 to 42 inches; gravelly silt loam
2BC—42 to 50 inches; gravelly silt loam
2Cd—50 to 60 inches; gravelly silt loam

Dissimilar Minor Components

Rock outcrop

Percentage of map unit: 15 percent

Republic soils

Percentage of map unit: 3 percent

Vallan soils

Percentage of map unit: 2 percent

Major Uses

Livestock grazing and timber production

343—Lithic Haploxerepts-Newbon complex, 15 to 45 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau
Elevation: 1,200 to 4,000 feet
Mean annual precipitation: 11 to 15 inches

Mean annual air temperature: 47 to 52 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Lithic Haploxerepts, range, and similar soils: 50 percent

Newbon, extremely stony surface, and similar soils: 30 percent

Dissimilar minor components: 20 percent

Characteristics of Lithic Haploxerepts, Range

Setting

Landform: Mountains and hills

Properties and qualities

Parent material: Volcanic ash or mixed volcanic ash (4 to 12 inches thick) over colluvium and residuum

Slope range: 15 to 45 percent

Depth to restrictive feature: 8 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 2.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: VERY SHALLOW 10-16 PZ (R008XY301WA)

Typical profile

A—0 to 3 inches; cobbly ashy sandy loam

Bw—3 to 12 inches; cobbly ashy sandy loam

2C—12 to 18 inches; very gravelly sandy loam

2R—18 to 22 inches; unweathered bedrock

Characteristics of Newbon, Extremely Stony Surface

Setting

Landform: Mountains and hills

Properties and qualities

Parent material: Glacial till

Slope range: 15 to 45 percent

Percentage of surface area covered with stones: 3 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 7.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: LOAMY 10-16 PZ (R008XY102WA)

Typical profile

A1—0 to 2 inches; gravelly loam

A2—2 to 13 inches; gravelly loam

Bw—13 to 25 inches; gravelly loam
C—25 to 60 inches; very gravelly loam

Dissimilar Minor Components

Rock outcrop

Percentage of map unit: 15 percent

Kartar soils

Percentage of map unit: 3 percent

Conconully soils

Percentage of map unit: 2 percent

Major Use

Livestock grazing

344—Lithic Haploxerepts-Nighthawk complex, 15 to 45 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 1,000 to 2,500 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 140 to 190 days

Map Unit Composition

Lithic Haploxerepts, range, and similar soils: 50 percent

Nighthawk, extremely stony surface, and similar soils: 30 percent

Dissimilar minor components: 20 percent

Characteristics of Lithic Haploxerepts, Range

Setting

Landform: Hills

Properties and qualities

Parent material: Volcanic ash or mixed volcanic ash (4 to 12 inches thick) over colluvium and residuum

Slope range: 15 to 45 percent

Depth to restrictive feature: 8 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 2.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: VERY SHALLOW 10-16 PZ (R008XY301WA)

Typical profile

A—0 to 3 inches; cobbly ashy sandy loam

Bw—3 to 12 inches; cobbly ashy sandy loam

2C—12 to 18 inches; very gravelly sandy loam

2R—18 to 22 inches; unweathered bedrock

Characteristics of Nighthawk, Extremely Stony Surface

Setting

Landform: Hills

Properties and qualities

Parent material: Glacial till over metasediment

Slope range: 15 to 45 percent

Percentage of surface area covered with stones: 3 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: DRY LOAMY 10-16 PZ (R008XY101WA)

Typical profile

A1—0 to 4 inches; gravelly loam

A2—4 to 8 inches; gravelly loam

Bw1—8 to 13 inches; gravelly loam

Bw2—13 to 22 inches; very gravelly loam

2Ck1—22 to 32 inches; very gravelly loam

2Ck2—32 to 60 inches; very gravelly coarse sandy loam

Dissimilar Minor Components

Rock outcrop

Percentage of map unit: 15 percent

Conconully soils

Percentage of map unit: 3 percent

Cashmont soils

Percentage of map unit: 2 percent

Major Use

Livestock grazing

345—Lithic Haploxerepts-Republic complex, 15 to 45 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 2,800 to 4,700 feet

Mean annual precipitation: 17 to 20 inches

Mean annual air temperature: 40 to 45 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Lithic Haploxerepts, range, and similar soils: 50 percent

Republic, extremely stony surface, and similar soils: 30 percent

Dissimilar minor components: 20 percent

Characteristics of Lithic Haploxerepts, Range

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash or mixed volcanic ash (4 to 12 inches thick) over colluvium and residuum

Slope range: 15 to 45 percent

Depth to restrictive feature: 8 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 2.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: VERY SHALLOW 10-16 PZ (R008XY301WA)

Typical profile

A—0 to 3 inches; cobbly ashy sandy loam

Bw—3 to 12 inches; cobbly ashy sandy loam

2C—12 to 18 inches; very gravelly sandy loam

2R—18 to 22 inches; unweathered bedrock

Characteristics of Republic, Extremely Stony Surface

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 20 inches thick) over glacial till

Slope range: 15 to 45 percent

Percentage of surface area covered with stones: 3 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 8.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pinegrass-bluebunch wheatgrass (CDG134)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A1—1 to 7 inches; ashy loam

A2—7 to 16 inches; ashy sandy loam

2Bw1—16 to 29 inches; sandy loam

2Bw2—29 to 36 inches; gravelly sandy loam

2C—36 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Rock outcrop

Percentage of map unit: 15 percent

Molson soils

Percentage of map unit: 3 percent

Vallan soils

Percentage of map unit: 2 percent

Major Uses

Livestock grazing and timber production

346—Lithic Haploxerepts-Rock outcrop complex, 15 to 90 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 1,300 to 4,400 feet

Mean annual precipitation: 12 to 18 inches

Mean annual air temperature: 47 to 52 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Lithic Haploxerepts, range, moist, and similar soils: 55 percent

Rock outcrop: 30 percent

Dissimilar minor components: 15 percent

Characteristics of Lithic Haploxerepts, Range, Moist

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash or mixed volcanic ash (4 to 12 inches thick) over colluvium and residuum

Slope range: 15 to 90 percent

Depth to restrictive feature: 8 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 2.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: STONY 16-24 PZ (R006XY202WA)

Typical profile

A—0 to 3 inches; cobbly ashy sandy loam

Bw—3 to 12 inches; cobbly ashy sandy loam

2C—12 to 18 inches; very gravelly sandy loam

2R—18 to 22 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 15 to 90 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Thout soils

Percentage of map unit: 5 percent

Wynhoff soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

347—Lithic Haploxerepts-Vallan complex, 15 to 45 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 3,000 to 4,500 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 42 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Lithic Haploxerepts, range, and similar soils: 50 percent

Vallan and similar soils: 30 percent

Dissimilar minor components: 20 percent

Characteristics of Lithic Haploxerepts, Range

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash or mixed volcanic ash (4 to 12 inches thick) over colluvium and residuum

Slope range: 15 to 45 percent

Depth to restrictive feature: 8 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 2.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: VERY SHALLOW 10-16 PZ (R008XY301WA)

Typical profile

A—0 to 3 inches; cobbly ashy sandy loam

Bw—3 to 12 inches; cobbly ashy sandy loam

2C—12 to 18 inches; very gravelly sandy loam

2R—18 to 22 inches; unweathered bedrock

Characteristics of Vallan

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (1 to 3 inches thick) thick over colluvium and residuum derived from rhyodacite and andesite

Slope range: 15 to 45 percent

Depth to restrictive feature: 6 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 2.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: DRY STONY 16-24 PZ (R043AY201WA)

Typical profile

A—0 to 2 inches; ashy loam

2Bw—2 to 10 inches; loam

2Bt—10 to 16 inches; gravelly loam

2R—16 to 20 inches; unweathered bedrock

Dissimilar Minor Components

Rock outcrop

Percentage of map unit: 15 percent

Conconully soils

Percentage of map unit: 3 percent

Donavan soils

Percentage of map unit: 2 percent

Major Uses

Livestock grazing and timber production

348—Lithic Haploxerepts-Wilma-Rock outcrop complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,000 to 4,800 feet

Mean annual precipitation: 18 to 22 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Lithic Haploxerepts, forested, and similar soils: 35 percent

Wilma, dry, and similar soils: 25 percent

Rock outcrop: 25 percent

Dissimilar minor components: 15 percent

Characteristics of Lithic Haploxerepts, Forested

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash or mixed volcanic ash (4 to 12 inches thick) over colluvium and residuum

Slope range: 35 to 65 percent

Depth to restrictive feature: 8 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pinegrass (CDG131) and Douglas-fir/kinnikinnick (bearberry)/pinegrass (CDS655)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 4 inches; cobbly ashy sandy loam

Bw—4 to 13 inches; cobbly ashy sandy loam

2C—13 to 19 inches; very gravelly sandy loam

2R—19 to 23 inches; unweathered bedrock

Characteristics of Wilma, Dry

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (10 to 14 inches thick) over colluvium and residuum derived from granitic rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pinegrass-bluebunch wheatgrass (CDG134) and Douglas-fir/pinegrass (CDG131)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 7 inches; gravelly ashy fine sandy loam

Bw—7 to 13 inches; gravelly ashy fine sandy loam

2BC—13 to 18 inches; very gravelly fine sandy loam

2C—18 to 29 inches; extremely gravelly coarse sandy loam

2R—29 to 33 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 35 to 65 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Merkel soils

Percentage of map unit: 10 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

349—Longort gravelly ashy sandy loam, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,600 to 3,200 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Longort and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Longort

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 17 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: 25 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 6 inches; gravelly ashy sandy loam
Bw—6 to 18 inches; gravelly ashy sandy loam
2C—18 to 38 inches; very gravelly sandy loam
2Cd1—38 to 48 inches; very gravelly sandy loam
2Cd2—48 to 60 inches; very cobbly sandy loam

Dissimilar Minor Components

Nicmar soils

Percentage of map unit: 5 percent

Santop soils

Percentage of map unit: 5 percent

Winsand soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

350—Longort-Santop complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,600 to 3,700 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Longort and similar soils: 60 percent

Santop and similar soils: 25 percent

Dissimilar minor components: 15 percent

Characteristics of Longort

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 17 inches thick) over glacial till

Slope range: 35 to 65 percent

Depth to restrictive feature: 25 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 6 inches; gravelly ashy sandy loam

Bw—6 to 18 inches; gravelly ashy sandy loam
2C—18 to 38 inches; very gravelly sandy loam
2Cd1—38 to 48 inches; very gravelly sandy loam
2Cd2—48 to 60 inches; very cobbly sandy loam

Characteristics of Santop

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 18 inches thick) over colluvium and residuum derived from volcanic and sedimentary rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 2 inches; moderately decomposed plant material

A—2 to 7 inches; gravelly ashy sandy loam

Bw—7 to 17 inches; very gravelly ashy sandy loam

2C—17 to 36 inches; very stony sandy loam

2R—36 to 40 inches; unweathered bedrock

Dissimilar Minor Components

Rock outcrop

Percentage of map unit: 10 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

351—Longswamp ashy loam, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,700 to 5,300 feet

Mean annual precipitation: 20 to 30 inches

Mean annual air temperature: 40 to 43 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Longswamp, warm, and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Longswamp, Warm

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (12 to 20 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: 25 to 40 inches to dense material

Drainage class: Moderately well drained

Capacity to transmit water (Ksat): Moderately low to high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): About 24 to 39 inches (see Water Features table)

Available water capacity (entire profile): Moderate (about 6.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Quaking aspen/common snowberry, riparian (HQS221)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A1—1 to 7 inches; ashy loam

A2—7 to 13 inches; ashy loam

Bw—13 to 16 inches; gravelly ashy sandy loam

2C—16 to 26 inches; very gravelly sandy loam

2Cd1—26 to 37 inches; very gravelly sandy loam

2Cd2—37 to 60 inches; gravelly loam

Dissimilar Minor Components

Aquandic Endoaquolls

Percentage of map unit: 5 percent

Bearspring soils

Percentage of map unit: 5 percent

Wynhoff soils

Percentage of map unit: 5 percent

Oxerine soils

Percentage of map unit: 3 percent

Merkel soils

Percentage of map unit: 2 percent

Major Uses

Timber production and wildlife habitat

352—Louploup-Stepstone complex, 3 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 3,000 to 4,700 feet

Mean annual precipitation: 20 to 24 inches
Mean annual air temperature: 39 to 42 degrees F
Frost-free period: 90 to 120 days

Map Unit Composition

Louploup and similar soils: 55 percent
Stepstone and similar soils: 40 percent
Dissimilar minor components: 5 percent

Characteristics of Louploup

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 30 inches thick) over glacial till
Slope range: 3 to 15 percent
Depth to restrictive feature: 40 to 50 inches to dense material
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Moderate (about 8.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e
Plant community class: Douglas-fir/dwarf huckleberry (CDS831) and Douglas-fir/dwarf huckleberry (CDS813)

Typical profile

Oi—0 to 2 inches; slightly decomposed plant material
A—2 to 8 inches; ashy fine sandy loam
Bw—8 to 23 inches; ashy fine sandy loam
2CB—23 to 43 inches; gravelly sandy loam
2Cd—43 to 60 inches; gravelly sandy loam

Characteristics of Stepstone

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 24 inches thick) over glacial till
Slope range: 3 to 15 percent
Depth to restrictive feature: 14 to 24 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Moderate (about 6.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e
Plant community class: Douglas-fir/dwarf huckleberry (CDS813) and Douglas-fir/dwarf huckleberry (CDS831)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 2 inches; ashy fine sandy loam
Bw1—2 to 6 inches; ashy fine sandy loam
Bw2—6 to 19 inches; ashy fine sandy loam
2CB—19 to 23 inches; very gravelly sandy loam
2C1—23 to 39 inches; very gravelly loamy sand
2C2—39 to 60 inches; very gravelly loamy sand

Dissimilar Minor Components

Torboy soils

Percentage of map unit: 3 percent

Nevine soils

Percentage of map unit: 2 percent

Major Uses

Livestock grazing and timber production

353—Louploup-Stepstone complex, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains
Elevation: 3,000 to 4,800 feet
Mean annual precipitation: 18 to 22 inches
Mean annual air temperature: 40 to 44 degrees F
Frost-free period: 90 to 120 days

Map Unit Composition

Louploup, dry, and similar soils: 50 percent
Stepstone, dry, and similar soils: 40 percent
Dissimilar minor components: 10 percent

Characteristics of Louploup, Dry

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 30 inches thick) over glacial till
Slope range: 15 to 35 percent
Depth to restrictive feature: 40 to 50 inches to dense material
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Moderate (about 8.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e
Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oi—0 to 2 inches; slightly decomposed plant material

A—2 to 8 inches; ashy fine sandy loam
Bw—8 to 23 inches; ashy fine sandy loam
2CB—23 to 43 inches; gravelly sandy loam
2Cd—43 to 60 inches; gravelly sandy loam

Characteristics of Stepstone, Dry

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 24 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: 14 to 24 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 6.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 2 inches; ashy fine sandy loam

Bw1—2 to 6 inches; ashy fine sandy loam

Bw2—6 to 19 inches; ashy fine sandy loam

2CB—19 to 23 inches; very gravelly sandy loam

2C1—23 to 39 inches; very gravelly loamy sand

2C2—39 to 60 inches; very gravelly loamy sand

Dissimilar Minor Components

Torboy soils

Percentage of map unit: 5 percent

Nevine soils

Percentage of map unit: 3 percent

Rock outcrop

Percentage of map unit: 2 percent

Major Uses

Livestock grazing and timber production

354—Manley ashy fine sandy loam, 0 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 4,400 to 4,600 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 37 to 40 degrees F

Frost-free period: 70 to 90 days

Map Unit Composition

Manley and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Manley

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 25 inches thick) over glacial till

Slope range: 0 to 15 percent

Depth to restrictive feature: 20 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 7.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Subalpine fir/twinflower (CEF211) and subalpine fir/twinflower (CEF222)

Typical profile

Oi—0 to 2 inches; slightly decomposed plant material

Oe—2 to 3 inches; moderately decomposed plant material

C—3 to 5 inches; ashy fine sandy loam

2Bw1—5 to 16 inches; ashy fine sandy loam

2Bw2—16 to 24 inches; ashy fine sandy loam

3Cd1—24 to 37 inches; very cobbly sandy loam

3Cd2—37 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Resner soils

Percentage of map unit: 10 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Use

Timber production

355—Manley ashy fine sandy loam, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 4,200 to 5,100 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 37 to 40 degrees F

Frost-free period: 70 to 90 days

Map Unit Composition

Manley and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Manley

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 25 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: 20 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 7.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Subalpine fir/twinflower (CEF222) and subalpine fir/twinflower (CEF211)

Typical profile

Oi—0 to 2 inches; slightly decomposed plant material

Oe—2 to 3 inches; moderately decomposed plant material

C—3 to 5 inches; ashy fine sandy loam

2Bw1—5 to 16 inches; ashy fine sandy loam

2Bw2—16 to 24 inches; ashy fine sandy loam

3Cd1—24 to 37 inches; very cobbly sandy loam

3Cd2—37 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Devore soils

Percentage of map unit: 5 percent

Myerscreek soils

Percentage of map unit: 5 percent

Resner soils

Percentage of map unit: 5 percent

Nevine soils

Percentage of map unit: 3 percent

Rock outcrop

Percentage of map unit: 2 percent

Major Use

Timber production

356—Manley-Devore complex, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 4,200 to 5,100 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 39 to 43 degrees F

Frost-free period: 70 to 90 days

Map Unit Composition

Manley, warm, and similar soils: 60 percent

Devore, warm, and similar soils: 25 percent

Dissimilar minor components: 15 percent

Characteristics of Manley, Warm

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 25 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: 20 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 7.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Subalpine fir/blue (big) huckleberry (CES313)

Typical profile

Oi—0 to 2 inches; slightly decomposed plant material

Oe—2 to 3 inches; moderately decomposed plant material

C—3 to 5 inches; ashy silt loam

2Bw1—5 to 16 inches; ashy fine sandy loam

2Bw2—16 to 24 inches; ashy fine sandy loam

3Cd1—24 to 37 inches; very cobbly sandy loam

3Cd2—37 to 60 inches; very gravelly sandy loam

Characteristics of Devore, Warm

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over colluvium and residuum derived from granitic and metamorphic rock

Slope range: 15 to 35 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Subalpine fir/blue (big) huckleberry (CES313)

Typical profile

Oe—0 to 3 inches; moderately decomposed plant material

C—3 to 4 inches; stony ashy sandy loam

2A—4 to 7 inches; very stony ashy fine sandy loam

2Bw—7 to 14 inches; very stony ashy fine sandy loam

3C1—14 to 26 inches; extremely stony coarse sandy loam

3C2—26 to 35 inches; extremely stony coarse sandy loam

3R—35 to 39 inches; unweathered bedrock

Dissimilar Minor Components

Nevine soils

Percentage of map unit: 5 percent

Treebutte soils

Percentage of map unit: 5 percent

Resner soils

Percentage of map unit: 3 percent

Rock outcrop

Percentage of map unit: 2 percent

Major Uses

Livestock grazing and timber production

357—Manley-Devore complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 4,300 to 5,500 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 39 to 43 degrees F

Frost-free period: 70 to 90 days

Map Unit Composition

Manley, warm, and similar soils: 60 percent

Devore, warm, and similar soils: 25 percent

Dissimilar minor components: 15 percent

Characteristics of Manley, Warm

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 25 inches thick) over glacial till

Slope range: 35 to 65 percent

Soil Survey of Okanogan County Area, Washington

Depth to restrictive feature: 20 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 7.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Subalpine fir/blue (big) huckleberry (CES313)

Typical profile

Oi—0 to 2 inches; slightly decomposed plant material

Oe—2 to 3 inches; moderately decomposed plant material

C—3 to 5 inches; ashy silt loam

2Bw1—5 to 16 inches; ashy fine sandy loam

2Bw2—16 to 24 inches; ashy fine sandy loam

3Cd1—24 to 37 inches; very cobbly sandy loam

3Cd2—37 to 60 inches; very gravelly sandy loam

Characteristics of Devore, Warm

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over colluvium and residuum derived from granitic and metamorphic rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Subalpine fir/blue (big) huckleberry (CES313)

Typical profile

Oe—0 to 3 inches; moderately decomposed plant material

C—3 to 4 inches; stony ashy sandy loam

2A—4 to 7 inches; very stony ashy fine sandy loam

2Bw—7 to 14 inches; very stony ashy fine sandy loam

3C1—14 to 26 inches; extremely stony coarse sandy loam

3C2—26 to 35 inches; extremely stony coarse sandy loam

3R—35 to 39 inches; unweathered bedrock

Dissimilar Minor Components

Nevine soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

358—Mansonia-Swakane-Rock outcrop complex, 8 to 45 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 2,000 to 2,100 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 45 to 49 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Mansonia and similar soils: 50 percent

Swakane and similar soils: 20 percent

Rock outcrop: 20 percent

Dissimilar minor component: 10 percent

Characteristics of Mansonia

Setting

Landform: Hills

Properties and qualities

Parent material: Volcanic ash and pumice (40 to 60 inches thick) over granodiorite

Slope range: 8 to 45 percent

Depth to restrictive feature: 40 to 60 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 6.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: SANDY 10-16 PZ (R008XY501WA)

Typical profile

A1—0 to 4 inches; paragravelly ashy fine sandy loam

A2—4 to 10 inches; paragravelly ashy fine sandy loam

Bw—10 to 20 inches; paragravelly ashy sandy loam

C—20 to 50 inches; paragravelly ashy sandy loam

2R—50 to 60 inches; unweathered bedrock

Characteristics of Swakane

Setting

Landform: Hills

Properties and qualities

Parent material: Mixed volcanic ash (7 to 12 inches thick) over colluvium and residuum derived from granitic rock

Slope range: 15 to 45 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Very low (about 1.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Ecological site: STONY 16-24 PZ (R006XY202WA)

Typical profile

A1—0 to 4 inches; very stony ashy sandy loam
A2—4 to 11 inches; very cobbly ashy sandy loam
2Bw—11 to 17 inches; very gravelly sandy loam
2R—17 to 21 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains
Slope range: 8 to 45 percent
Description of areas: Barren areas of exposed bedrock
Land capability subclass (nonirrigated): 8
Typical profile: R—unweathered bedrock

Dissimilar Minor Component

Unnamed soils

Percentage of map unit: 10 percent

Major Use

Livestock grazing

359—Merkel ashy sandy loam, 5 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 2,800 to 5,100 feet
Mean annual precipitation: 20 to 24 inches
Mean annual air temperature: 40 to 44 degrees F
Frost-free period: 90 to 120 days

Map Unit Composition

Merkel and similar soils: 100 percent

Characteristics of Merkel

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 30 inches thick) over glacial till
Slope range: 5 to 15 percent
Depth to restrictive feature: 20 to 40 inches to dense material
Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately low to high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 6 inches; ashy sandy loam

Bw1—6 to 12 inches; gravelly ashy sandy loam

Bw2—12 to 29 inches; gravelly ashy sandy loam

2BC—29 to 35 inches; very gravelly sandy loam

2Cd—35 to 60 inches; very gravelly coarse sandy loam

Major Use

Timber production

360—Merkel ashy sandy loam, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,800 to 5,100 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Merkel and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Merkel

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 30 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: 20 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately low to high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 6 inches; ashy sandy loam

Bw1—6 to 12 inches; gravelly ashy sandy loam

Bw2—12 to 29 inches; gravelly ashy sandy loam

2BC—29 to 35 inches; very gravelly sandy loam

2Cd—35 to 60 inches; very gravelly coarse sandy loam

Dissimilar Minor Components

Nevine soils

Percentage of map unit: 5 percent

Newhorn soils

Percentage of map unit: 5 percent

Wapal soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

361—Merkel cobbly ashy sandy loam, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,800 to 5,100 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Merkel and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Merkel

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 30 inches thick) over glacial till

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately low to high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 6 inches; cobbly ashy sandy loam

Bw1—6 to 12 inches; gravelly ashy sandy loam

Bw2—12 to 29 inches; gravelly ashy sandy loam

2BC—29 to 35 inches; very gravelly sandy loam

2Cd—35 to 60 inches; very gravelly coarse sandy loam

Dissimilar Minor Components

Brevco soils

Percentage of map unit: 5 percent

Newhorn soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

**362—Merkel-Lithic Haploxerepts-Rock outcrop complex,
15 to 35 percent slopes**

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,000 to 5,500 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Merkel and similar soils: 40 percent

Lithic Haploxerepts, forested, and similar soils: 25 percent

Rock outcrop: 15 percent

Dissimilar minor components: 20 percent

Characteristics of Merkel

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 30 inches thick) over colluvium and residuum

Slope range: 15 to 35 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oi—0 to 2 inches; slightly decomposed plant material

Oe—2 to 3 inches; moderately decomposed plant material

C—3 to 4 inches; stony ashy silt loam

2A—4 to 7 inches; very stony ashy fine sandy loam

2Bw—7 to 14 inches; very stony ashy fine sandy loam

3C1—14 to 26 inches; extremely stony coarse sandy loam

3C2—26 to 35 inches; extremely stony coarse sandy loam

3R—35 to 39 inches; unweathered bedrock

Characteristics of Lithic Haploxerepts, Forested

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash or mixed volcanic ash (4 to 12 inches thick) over colluvium and residuum

Slope range: 15 to 35 percent

Depth to restrictive feature: 8 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/kinnikinnick (bearberry)/pinegrass (CDS655) and Douglas-fir/pinegrass (CDG131)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 4 inches; cobbly ashy sandy loam

Bw—4 to 13 inches; cobbly ashy sandy loam

2C—13 to 19 inches; very gravelly sandy loam

2R—19 to 23 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 15 to 35 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Unnamed soils

Percentage of map unit: 10 percent

Nevine soils

Percentage of map unit: 5 percent

Stepstone soils

Percentage of map unit: 5 percent

Major Use

Timber production

363—Merkel-Wilma complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,800 to 5,100 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Merkel and similar soils: 60 percent

Wilma and similar soils: 25 percent

Dissimilar minor components: 15 percent

Characteristics of Merkel

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 30 inches thick) over glacial till

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately low to high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 6 inches; ashy sandy loam

Bw1—6 to 12 inches; gravelly ashy sandy loam

Bw2—12 to 29 inches; gravelly ashy sandy loam

2BC—29 to 35 inches; very gravelly sandy loam

2Cd—35 to 60 inches; very gravelly coarse sandy loam

Characteristics of Wilma

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (10 to 14 inches thick) over colluvium and residuum derived from granitic rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 3.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 7 inches; gravelly ashy fine sandy loam
Bw—7 to 13 inches; gravelly ashy fine sandy loam
2BC—13 to 18 inches; very gravelly fine sandy loam
2C—18 to 29 inches; extremely gravelly coarse sandy loam
2R—29 to 33 inches; unweathered bedrock

Dissimilar Minor Components

Lithic Haploxerepts

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Use

Timber production

364—Midpeak-Johntom-Rock outcrop complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 2,300 to 3,800 feet
Mean annual precipitation: 18 to 24 inches
Mean annual air temperature: 40 to 44 degrees F
Frost-free period: 90 to 120 days

Map Unit Composition

Midpeak and similar soils: 45 percent
Johntom and similar soils: 35 percent
Rock outcrop: 10 percent
Dissimilar minor components: 10 percent

Characteristics of Midpeak

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 15 inches thick) over colluvium and residuum derived from volcanic and sedimentary rock

Soil Survey of Okanogan County Area, Washington

Slope range: 35 to 65 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 4.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material
A1—1 to 7 inches; gravelly ashy sandy loam
A2—7 to 16 inches; very gravelly ashy sandy loam
2Bw—16 to 24 inches; very gravelly sandy loam
2C—24 to 37 inches; extremely gravelly sandy loam
2R—37 to 41 inches; unweathered bedrock

Characteristics of Johntom

Setting

Landform: Mountains

Properties and qualities

Parent material: Colluvium and residuum derived from sedimentary and volcanic rock
Slope range: 35 to 65 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Very low (about 1.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Ecological site: STONY 16-24 PZ (R006XY202WA)

Typical profile

A1—0 to 3 inches; gravelly loam
A2—3 to 12 inches; very flaggy loam
R—12 to 16 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains
Slope range: 35 to 65 percent
Description of areas: Barren areas of exposed bedrock
Land capability subclass (nonirrigated): 8
Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Longort soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

365—Mineral-Rock outcrop complex, 5 to 20 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 3,400 to 3,800 feet

Mean annual precipitation: 18 to 20 inches

Mean annual air temperature: 42 to 46 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Mineral, dry, and similar soils: 65 percent

Rock outcrop: 25 percent

Dissimilar minor component: 10 percent

Characteristics of Mineral, Dry

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 14 inches thick) over colluvium and residuum derived from granitic rock

Slope range: 5 to 20 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Plant community class: Douglas-fir/common snowberry (CDS636)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 7 inches; stony ashy loam

Bw—7 to 13 inches; very gravelly ashy loam

2C—13 to 24 inches; very stony sandy loam

2R—24 to 28 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 5 to 20 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Component

Unnamed soils

Percentage of map unit: 10 percent

Major Uses

Livestock grazing and timber production

366—Mineral-Rock outcrop complex, 20 to 40 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 3,400 to 3,800 feet

Mean annual precipitation: 18 to 20 inches

Mean annual air temperature: 42 to 46 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Mineral, dry, and similar soils: 60 percent

Rock outcrop: 20 percent

Dissimilar minor components: 20 percent

Characteristics of Mineral, Dry

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 14 inches thick) over colluvium and residuum derived from granitic rock

Slope range: 20 to 40 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/common snowberry (CDS636)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 7 inches; stony ashy loam

Bw—7 to 13 inches; very gravelly ashy loam

2C—13 to 24 inches; very stony sandy loam

2R—24 to 28 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 20 to 40 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Bearspring soils

Percentage of map unit: 5 percent

Lani soils

Percentage of map unit: 5 percent

Vanbrunt soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

367—Mires ashy loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 2,300 to 4,400 feet

Mean annual precipitation: 14 to 18 inches

Mean annual air temperature: 42 to 45 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Mires and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Mires

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Volcanic ash (17 to 25 inches thick) over glacial outwash

Slope range: 0 to 8 percent

Depth to restrictive feature: 17 to 25 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high to very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 3e

Ecological site: DRY LOAMY 16-24 PZ (R043AY101WA)

Typical profile

Ap—0 to 9 inches; ashy loam

A—9 to 13 inches; ashy loam

Bw—13 to 21 inches; gravelly ashy loam

2C1—21 to 29 inches; gravelly loamy sand
2C2—29 to 60 inches; extremely gravelly sand

Dissimilar Minor Components

Haley soils

Percentage of map unit: 5 percent

Leiko soils

Percentage of map unit: 5 percent

Owhi soils

Percentage of map unit: 5 percent

Republic soils

Percentage of map unit: 5 percent

Major Uses

Crop production, livestock grazing, and timber production

368—Mires gravelly ashy loam, 3 to 25 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 2,300 to 4,400 feet

Mean annual precipitation: 14 to 18 inches

Mean annual air temperature: 42 to 45 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Mires and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Mires

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Volcanic ash (17 to 25 inches thick) over glacial outwash

Slope range: 3 to 25 percent

Depth to restrictive feature: 17 to 25 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high to very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Land capability subclass (irrigated): 6e

Ecological site: DRY LOAMY 16-24 PZ (R043AY101WA)

Typical profile

A1—0 to 9 inches; gravelly ashy loam

A2—9 to 13 inches; gravelly ashy loam

Bw—13 to 21 inches; gravelly ashy loam
2C1—21 to 29 inches; gravelly loamy sand
2C2—29 to 60 inches; extremely gravelly sand

Dissimilar Minor Components

Leiko soils, gravelly surface

Percentage of map unit: 10 percent

Owhi soils, gravelly surface

Percentage of map unit: 5 percent

Republic soils, gravelly surface

Percentage of map unit: 5 percent

Major Uses

Crop production, livestock grazing, and timber production

369—Mires gravelly ashy sandy loam, 25 to 45 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 2,300 to 4,400 feet

Mean annual precipitation: 14 to 18 inches

Mean annual air temperature: 42 to 45 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Mires and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Mires

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Volcanic ash (17 to 25 inches thick) over glacial outwash

Slope range: 25 to 45 percent

Depth to restrictive feature: 17 to 25 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high to very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: DRY LOAMY 16-24 PZ (R043AY101WA)

Typical profile

A1—0 to 9 inches; gravelly ashy sandy loam

A2—9 to 13 inches; gravelly ashy loam

Bw—13 to 21 inches; gravelly ashy loam

2C1—21 to 29 inches; gravelly loamy sand
2C2—29 to 60 inches; extremely gravelly sand

Dissimilar Minor Components

Leiko soils

Percentage of map unit: 10 percent

Owhi soils, gravelly surface

Percentage of map unit: 5 percent

Republic soils, gravelly surface

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

370—Mires ashy sandy loam, 3 to 15 percent slopes, stony

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 2,300 to 4,400 feet

Mean annual precipitation: 14 to 18 inches

Mean annual air temperature: 42 to 45 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Mires, stony surface, and similar soils: 100 percent

Characteristics of Mires, Stony Surface

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Volcanic ash (17 to 25 inches thick) over glacial outwash

Slope range: 3 to 15 percent

Percentage of surface area covered with stones: 0.01 to 0.1 percent

Depth to restrictive feature: 17 to 25 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high to very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4s

Land capability subclass (irrigated): 4e

Ecological site: DRY LOAMY 16-24 PZ (R043AY101WA)

Typical profile

A1—0 to 9 inches; ashy sandy loam

A2—9 to 13 inches; ashy loam

Bw—13 to 21 inches; gravelly ashy loam

2C1—21 to 29 inches; gravelly loamy sand
2C2—29 to 60 inches; extremely gravelly sand

Major Uses

Crop production, livestock grazing, and timber production

371—Mires ashy sandy loam, 15 to 65 percent slopes, extremely stony

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains
Elevation: 2,300 to 4,400 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 42 to 45 degrees F
Frost-free period: 90 to 120 days

Map Unit Composition

Mires, extremely stony surface, and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Mires, Extremely Stony Surface

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Volcanic ash (17 to 25 inches thick) over glacial outwash
Slope range: 15 to 65 percent
Percentage of surface area covered with stones: 3 to 15 percent
Depth to restrictive feature: 17 to 25 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately high to very high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 5.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Ecological site: DRY LOAMY 16-24 PZ (R043AY101WA)

Typical profile

A1—0 to 9 inches; ashy sandy loam
A2—9 to 13 inches; ashy loam
Bw—13 to 21 inches; gravelly ashy loam
2C1—21 to 29 inches; gravelly loamy sand
2C2—29 to 60 inches; extremely gravelly sand

Dissimilar Minor Components

Leiko soils

Percentage of map unit: 10 percent

Owhi soils

Percentage of map unit: 5 percent

Republic soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

372—Mires-Leiko complex, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 3,000 to 4,400 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 42 to 45 degrees F

Frost-free period: 100 to 120 days

Map Unit Composition

Mires and similar soils: 70 percent

Leiko and similar soils: 30 percent

Characteristics of Mires

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Volcanic ash (17 to 25 inches thick) over glacial outwash

Slope range: 15 to 35 percent

Depth to restrictive feature: 17 to 25 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high to very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Ecological site: DRY LOAMY 16-24 PZ (R043AY101WA)

Typical profile

A1—0 to 9 inches; ashy loam

A2—9 to 13 inches; ashy loam

Bw—13 to 21 inches; gravelly ashy loam

2C1—21 to 29 inches; gravelly loamy sand

2C2—29 to 60 inches; very gravelly sand

Characteristics of Leiko

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Mixed volcanic ash (7 to 14 inches thick) over glacial outwash

Slope range: 15 to 35 percent

Depth to restrictive feature: 10 to 30 inches to strongly contrasting textural stratification

Drainage class: Somewhat excessively drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Ponderosa pine/bitterbrush/bluebunch wheatgrass (CPS241)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A1—1 to 2 inches; ashy sandy loam

A2—2 to 9 inches; ashy sandy loam

2C1—9 to 30 inches; very gravelly sandy loam

2C2—30 to 60 inches; very gravelly sand

Major Uses

Livestock grazing and timber production

373—Mobu silt loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 1,200 to 3,400 feet

Mean annual precipitation: 11 to 14 inches

Mean annual air temperature: 47 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Mobu and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Mobu

Setting

Landform: Terraces

Properties and qualities

Parent material: Loess over glacial lake sediment

Slope range: 3 to 8 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): High (about 12 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6s

Land capability subclass (irrigated): 6s

Ecological site: COOL LOAMY 10-16 PZ (R008XY103WA)

Typical profile

A1—0 to 2 inches; silt loam

A2—2 to 11 inches; silt loam

Bw—11 to 15 inches; silt loam

2C—15 to 30 inches; silt loam

2Ck1—30 to 36 inches; stratified very fine sandy loam to silt loam to silty clay loam

2Ck2—36 to 60 inches; stratified very fine sandy loam to silt loam to silty clay loam

Dissimilar Minor Components

Conconully soils

Percentage of map unit: 4 percent

Disautel soils

Percentage of map unit: 4 percent

Haley soils

Percentage of map unit: 4 percent

Ewall soils

Percentage of map unit: 3 percent

Major Uses

Crop production and livestock grazing

374—Mobu silt loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 1,200 to 3,400 feet

Mean annual precipitation: 11 to 14 inches

Mean annual air temperature: 47 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Mobu and similar soils: 95 percent

Dissimilar minor components: 5 percent

Characteristics of Mobu

Setting

Landform: Terraces

Properties and qualities

Parent material: Loess over glacial lake sediment

Slope range: 8 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): High (about 12 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6s

Land capability subclass (irrigated): 6s

Ecological site: COOL LOAMY 10-16 PZ (R008XY103WA)

Typical profile

A1—0 to 2 inches; silt loam

A2—2 to 11 inches; silt loam

Bw—11 to 15 inches; silt loam

2C—15 to 30 inches; silt loam

2Ck1—30 to 36 inches; stratified very fine sandy loam to silt loam to silty clay loam

2Ck2—36 to 60 inches; stratified very fine sandy loam to silt loam to silty clay loam

Dissimilar Minor Components

Disautel soils

Percentage of map unit: 3 percent

Ewall soils

Percentage of map unit: 2 percent

Major Uses

Crop production and livestock grazing

375—Mobu silt loam, 25 to 45 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 1,200 to 3,400 feet

Mean annual precipitation: 11 to 14 inches

Mean annual air temperature: 47 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Mobu and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Mobu

Setting

Landform: Terraces

Properties and qualities

Parent material: Loess over glacial lake sediment

Slope range: 25 to 45 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): High (about 12 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: COOL LOAMY 10-16 PZ (R008XY103WA)

Typical profile

A1—0 to 2 inches; silt loam

A2—2 to 11 inches; silt loam

Bw—11 to 15 inches; silt loam

2C—15 to 30 inches; silt loam

2Ck1—30 to 36 inches; stratified very fine sandy loam to silt loam to silty clay loam

2Ck2—36 to 60 inches; stratified very fine sandy loam to silt loam to silty clay loam

Dissimilar Minor Components

Conconully soils

Percentage of map unit: 5 percent

Disautel soils

Percentage of map unit: 5 percent

Hunters soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

376—Mobu silt loam, 8 to 25 percent slopes, eroded

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 1,200 to 3,400 feet

Mean annual precipitation: 11 to 14 inches

Mean annual air temperature: 47 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Mobu, eroded, and similar soils: 90 percent

Dissimilar minor component: 10 percent

Characteristics of Mobu, Eroded

Setting

Landform: Terraces

Properties and qualities

Parent material: Loess over glacial lake sediment

Slope range: 8 to 25 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): High (about 12 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6s

Ecological site: COOL LOAMY 10-16 PZ (R008XY103WA)

Typical profile

A1—0 to 1 inch; silt loam

A2—1 to 11 inches; silt loam

Bw—11 to 15 inches; silt loam

2C—15 to 30 inches; silt loam

2Ck1—30 to 36 inches; stratified very fine sandy loam to silt loam to silty clay loam

2Ck2—36 to 60 inches; stratified very fine sandy loam to silt loam to silty clay loam

Dissimilar Minor Component

Disautel soils

Percentage of map unit: 10 percent

Major Uses

Crop production and livestock grazing

377—Molson ashy silt loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 1,600 to 5,000 feet

Mean annual precipitation: 14 to 18 inches

Mean annual air temperature: 43 to 45 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Molson and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Molson

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 20 inches thick) over glacial till

Slope range: 0 to 8 percent

Depth to restrictive feature: 40 to 60 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): High (about 10.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 3e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Ap—0 to 8 inches; ashy silt loam

A—8 to 18 inches; ashy silt loam

2Bw—18 to 42 inches; gravelly silt loam

2BC—42 to 50 inches; gravelly silt loam

2Cd—50 to 60 inches; gravelly silt loam

Dissimilar Minor Components

Koepke soils

Percentage of map unit: 10 percent

Havillah soils

Percentage of map unit: 5 percent

Republic soils

Percentage of map unit: 5 percent

Major Uses

Crop production, livestock grazing, and timber production

378—Molson ashy silt loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 1,600 to 5,000 feet

Mean annual precipitation: 14 to 18 inches

Mean annual air temperature: 43 to 45 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Molson and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Molson

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 20 inches thick) over glacial till

Slope range: 8 to 15 percent

Depth to restrictive feature: 40 to 60 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): High (about 10.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

A1—0 to 8 inches; ashy silt loam

A2—8 to 18 inches; ashy silt loam

2Bw—18 to 42 inches; gravelly silt loam

2BC—42 to 50 inches; gravelly silt loam

2Cd—50 to 60 inches; gravelly silt loam

Dissimilar Minor Components

Koepke soils

Percentage of map unit: 10 percent

Havillah soils

Percentage of map unit: 5 percent

Republic soils

Percentage of map unit: 5 percent

Major Uses

Crop production, livestock grazing, and timber production

379—Molson ashy silt loam, 15 to 25 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 1,600 to 5,000 feet

Mean annual precipitation: 14 to 18 inches

Mean annual air temperature: 43 to 45 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Molson and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Molson

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 20 inches thick) over glacial till

Slope range: 15 to 25 percent

Depth to restrictive feature: 40 to 60 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): High (about 10.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Land capability subclass (irrigated): 6e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

A1—0 to 8 inches; ashy silt loam

A2—8 to 18 inches; ashy silt loam

2Bw—18 to 42 inches; gravelly silt loam

2BC—42 to 50 inches; gravelly silt loam

2Cd—50 to 60 inches; gravelly silt loam

Dissimilar Minor Components

Havillah soils

Percentage of map unit: 5 percent

Koepke soils

Percentage of map unit: 5 percent

Republic soils

Percentage of map unit: 5 percent

Major Uses

Crop production, livestock grazing, and timber production

380—Molson ashy silt loam, 25 to 40 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 1,600 to 5,000 feet

Mean annual precipitation: 14 to 18 inches

Mean annual air temperature: 43 to 45 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Molson and similar soils: 100 percent

Characteristics of Molson

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 20 inches thick) over glacial till

Slope range: 25 to 40 percent

Depth to restrictive feature: 40 to 60 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): High (about 10.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

A1—0 to 8 inches; ashy silt loam

A2—8 to 18 inches; ashy silt loam

2Bw—18 to 42 inches; gravelly silt loam

2BC—42 to 50 inches; gravelly silt loam

2Cd—50 to 60 inches; gravelly silt loam

Major Uses

Livestock grazing and timber production

381—Molson ashy silt loam, 8 to 25 percent slopes, extremely stony

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 1,600 to 5,000 feet

Mean annual precipitation: 14 to 18 inches

Mean annual air temperature: 43 to 45 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Molson, extremely stony surface, and similar soils: 90 percent

Dissimilar minor component: 10 percent

Characteristics of Molson, Extremely Stony Surface

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 20 inches thick) over glacial till

Slope range: 8 to 25 percent

Percentage of surface area covered with stones: 3 to 15 percent

Depth to restrictive feature: 40 to 60 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): High (about 10.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

A1—0 to 8 inches; ashy silt loam

A2—8 to 18 inches; ashy silt loam

2Bw—18 to 42 inches; gravelly silt loam

2BC—42 to 50 inches; gravelly silt loam

2Cd—50 to 60 inches; gravelly silt loam

Dissimilar Minor Component

Havillah soils

Percentage of map unit: 10 percent

Major Uses

Livestock grazing and timber production

382—Molson ashy silt loam, 25 to 45 percent slopes, extremely stony

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 1,600 to 5,000 feet

Mean annual precipitation: 14 to 18 inches

Mean annual air temperature: 43 to 45 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Molson, extremely stony surface, and similar soils: 90 percent

Dissimilar minor component: 10 percent

Characteristics of Molson, Extremely Stony Surface

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 20 inches thick) over glacial till

Slope range: 25 to 45 percent

Percentage of surface area covered with stones: 3 to 15 percent

Depth to restrictive feature: 40 to 60 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): High (about 10.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

A1—0 to 8 inches; ashy silt loam

A2—8 to 18 inches; ashy silt loam

2Bw—18 to 42 inches; gravelly silt loam

2BC—42 to 50 inches; gravelly silt loam

2Cd—50 to 60 inches; gravelly silt loam

Dissimilar Minor Component

Havillah soils

Percentage of map unit: 10 percent

Major Uses

Livestock grazing and timber production

383—Molson gravelly ashy silt loam, 3 to 25 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 1,600 to 5,000 feet

Mean annual precipitation: 14 to 18 inches

Mean annual air temperature: 43 to 45 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Molson and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Molson

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 20 inches thick) over glacial till

Slope range: 3 to 25 percent
Depth to restrictive feature: 40 to 60 inches to dense material
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): High (about 10.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e
Land capability subclass (irrigated): 6e
Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

A1—0 to 8 inches; gravelly ashy silt loam
A2—8 to 18 inches; ashy silt loam
2Bw—18 to 42 inches; gravelly silt loam
2BC—42 to 50 inches; gravelly silt loam
2Cd—50 to 60 inches; gravelly silt loam

Dissimilar Minor Components

Koepke soils, gravelly surface

Percentage of map unit: 10 percent

Havillah soils

Percentage of map unit: 5 percent

Republic soils, gravelly surface

Percentage of map unit: 5 percent

Major Uses

Crop production, livestock grazing, and timber production

384—Muckamuck silt loam, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau
Elevation: 1,400 to 2,500 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 90 to 120 days

Map Unit Composition

Muckamuck and similar soils: 100 percent

Characteristics of Muckamuck

Setting

Landform: Flood plains and low stream terraces

Properties and qualities

Parent material: Alluvium
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: Occasional (see Water Features table)

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): High (about 10.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3w

Land capability subclass (irrigated): 3w

Plant community class: Ponderosa pine/pinegrass-bluebunch wheatgrass (CPG231)

Typical profile

Ap—0 to 7 inches; silt loam

BA—7 to 18 inches; silt loam

Bw—18 to 28 inches; silty clay loam

C—28 to 60 inches; gravelly loam

Major Uses

Crop production, livestock grazing, and timber production

385—Myerscreek ashy fine sandy loam, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 4,000 to 6,800 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 35 to 40 degrees F

Frost-free period: 60 to 90 days

Map Unit Composition

Myerscreek, cool, and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Myerscreek, Cool

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: 20 to 35 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Subalpine fir/grouse huckleberry (CES412) and subalpine fir/grouse huckleberry (CES426)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

C—1 to 2 inches; ashy silt loam

2A—2 to 5 inches; ashy fine sandy loam

2Bw—5 to 13 inches; ashy fine sandy loam

3CB—13 to 32 inches; very gravelly sandy loam

3Cd1—32 to 47 inches; very gravelly sandy loam

3Cd2—47 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Manley soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Sitdown soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

386—Myerscreek ashy fine sandy loam, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 4,000 to 6,000 feet

Mean annual precipitation: 30 to 35 inches

Mean annual air temperature: 35 to 40 degrees F

Frost-free period: 60 to 90 days

Map Unit Composition

Myerscreek, moist, and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Myerscreek, Moist

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over glacial till

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 35 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Subalpine fir/twinflower (CEF222)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

C—1 to 2 inches; ashy silt loam

2A—2 to 5 inches; ashy fine sandy loam

2Bw—5 to 13 inches; ashy fine sandy loam

3CB—13 to 32 inches; very gravelly sandy loam

3Cd1—32 to 47 inches; very gravelly sandy loam

3Cd2—47 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Manley soils

Percentage of map unit: 5 percent

Sitdown soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

387—Myerscreek stony ashy fine sandy loam, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 4,100 to 6,700 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 37 to 42 degrees F

Frost-free period: 70 to 90 days

Map Unit Composition

Myerscreek, warm, and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Myerscreek, Warm

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: 20 to 35 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Subalpine fir/grouse huckleberry/pinegrass (CES413)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

C—1 to 2 inches; ashy silt loam

2A—2 to 5 inches; stony ashy fine sandy loam

2Bw—5 to 13 inches; ashy fine sandy loam

3CB—13 to 32 inches; very gravelly sandy loam

3Cd1—32 to 47 inches; very gravelly sandy loam

3Cd2—47 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Devore soils

Percentage of map unit: 5 percent

Sitdown soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

388—Myerscreek stony ashy fine sandy loam, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 4,100 to 6,700 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 37 to 42 degrees F

Frost-free period: 70 to 90 days

Map Unit Composition

Myerscreek, warm, and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Myerscreek, Warm

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over glacial till

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 35 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Subalpine fir/grouse huckleberry/pinegrass (CES413)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

C—1 to 2 inches; ashy silt loam

2A—2 to 5 inches; stony ashy fine sandy loam

2Bw—5 to 13 inches; ashy fine sandy loam

3CB—13 to 32 inches; very gravelly sandy loam

3Cd1—32 to 47 inches; very gravelly sandy loam

3Cd2—47 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Manley soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Sitdown soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

389—Myerscreek-Aquandic Dystrocryepts complex, 0 to 25 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 4,000 to 6,800 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 35 to 40 degrees F

Frost-free period: 60 to 90 days

Map Unit Composition

Myerscreek, cool, and similar soils: 55 percent

Aquandic Dystrocryepts, udic, forested, and similar soils: 30 percent

Dissimilar minor components: 15 percent

Characteristics of Myerscreek, Cool

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over glacial till

Slope range: 15 to 25 percent

Depth to restrictive feature: 20 to 35 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Subalpine fir/grouse huckleberry (CES412) and subalpine fir/grouse huckleberry (CES426)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

C—1 to 2 inches; ashy silt loam

2A—2 to 5 inches; ashy fine sandy loam

2Bw—5 to 13 inches; ashy fine sandy loam

3CB—13 to 32 inches; very gravelly sandy loam

3Cd1—32 to 47 inches; very gravelly sandy loam

3Cd2—47 to 60 inches; very gravelly sandy loam

Characteristics of Aquandic Dystracrypts, Udic, Forested

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 11 inches thick) over glacial till and alluvium

Slope range: 0 to 15 percent

Depth to restrictive feature: 20 to 60 inches to dense material

Drainage class: Somewhat poorly drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): About 18 to 34 inches (see Water Features table)

Available water capacity (entire profile): Moderate (about 6.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Subalpine fir series, wetland (CEW0)

Typical profile

Oe—0 to 3 inches; moderately decomposed plant material

A—3 to 9 inches; ashy fine sandy loam

AB—9 to 14 inches; ashy sandy loam

2Bw1—14 to 31 inches; gravelly sandy loam

2Bw2—31 to 37 inches; very gravelly sandy loam

2Cd—37 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Cryohemists

Percentage of map unit: 5 percent

Sitdown soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Timber production and wildlife habitat

390—Myerscreek-Devore complex, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 4,000 to 6,800 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 35 to 40 degrees F

Frost-free period: 60 to 90 days

Map Unit Composition

Myerscreek, cool, and similar soils: 55 percent

Devore and similar soils: 25 percent

Dissimilar minor components: 20 percent

Characteristics of Myerscreek, Cool

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: 20 to 35 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Subalpine fir/grouse huckleberry (CES426)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

C—1 to 2 inches; ashy silt loam

2A—2 to 5 inches; ashy fine sandy loam

2Bw—5 to 13 inches; ashy fine sandy loam

3CB—13 to 32 inches; very gravelly sandy loam

3Cd1—32 to 47 inches; very gravelly sandy loam

3Cd2—47 to 60 inches; very gravelly sandy loam

Characteristics of Devore

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over colluvium and residuum derived from granitic and metamorphic rock

Slope range: 15 to 35 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Subalpine fir/grouse huckleberry (CES426)

Typical profile

Oe—0 to 3 inches; moderately decomposed plant material

C—3 to 4 inches; stony ashy sandy loam

2A—4 to 7 inches; very stony ashy fine sandy loam

2Bw—7 to 14 inches; very stony ashy fine sandy loam

3C1—14 to 26 inches; extremely stony coarse sandy loam

3C2—26 to 35 inches; extremely stony coarse sandy loam

3R—35 to 39 inches; unweathered bedrock

Dissimilar Minor Components

Manley soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Sitdown soils

Percentage of map unit: 5 percent

Treebutte soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and wildlife habitat

391—Myerscreek-Devore complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 4,000 to 6,800 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 35 to 40 degrees F

Frost-free period: 60 to 90 days

Map Unit Composition

Myerscreek, cool, and similar soils: 55 percent

Devore and similar soils: 25 percent

Dissimilar minor components: 20 percent

Characteristics of Myerscreek, Cool

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over glacial till

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 35 inches to dense material

Soil Survey of Okanogan County Area, Washington

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Subalpine fir/grouse huckleberry (CES426)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

C—1 to 2 inches; ashy silt loam

2A—2 to 5 inches; ashy fine sandy loam

2Bw—5 to 13 inches; ashy fine sandy loam

3CB—13 to 32 inches; very gravelly sandy loam

3Cd1—32 to 47 inches; very gravelly sandy loam

3Cd2—47 to 60 inches; very gravelly sandy loam

Characteristics of Devore

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over colluvium and residuum derived from granitic and metamorphic rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Subalpine fir/grouse huckleberry (CES426)

Typical profile

Oe—0 to 3 inches; moderately decomposed plant material

C—3 to 4 inches; stony ashy sandy loam

2A—4 to 7 inches; very stony ashy fine sandy loam

2Bw—7 to 14 inches; very stony ashy fine sandy loam

3C1—14 to 26 inches; extremely stony coarse sandy loam

3C2—26 to 35 inches; extremely stony coarse sandy loam

3R—35 to 39 inches; unweathered bedrock

Dissimilar Minor Components

Rock outcrop

Percentage of map unit: 5 percent

Sitdown soils

Percentage of map unit: 5 percent

Trebutte soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and wildlife habitat

392—Myerscreek-Finney complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 4,400 to 5,900 feet

Mean annual precipitation: 30 to 35 inches

Mean annual air temperature: 35 to 40 degrees F

Frost-free period: 60 to 90 days

Map Unit Composition

Myerscreek, moist, and similar soils: 55 percent

Finney and similar soils: 30 percent

Dissimilar minor components: 15 percent

Characteristics of Myerscreek, Moist

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over glacial till

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 35 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Subalpine fir/twinflower (CEF222)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

C—1 to 2 inches; ashy silt loam

2A—2 to 5 inches; ashy fine sandy loam

2Bw—5 to 13 inches; ashy fine sandy loam

3CB—13 to 32 inches; very gravelly sandy loam

3Cd1—32 to 47 inches; very gravelly sandy loam

3Cd2—47 to 60 inches; very gravelly sandy loam

Characteristics of Finney

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over colluvium and residuum derived from metasedimentary rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 40 to 60 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Subalpine fir/twinflower (CEF222)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 3 inches; gravelly ashy sandy loam

Bw—3 to 11 inches; gravelly ashy sandy loam

2C1—11 to 21 inches; very gravelly sandy loam

2C2—21 to 33 inches; very gravelly sandy loam

3C3—33 to 44 inches; very gravelly sandy loam

3R—44 to 48 inches; unweathered bedrock

Dissimilar Minor Components

Manley soils

Percentage of map unit: 10 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and wildlife habitat

393—Myerscreek-Histic Cryaquepts-Cryohemists complex, 0 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 5,000 to 6,800 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 35 to 40 degrees F

Frost-free period: 60 to 90 days

Map Unit Composition

Myerscreek, cool, and similar soils: 40 percent

Histic Cryaquepts and similar soils: 30 percent

Cryohemists and similar soils: 30 percent

Characteristics of Myerscreek, Cool

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over glacial till

Slope range: 3 to 15 percent

Depth to restrictive feature: 20 to 35 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Subalpine fir/grouse huckleberry (CES426)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

C—1 to 2 inches; ashy silt loam

2A—2 to 5 inches; ashy fine sandy loam

2Bw—5 to 13 inches; ashy fine sandy loam

3CB—13 to 32 inches; very gravelly sandy loam

3Cd1—32 to 47 inches; very gravelly sandy loam

3Cd2—47 to 60 inches; very gravelly sandy loam

Characteristics of Histic Cryaquepts

Setting

Landform: Drainageways of mountains

Properties and qualities

Parent material: Organic soil material over alluvium and glacial till

Slope range: 0 to 10 percent

Depth to restrictive feature: 8 to 16 inches to strongly contrasting textural stratification

Drainage class: Very poorly drained

Capacity to transmit water (Ksat): Moderately high to very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: Frequent (see Water Features table)

Seasonal high water table (minimum depth): At the soil surface (see Water Features table)

Available water capacity (entire profile): Moderate (about 7.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Farr's willow/saw-leaved (firethread) sedge (SW1215)

Typical profile

Oe—0 to 8 inches; mucky peat

2A—8 to 10 inches; silt loam

3Bw—10 to 15 inches; ashy fine sandy loam

4Cg1—15 to 21 inches; very gravelly sandy loam

4Cg2—21 to 34 inches; gravelly sandy loam
4Cg3—34 to 60 inches; very gravelly loamy sand

Characteristics of Cryohemists

Setting

Landform: Depressions of mountains

Properties and qualities

Parent material: Organic soil material over alluvium and glacial till

Slope range: 0 to 5 percent

Depth to restrictive feature: 16 to 40 inches to strongly contrasting textural stratification

Drainage class: Very poorly drained

Capacity to transmit water (Ksat): Moderately high to very high (see Physical Properties table)

Frequency of flooding: Occasional (see Water Features table)

Frequency of ponding: Frequent (see Water Features table)

Seasonal high water table (minimum depth): At the soil surface (see Water Features table)

Available water capacity (entire profile): High (about 11.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6w

Plant community class: Farr's willow/saw-leaved (firethread) sedge (SW1215)

Typical profile

Oe—0 to 14 inches; mucky peat

Oa—14 to 19 inches; muck

2Cg1—19 to 26 inches; fine sandy loam

2Cg2—26 to 33 inches; gravelly sandy loam

3Cg3—33 to 60 inches; very gravelly loamy sand

Major Uses

Livestock grazing, timber production, and wildlife habitat

394—Myerscreek-Manley complex, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 4,200 to 5,700 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 37 to 40 degrees F

Frost-free period: 70 to 90 days

Map Unit Composition

Myerscreek, moist, and similar soils: 60 percent

Manley and similar soils: 25 percent

Dissimilar minor components: 15 percent

Characteristics of Myerscreek, Moist

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: 20 to 35 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Subalpine fir/twinflower (CEF222) and subalpine fir/twinflower (CEF211)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

C—1 to 2 inches; ashy silt loam

2A—2 to 5 inches; ashy fine sandy loam

2Bw—5 to 13 inches; ashy fine sandy loam

3CB—13 to 32 inches; very gravelly sandy loam

3Cd1—32 to 47 inches; very gravelly sandy loam

3Cd2—47 to 60 inches; very gravelly sandy loam

Characteristics of Manley

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 25 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: 20 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 7.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Subalpine fir/twinflower (CEF211) and subalpine fir/twinflower (CEF222)

Typical profile

Oi—0 to 2 inches; slightly decomposed plant material

Oe—2 to 3 inches; moderately decomposed plant material

C—3 to 5 inches; ashy silt loam

2Bw1—5 to 16 inches; ashy fine sandy loam

2Bw2—16 to 24 inches; ashy fine sandy loam

3Cd1—24 to 37 inches; very cobbly sandy loam

3Cd2—37 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Nevine soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Timber production

395—Myerscreek-Twentymile complex, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 4,800 to 6,600 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 35 to 40 degrees F

Frost-free period: 60 to 90 days

Map Unit Composition

Myerscreek and similar soils: 55 percent

Twentymile and similar soils: 30 percent

Dissimilar minor components: 15 percent

Characteristics of Myerscreek

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: 20 to 35 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Subalpine fir/big huckleberry (CES342)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

C—1 to 2 inches; ashy silt loam

2A—2 to 5 inches; ashy fine sandy loam

2Bw—5 to 13 inches; ashy fine sandy loam

3CB—13 to 32 inches; very gravelly sandy loam

3Cd1—32 to 47 inches; very gravelly sandy loam

3Cd2—47 to 60 inches; very gravelly sandy loam

Characteristics of Twentymile

Setting

Landform: North-facing slopes of mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: 20 to 35 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Subalpine fir/Cascade azalea (CES214)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

C—1 to 2 inches; ashy silt loam

2A—2 to 5 inches; stony ashy fine sandy loam

2Bw—5 to 14 inches; gravelly ashy fine sandy loam

3CB—14 to 32 inches; very gravelly sandy loam

3Cd1—32 to 45 inches; very gravelly sandy loam

3Cd2—45 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Manley soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Sitdown soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

396—Nahahum ashy loam, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 3,400 to 3,500 feet

Mean annual precipitation: 22 to 26 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Nahahum, moist, and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Nahahum, Moist

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 14 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): High (about 10.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/pachistima/pinegrass (CDS412)

Typical profile

Oe—0 to 2 inches; moderately decomposed plant material

A—2 to 5 inches; ashy loam

Bw—5 to 14 inches; ashy loam

2Bt1—14 to 22 inches; gravelly clay loam

2Bt2—22 to 36 inches; gravelly clay loam

2Bt3—36 to 46 inches; gravelly clay loam

2BC—46 to 60 inches; gravelly loam

Dissimilar Minor Components

Nicmar soils

Percentage of map unit: 10 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

397—Nahahum ashy loam, cool, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 3,400 to 3,500 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 39 to 41 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Nahahum, cool, and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Nahahum, Cool

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 14 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): High (about 10.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/mountain snowberry (CDS629)

Typical profile

Oe—0 to 2 inches; moderately decomposed plant material

A—2 to 5 inches; ashy loam

Bw—5 to 14 inches; ashy loam

2Bt1—14 to 22 inches; gravelly clay loam

2Bt2—22 to 36 inches; gravelly clay loam

2Bt3—36 to 46 inches; gravelly clay loam

2BC—46 to 60 inches; gravelly loam

Dissimilar Minor Components

Midpeak soils

Percentage of map unit: 5 percent

Nicmar soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

398—Nahahum-Coxit complex, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 4,200 to 4,800 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Nahahum and similar soils: 50 percent

Coxit and similar soils: 35 percent

Dissimilar minor components: 15 percent

Characteristics of Nahahum

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 14 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): High (about 10.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 2 inches; moderately decomposed plant material

A—2 to 5 inches; ashy loam

Bw—5 to 14 inches; ashy loam

2Bt1—14 to 22 inches; gravelly clay loam

2Bt2—22 to 36 inches; gravelly clay loam

2Bt3—36 to 46 inches; gravelly clay loam

2BC—46 to 60 inches; gravelly loam

Characteristics of Coxit

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (14 to 35 inches thick) over colluvium and residuum derived from metasedimentary rock

Slope range: 15 to 35 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 6.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A1—1 to 2 inches; gravelly ashy sandy loam

A2—2 to 8 inches; gravelly ashy sandy loam

Bw1—8 to 24 inches; very cobbly ashy sandy loam

Bw2—24 to 35 inches; very cobbly ashy sandy loam

2C1—35 to 49 inches; very cobbly sandy loam

2C2—49 to 60 inches; extremely cobbly sandy loam

Dissimilar Minor Components

Merkel soils

Percentage of map unit: 10 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

399—Nahahum-Coxit complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 4,200 to 4,800 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Nahahum and similar soils: 50 percent

Coxit and similar soils: 35 percent

Dissimilar minor components: 15 percent

Characteristics of Nahahum

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 14 inches thick) over glacial till

Slope range: 35 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): High (about 10.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 2 inches; moderately decomposed plant material

A—2 to 5 inches; ashy loam

Bw—5 to 14 inches; ashy loam

2Bt1—14 to 22 inches; gravelly clay loam

2Bt2—22 to 36 inches; gravelly clay loam

2Bt3—36 to 46 inches; gravelly clay loam

2BC—46 to 60 inches; gravelly loam

Characteristics of Coxit

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (14 to 35 inches thick) over colluvium and residuum derived from metasedimentary rock

Slope range: 35 to 65 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Moderate (about 6.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material
A1—1 to 2 inches; gravelly ashy sandy loam
A2—2 to 8 inches; gravelly ashy sandy loam
Bw1—8 to 24 inches; very cobbly ashy sandy loam
Bw2—24 to 35 inches; very cobbly ashy sandy loam
2C1—35 to 49 inches; very cobbly sandy loam
2C2—49 to 60 inches; extremely cobbly sandy loam

Dissimilar Minor Components

Merkel soils

Percentage of map unit: 10 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

400—Nevine association, 5 to 20 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 3,100 to 4,100 feet
Mean annual precipitation: 20 to 24 inches
Mean annual air temperature: 40 to 46 degrees F
Frost-free period: 90 to 120 days

Map Unit Composition

Nevine and similar soils: 55 percent
Nevine, warm, and similar soils: 45 percent

Characteristics of Nevine

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 30 inches thick) over glacial till
Slope range: 5 to 20 percent
Depth to restrictive feature: 20 to 40 inches to dense material
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Moderate (about 7.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e
Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 4 inches; ashy fine sandy loam
Bw1—4 to 9 inches; ashy fine sandy loam
Bw2—9 to 21 inches; gravelly ashy fine sandy loam
2CB—21 to 38 inches; very gravelly sandy loam
2Cd1—38 to 51 inches; very gravelly sandy loam
2Cd2—51 to 60 inches; very gravelly sandy loam

Characteristics of Nevine, Warm

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 30 inches thick) over glacial till
Slope range: 5 to 20 percent
Depth to restrictive feature: 20 to 40 inches to dense material
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Moderate (about 7.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e
Plant community class: Douglas-fir/ninebark (CDS715)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 4 inches; ashy fine sandy loam
Bw1—4 to 9 inches; ashy fine sandy loam
Bw2—9 to 21 inches; gravelly ashy fine sandy loam
2CB—21 to 38 inches; very gravelly sandy loam
2Cd1—38 to 51 inches; very gravelly sandy loam
2Cd2—51 to 60 inches; very gravelly sandy loam

Major Use

Timber production

401—Nevine association, 20 to 40 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 3,100 to 4,100 feet
Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 46 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Nevine and similar soils: 55 percent

Nevine, warm, and similar soils: 45 percent

Characteristics of Nevine

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 30 inches thick) over glacial till

Slope range: 20 to 40 percent

Depth to restrictive feature: 20 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 7.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 4 inches; ashy fine sandy loam

Bw1—4 to 9 inches; ashy fine sandy loam

Bw2—9 to 21 inches; gravelly ashy fine sandy loam

2CB—21 to 38 inches; very gravelly sandy loam

2Cd1—38 to 51 inches; very gravelly sandy loam

2Cd2—51 to 60 inches; very gravelly sandy loam

Characteristics of Nevine, Warm

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 30 inches thick) over glacial till

Slope range: 20 to 40 percent

Depth to restrictive feature: 20 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 7.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/ninebark (CDS715)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 4 inches; ashy fine sandy loam
Bw1—4 to 9 inches; ashy fine sandy loam
Bw2—9 to 21 inches; gravelly ashy fine sandy loam
2CB—21 to 38 inches; very gravelly sandy loam
2Cd1—38 to 51 inches; very gravelly sandy loam
2Cd2—51 to 60 inches; very gravelly sandy loam

Major Use

Timber production

402—Nevine-Louploup complex, 3 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 2,000 to 5,400 feet
Mean annual precipitation: 20 to 24 inches
Mean annual air temperature: 39 to 42 degrees F
Frost-free period: 90 to 130 days

Map Unit Composition

Nevine, cool, and similar soils: 55 percent
Louploup and similar soils: 30 percent
Dissimilar minor components: 15 percent

Characteristics of Nevine, Cool

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 30 inches thick) over glacial till
Slope range: 3 to 15 percent
Depth to restrictive feature: 20 to 40 inches to dense material
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Moderate (about 7.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e
Plant community class: Douglas-fir/dwarf huckleberry (CDS831) and Douglas-fir/dwarf huckleberry (CDS813)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 4 inches; ashy fine sandy loam
Bw1—4 to 9 inches; ashy fine sandy loam
Bw2—9 to 21 inches; gravelly ashy fine sandy loam
2CB—21 to 38 inches; very gravelly sandy loam

2Cd1—38 to 51 inches; very gravelly sandy loam

2Cd2—51 to 60 inches; very gravelly sandy loam

Characteristics of Louploup

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 30 inches thick) over glacial till

Slope range: 3 to 15 percent

Depth to restrictive feature: 40 to 50 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 8.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Plant community class: Douglas-fir/dwarf huckleberry (CDS813) and Douglas-fir/dwarf huckleberry (CDS831)

Typical profile

Oi—0 to 2 inches; slightly decomposed plant material

A—2 to 8 inches; ashy fine sandy loam

Bw—8 to 23 inches; ashy fine sandy loam

2CB—23 to 43 inches; gravelly sandy loam

2Cd—43 to 60 inches; gravelly sandy loam

Dissimilar Minor Components

Newhorn soils

Percentage of map unit: 5 percent

Stepstone soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Use

Timber production

403—Nevine-Louploup complex, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,000 to 5,400 feet

Mean annual precipitation: 18 to 22 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Nevine and similar soils: 50 percent

Louploup, dry, and similar soils: 30 percent

Dissimilar minor components: 20 percent

Characteristics of Nevine

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 30 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: 20 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 7.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 4 inches; ashy fine sandy loam

Bw1—4 to 9 inches; ashy fine sandy loam

Bw2—9 to 21 inches; gravelly ashy fine sandy loam

2CB—21 to 38 inches; very gravelly sandy loam

2Cd1—38 to 51 inches; very gravelly sandy loam

2Cd2—51 to 60 inches; very gravelly sandy loam

Characteristics of Louploup, Dry

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 30 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: 40 to 50 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 8.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oi—0 to 2 inches; slightly decomposed plant material

A—2 to 8 inches; ashy fine sandy loam

Bw—8 to 23 inches; ashy fine sandy loam

2CB—23 to 43 inches; gravelly sandy loam

2Cd—43 to 60 inches; gravelly sandy loam

Dissimilar Minor Components

Newhorn soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Stepstone soils

Percentage of map unit: 5 percent

Wilma soils

Percentage of map unit: 5 percent

Major Use

Timber production

404—Nevine-Louploup complex, moist, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,700 to 4,600 feet

Mean annual precipitation: 22 to 25 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Nevine, moist, and similar soils: 50 percent

Louploup, moist, and similar soils: 30 percent

Dissimilar minor components: 20 percent

Characteristics of Nevine, Moist

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 30 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: 20 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 7.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/low huckleberry (CDS832) and Douglas-fir/big huckleberry (CDS814)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 4 inches; ashy fine sandy loam

Bw1—4 to 9 inches; ashy fine sandy loam

Bw2—9 to 21 inches; gravelly ashy fine sandy loam
2CB—21 to 38 inches; very gravelly sandy loam
2Cd1—38 to 51 inches; very gravelly sandy loam
2Cd2—51 to 60 inches; very gravelly sandy loam

Characteristics of Louploup, Moist

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 30 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: 40 to 50 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 8.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/big huckleberry (CDS814) and Douglas-fir/low huckleberry (CDS832)

Typical profile

Oi—0 to 2 inches; slightly decomposed plant material

A—2 to 8 inches; ashy fine sandy loam

Bw—8 to 23 inches; ashy fine sandy loam

2CB—23 to 43 inches; gravelly sandy loam

2Cd—43 to 60 inches; gravelly sandy loam

Dissimilar Minor Components

Manley soils

Percentage of map unit: 5 percent

Stepstone soils

Percentage of map unit: 5 percent

Wilma soils

Percentage of map unit: 5 percent

Newhorn soils

Percentage of map unit: 3 percent

Rock outcrop

Percentage of map unit: 2 percent

Major Use

Timber production

405—Nevine-Merkel complex, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,800 to 5,000 feet

Soil Survey of Okanogan County Area, Washington

Mean annual precipitation: 20 to 24 inches
Mean annual air temperature: 40 to 44 degrees F
Frost-free period: 90 to 120 days

Map Unit Composition

Nevine and similar soils: 60 percent
Merkel and similar soils: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Nevine

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 30 inches thick) over glacial till
Slope range: 15 to 35 percent
Depth to restrictive feature: 20 to 40 inches to dense material
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Moderate (about 7.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e
Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 4 inches; ashy fine sandy loam
Bw1—4 to 9 inches; ashy fine sandy loam
Bw2—9 to 21 inches; gravelly ashy fine sandy loam
2CB—21 to 38 inches; very gravelly sandy loam
2Cd1—38 to 51 inches; very gravelly sandy loam
2Cd2—51 to 60 inches; very gravelly sandy loam

Characteristics of Merkel

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 30 inches thick) over glacial till
Slope range: 15 to 35 percent
Depth to restrictive feature: 20 to 40 inches to dense material
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately low to high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 5.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e
Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 6 inches; ashy sandy loam

Bw1—6 to 12 inches; gravelly ashy sandy loam

Bw2—12 to 29 inches; gravelly ashy sandy loam

2BC—29 to 35 inches; very gravelly sandy loam

2Cd—35 to 60 inches; very gravelly coarse sandy loam

Dissimilar Minor Components

Louploup soils

Percentage of map unit: 5 percent

Stepstone soils

Percentage of map unit: 5 percent

Wilma soils

Percentage of map unit: 3 percent

Rock outcrop

Percentage of map unit: 2 percent

Major Use

Timber production

406—Nevine-Merkel complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,800 to 5,000 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Nevine and similar soils: 50 percent

Merkel and similar soils: 35 percent

Dissimilar minor components: 15 percent

Characteristics of Nevine

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 30 inches thick) over glacial till

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 7.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 4 inches; ashy fine sandy loam
Bw1—4 to 9 inches; ashy fine sandy loam
Bw2—9 to 21 inches; gravelly ashy fine sandy loam
2CB—21 to 38 inches; very gravelly sandy loam
2Cd1—38 to 51 inches; very gravelly sandy loam
2Cd2—51 to 60 inches; very gravelly sandy loam

Characteristics of Merkel

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 30 inches thick) over glacial till
Slope range: 35 to 65 percent
Depth to restrictive feature: 20 to 40 inches to dense material
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately low to high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 5.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 6 inches; ashy sandy loam
Bw1—6 to 12 inches; gravelly ashy sandy loam
Bw2—12 to 29 inches; gravelly ashy sandy loam
2BC—29 to 35 inches; very gravelly sandy loam
2Cd—35 to 60 inches; very gravelly coarse sandy loam

Dissimilar Minor Components

Louploup soils

Percentage of map unit: 5 percent

Wilma soils

Percentage of map unit: 5 percent

Stepstone soils

Percentage of map unit: 3 percent

Rock outcrop

Percentage of map unit: 2 percent

Major Use

Timber production

407—Nevine-Oxerine complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 3,900 to 5,500 feet
Mean annual precipitation: 20 to 24 inches
Mean annual air temperature: 40 to 44 degrees F
Frost-free period: 90 to 120 days

Map Unit Composition

Nevine and similar soils: 60 percent
Oxerine and similar soils: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Nevine

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 30 inches thick) over glacial till
Slope range: 35 to 65 percent
Depth to restrictive feature: 20 to 40 inches to dense material
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Moderate (about 7.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 4 inches; ashy fine sandy loam
Bw1—4 to 9 inches; ashy fine sandy loam
Bw2—9 to 21 inches; gravelly ashy fine sandy loam
2CB—21 to 38 inches; very gravelly sandy loam
2Cd1—38 to 51 inches; very gravelly sandy loam
2Cd2—51 to 60 inches; very gravelly sandy loam

Characteristics of Oxerine

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over colluvium and residuum derived from metasedimentary and andesitic rock
Slope range: 35 to 65 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 4.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 5 inches; gravelly ashy fine sandy loam
Bw—5 to 11 inches; gravelly ashy fine sandy loam
2C1—11 to 20 inches; very gravelly sandy loam
2C2—20 to 32 inches; extremely cobbly sandy loam
2R—32 to 36 inches; unweathered bedrock

Dissimilar Minor Components

Coxit soils

Percentage of map unit: 5 percent

Newhorn soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Use

Timber production

408—Nevine-Rock outcrop association, 20 to 40 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 3,100 to 4,500 feet
Mean annual precipitation: 20 to 24 inches
Mean annual air temperature: 40 to 46 degrees F
Frost-free period: 90 to 120 days

Map Unit Composition

Nevine and similar soils: 45 percent
Nevine, warm, and similar soils: 35 percent
Rock outcrop: 10 percent
Dissimilar minor component: 10 percent

Characteristics of Nevine

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 30 inches thick) over glacial till
Slope range: 20 to 40 percent
Depth to restrictive feature: 20 to 40 inches to dense material
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Moderate (about 7.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 4 inches; ashy fine sandy loam

Bw1—4 to 9 inches; ashy fine sandy loam

Bw2—9 to 21 inches; gravelly ashy fine sandy loam

2CB—21 to 38 inches; very gravelly sandy loam

2Cd1—38 to 51 inches; very gravelly sandy loam

2Cd2—51 to 60 inches; very gravelly sandy loam

Characteristics of Nevine, Warm

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 30 inches thick) over glacial till

Slope range: 20 to 40 percent

Depth to restrictive feature: 20 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 7.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/ninebark (CDS715)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 4 inches; ashy fine sandy loam

Bw1—4 to 9 inches; ashy fine sandy loam

Bw2—9 to 21 inches; gravelly ashy fine sandy loam

2CB—21 to 38 inches; very gravelly sandy loam

2Cd1—38 to 51 inches; very gravelly sandy loam

2Cd2—51 to 60 inches; very gravelly sandy loam

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 20 to 40 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Component

Unnamed soils

Percentage of map unit: 10 percent

Major Use

Timber production

409—Nevine-Rock outcrop association, 40 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 3,100 to 4,500 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 46 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Nevine and similar soils: 45 percent

Nevine, warm, and similar soils: 35 percent

Rock outcrop: 10 percent

Dissimilar minor component: 10 percent

Characteristics of Nevine

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 30 inches thick) over glacial till

Slope range: 40 to 65 percent

Depth to restrictive feature: 20 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 7.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 4 inches; ashy fine sandy loam

Bw1—4 to 9 inches; ashy fine sandy loam

Bw2—9 to 21 inches; gravelly ashy fine sandy loam

2CB—21 to 38 inches; very gravelly sandy loam

2Cd1—38 to 51 inches; very gravelly sandy loam

2Cd2—51 to 60 inches; very gravelly sandy loam

Characteristics of Nevine, Warm

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 30 inches thick) over glacial till

Slope range: 40 to 65 percent

Depth to restrictive feature: 20 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 7.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/ninebark (CDS715)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 4 inches; ashy fine sandy loam

Bw1—4 to 9 inches; ashy fine sandy loam

Bw2—9 to 21 inches; gravelly ashy fine sandy loam

2CB—21 to 38 inches; very gravelly sandy loam

2Cd1—38 to 51 inches; very gravelly sandy loam

2Cd2—51 to 60 inches; very gravelly sandy loam

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 40 to 65 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Component

Unnamed soils

Percentage of map unit: 10 percent

Major Use

Timber production

410—Nevine-Wilma complex, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,200 to 5,500 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Nevine and similar soils: 50 percent

Wilma and similar soils: 30 percent

Dissimilar minor components: 20 percent

Characteristics of Nevine

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 30 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: 20 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 7.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 4 inches; ashy fine sandy loam

Bw1—4 to 9 inches; ashy fine sandy loam

Bw2—9 to 21 inches; gravelly ashy fine sandy loam

2CB—21 to 38 inches; very gravelly sandy loam

2Cd1—38 to 51 inches; very gravelly sandy loam

2Cd2—51 to 60 inches; very gravelly sandy loam

Characteristics of Wilma

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (10 to 14 inches thick) over colluvium and residuum derived from granitic rock

Slope range: 15 to 35 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/pinegrass (CDG131) and Douglas-fir/pinegrass-bluebunch wheatgrass (CDG134)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 7 inches; gravelly ashy fine sandy loam

Bw—7 to 13 inches; gravelly ashy fine sandy loam

2BC—13 to 18 inches; very gravelly fine sandy loam

2C—18 to 29 inches; extremely gravelly coarse sandy loam

2R—29 to 33 inches; unweathered bedrock

Dissimilar Minor Components

Louploup soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Stepstone soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Use

Timber production

411—Nevine-Wilma complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,000 to 5,400 feet

Mean annual precipitation: 18 to 22 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Nevine and similar soils: 50 percent

Wilma, dry, and similar soils: 30 percent

Dissimilar minor components: 20 percent

Characteristics of Nevine

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 30 inches thick) over glacial till

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 7.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 4 inches; ashy fine sandy loam

Bw1—4 to 9 inches; ashy fine sandy loam

Bw2—9 to 21 inches; gravelly ashy fine sandy loam

2CB—21 to 38 inches; very gravelly sandy loam

2Cd1—38 to 51 inches; very gravelly sandy loam

2Cd2—51 to 60 inches; very gravelly sandy loam

Characteristics of Wilma, Dry

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (10 to 14 inches thick) over colluvium and residuum derived from granitic rock

Soil Survey of Okanogan County Area, Washington

Slope range: 35 to 65 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 3.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Douglas-fir/pinegrass-bluebunch wheatgrass (CDG134) and
Douglas-fir/pinegrass (CDG131)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 7 inches; gravelly ashy fine sandy loam
Bw—7 to 13 inches; gravelly ashy fine sandy loam
2BC—13 to 18 inches; very gravelly fine sandy loam
2C—18 to 29 inches; extremely gravelly coarse sandy loam
2R—29 to 33 inches; unweathered bedrock

Dissimilar Minor Components

Louploup soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Stepstone soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Use

Timber production

412—Nevine-Wilma-Rock outcrop complex, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 2,200 to 5,500 feet
Mean annual precipitation: 20 to 24 inches
Mean annual air temperature: 40 to 44 degrees F
Frost-free period: 90 to 120 days

Map Unit Composition

Nevine and similar soils: 50 percent
Wilma and similar soils: 25 percent
Rock outcrop: 10 percent
Dissimilar minor components: 15 percent

Characteristics of Nevine

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 30 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: 20 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 7.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 4 inches; ashy fine sandy loam

Bw1—4 to 9 inches; ashy fine sandy loam

Bw2—9 to 21 inches; gravelly ashy fine sandy loam

2CB—21 to 38 inches; very gravelly sandy loam

2Cd1—38 to 51 inches; very gravelly sandy loam

2Cd2—51 to 60 inches; very gravelly sandy loam

Characteristics of Wilma

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (10 to 14 inches thick) over colluvium and residuum derived from granitic rock

Slope range: 15 to 35 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 7 inches; gravelly ashy fine sandy loam

Bw—7 to 13 inches; gravelly ashy fine sandy loam

2BC—13 to 18 inches; very gravelly fine sandy loam

2C—18 to 29 inches; extremely gravelly coarse sandy loam

2R—29 to 33 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 15 to 35 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Lithic Haploxerepts

Percentage of map unit: 5 percent

Newhorn soils

Percentage of map unit: 5 percent

Stepstone soils

Percentage of map unit: 5 percent

Major Use

Timber production

413—Newbon loam, 15 to 25 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 1,300 to 3,500 feet

Mean annual precipitation: 11 to 15 inches

Mean annual air temperature: 47 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Newbon and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Newbon

Setting

Landform: Mountains and hills

Properties and qualities

Parent material: Glacial till

Slope range: 15 to 25 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 7.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Land capability subclass (irrigated): 6e

Ecological site: LOAMY 10-16 PZ (R008XY102WA)

Typical profile

A1—0 to 2 inches; loam

A2—2 to 13 inches; loam

Bw—13 to 25 inches; gravelly loam

C—25 to 60 inches; very gravelly loam

Dissimilar Minor Components

Conconully soils

Percentage of map unit: 5 percent

Lani soils

Percentage of map unit: 5 percent

Major Uses

Crop production, livestock grazing, and timber production

414—Newbon gravelly loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 1,300 to 3,500 feet

Mean annual precipitation: 11 to 15 inches

Mean annual air temperature: 47 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Newbon and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Newbon

Setting

Landform: Mountains and hills

Properties and qualities

Parent material: Glacial till

Slope range: 0 to 8 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 7.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 2e

Land capability subclass (irrigated): 3e

Ecological site: LOAMY 10-16 PZ (R008XY102WA)

Typical profile

A1—0 to 2 inches; gravelly loam

A2—2 to 13 inches; gravelly loam

Bw—13 to 25 inches; gravelly loam

C—25 to 60 inches; very gravelly loam

Dissimilar Minor Components

Conconully soils, gravelly

Percentage of map unit: 5 percent

Lani soils

Percentage of map unit: 5 percent

Major Uses

Crop production, livestock grazing, and timber production

415—Newbon gravelly loam, 8 to 25 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 1,300 to 3,500 feet

Mean annual precipitation: 11 to 15 inches

Mean annual air temperature: 47 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Newbon and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Newbon

Setting

Landform: Mountains and hills

Properties and qualities

Parent material: Glacial till

Slope range: 8 to 25 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 7.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Land capability subclass (irrigated): 6e

Ecological site: LOAMY 10-16 PZ (R008XY102WA)

Typical profile

A1—0 to 2 inches; gravelly loam

A2—2 to 13 inches; gravelly loam

Bw—13 to 25 inches; gravelly loam

C—25 to 60 inches; very gravelly loam

Dissimilar Minor Components

Conconully soils, gravelly surface

Percentage of map unit: 10 percent

Lani soils, gravelly surface

Percentage of map unit: 10 percent

Major Uses

Crop production, livestock grazing, and timber production

416—Newbon gravelly loam, 25 to 45 percent north slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 1,300 to 3,500 feet

Mean annual precipitation: 11 to 15 inches

Mean annual air temperature: 47 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Newbon and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Newbon

Setting

Landform: North-facing slopes of mountains and hills

Properties and qualities

Parent material: Glacial till

Slope range: 25 to 45 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 7.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: LOAMY 10-16 PZ (R008XY102WA)

Typical profile

A1—0 to 5 inches; gravelly loam

A2—5 to 13 inches; gravelly loam

Bw—13 to 25 inches; gravelly loam

C—25 to 60 inches; very gravelly loam

Dissimilar Minor Components

Conconully soils

Percentage of map unit: 5 percent

Lani soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

417—Newbon gravelly loam, 25 to 45 percent south slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 1,300 to 3,500 feet
Mean annual precipitation: 11 to 15 inches
Mean annual air temperature: 47 to 50 degrees F
Frost-free period: 110 to 140 days

Map Unit Composition

Newbon and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Newbon

Setting

Landform: South-facing slopes of mountains and hills

Properties and qualities

Parent material: Glacial till
Slope range: 25 to 45 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Moderate (about 7.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Ecological site: LOAMY 10-16 PZ (R008XY102WA)

Typical profile

A1—0 to 2 inches; gravelly loam
A2—2 to 13 inches; gravelly loam
Bw—13 to 25 inches; gravelly loam
C—25 to 60 inches; very gravelly loam

Dissimilar Minor Components

Conconully soils, gravelly surface

Percentage of map unit: 5 percent

Lani soils, gravelly surface

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

418—Newbon gravelly loam, 0 to 45 percent slopes, extremely stony

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau
Elevation: 1,300 to 3,500 feet
Mean annual precipitation: 11 to 15 inches
Mean annual air temperature: 47 to 50 degrees F
Frost-free period: 110 to 140 days

Map Unit Composition

Newbon, extremely stony surface, and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Newbon, Extremely Stony Surface

Setting

Landform: Mountains and hills

Properties and qualities

Parent material: Glacial till

Slope range: 0 to 45 percent

Percentage of surface area covered with stones: 3 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 7.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: LOAMY 10-16 PZ (R008XY102WA)

Typical profile

A1—0 to 2 inches; gravelly loam

A2—2 to 13 inches; gravelly loam

Bw—13 to 25 inches; gravelly loam

C—25 to 60 inches; very gravelly loam

Dissimilar Minor Components

Conconully soils

Percentage of map unit: 5 percent

Lani soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

419—Newbon very gravelly loam, 25 to 65 percent slopes, eroded

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 1,300 to 3,500 feet

Mean annual precipitation: 11 to 15 inches

Mean annual air temperature: 47 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Newbon, eroded, and similar soils: 100 percent

Characteristics of Newbon, Eroded

Setting

Landform: Mountains and hills

Properties and qualities

Parent material: Glacial till

Slope range: 25 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 6.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: LOAMY 10-16 PZ (R008XY102WA)

Typical profile

A1—0 to 1 inch; very gravelly loam

A2—1 to 13 inches; very gravelly loam

Bw—13 to 25 inches; gravelly loam

C—25 to 60 inches; very gravelly loam

Major Uses

Livestock grazing and timber production

420—Newhorn ashy fine sandy loam, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 3,300 to 4,800 feet

Mean annual precipitation: 20 to 22 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Newhorn and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Newhorn

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: 20 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 6.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 5 inches; ashy fine sandy loam

Bw—5 to 14 inches; ashy fine sandy loam

2CB—14 to 29 inches; very gravelly sandy loam

2C—29 to 37 inches; very gravelly sandy loam

2Cd—37 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Goddard soils

Percentage of map unit: 5 percent

Merkel soils

Percentage of map unit: 5 percent

Nevine soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

421—Newhorn ashy fine sandy loam, moist, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 3,300 to 4,800 feet

Mean annual precipitation: 22 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Newhorn, moist, and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Newhorn, Moist

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: 20 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Moderate (about 6.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e
Plant community class: Douglas-fir/low huckleberry/pinegrass (CDS833)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 5 inches; ashy fine sandy loam
Bw—5 to 14 inches; ashy fine sandy loam
2CB—14 to 29 inches; very gravelly sandy loam
2C—29 to 37 inches; very gravelly sandy loam
2Cd—37 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Merkel soils

Percentage of map unit: 5 percent

Nevine soils

Percentage of map unit: 5 percent

Pebcreek soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

422—Nicmar ashy loam, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains
Elevation: 2,200 to 4,200 feet
Mean annual precipitation: 20 to 24 inches
Mean annual air temperature: 40 to 44 degrees F
Frost-free period: 90 to 120 days

Map Unit Composition

Nicmar and similar soils: 75 percent
Dissimilar minor components: 25 percent

Characteristics of Nicmar

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 25 inches thick) over glacial till
Slope range: 15 to 35 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Moderate (about 8.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/ninebark (CDS715)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 5 inches; ashy loam

Bw—5 to 17 inches; gravelly ashy loam

2Bt1—17 to 24 inches; very cobbly clay loam

2Bt2—24 to 34 inches; very cobbly clay loam

2BC—34 to 60 inches; very gravelly sandy clay loam

Dissimilar Minor Components

Baldknob soils

Percentage of map unit: 5 percent

Oxerine soils

Percentage of map unit: 5 percent

Scoop soils

Percentage of map unit: 5 percent

Thout soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

423—Nicmar gravelly ashy loam, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,700 to 4,600 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Nicmar and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Nicmar

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 25 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Moderate (about 8.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e
Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 5 inches; gravelly ashy loam
Bw—5 to 17 inches; gravelly ashy loam
2Bt1—17 to 24 inches; very cobbly clay loam
2Bt2—24 to 34 inches; very cobbly clay loam
2BC—34 to 60 inches; very gravelly sandy clay loam

Dissimilar Minor Components

Rendovy soils

Percentage of map unit: 5 percent

Santop soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

424—Nicmar-Baldknob-Rock outcrop complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains
Elevation: 2,500 to 5,000 feet
Mean annual precipitation: 20 to 24 inches
Mean annual air temperature: 42 to 44 degrees F
Frost-free period: 90 to 120 days

Map Unit Composition

Nicmar, warm, and similar soils: 50 percent
Baldknob and similar soils: 25 percent
Rock outcrop: 10 percent
Dissimilar minor components: 15 percent

Characteristics of Nicmar, Warm

Setting

Landform: North-facing slopes of mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 25 inches thick) over glacial till
Slope range: 35 to 65 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)
Frequency of flooding: None

Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Moderate (about 8.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Douglas-fir/mountain snowberry (CDS629) and Douglas-fir/
mountain snowberry (CDS632)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 5 inches; ashy loam
Bw—5 to 17 inches; gravelly ashy loam
2Bt1—17 to 24 inches; very cobbly clay loam
2Bt2—24 to 34 inches; very cobbly clay loam
2BC—34 to 60 inches; very gravelly sandy clay loam

Characteristics of Baldknob

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Colluvium and residuum derived from volcanic rock
Slope range: 35 to 65 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties
table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Very low (about 1.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Ecological site: DRY STONY 16-24 PZ (R006XY201WA)

Typical profile

A1—0 to 3 inches; gravelly ashy loam
A2—3 to 12 inches; very flaggy loam
R—12 to 16 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains
Slope range: 35 to 65 percent
Description of areas: Barren areas of exposed bedrock
Land capability subclass (nonirrigated): 8
Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Borgeau soils

Percentage of map unit: 5 percent

Thout soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

425—Nicmar-Santop complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,900 to 3,900 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Nicmar and similar soils: 60 percent

Santop and similar soils: 25 percent

Dissimilar minor components: 15 percent

Characteristics of Nicmar

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 25 inches thick) over glacial till

Slope range: 35 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 8.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 5 inches; ashy loam

Bw—5 to 17 inches; gravelly ashy loam

2Bt1—17 to 24 inches; very cobbly clay loam

2Bt2—24 to 34 inches; very cobbly clay loam

2BC—34 to 60 inches; very gravelly sandy clay loam

Characteristics of Santop

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 18 inches thick) over colluvium and residuum derived from volcanic and sedimentary rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 4.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 2 inches; moderately decomposed plant material
A—2 to 7 inches; gravelly ashy sandy loam
Bw—7 to 17 inches; very gravelly ashy sandy loam
2C—17 to 36 inches; very stony sandy loam
2R—36 to 40 inches; unweathered bedrock

Dissimilar Minor Components

Rendovy soils

Percentage of map unit: 10 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

426—Nighthawk loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau
Elevation: 1,000 to 2,500 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Nighthawk and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Nighthawk

Setting

Landform: Hills

Properties and qualities

Parent material: Glacial till over metasedimentary rock
Slope range: 3 to 8 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 4.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3s

Land capability subclass (irrigated): 3e

Ecological site: DRY LOAMY 10-16 PZ (R008XY101WA)

Typical profile

A1—0 to 4 inches; loam

A2—4 to 8 inches; gravelly loam

Bw1—8 to 13 inches; gravelly loam

Bw2—13 to 22 inches; very gravelly loam

2Ck1—22 to 32 inches; very gravelly loam

2Ck2—32 to 60 inches; very gravelly coarse sandy loam

Dissimilar Minor Components

Cashmont soils

Percentage of map unit: 10 percent

Conconully soils

Percentage of map unit: 5 percent

Disautel soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

427—Nighthawk loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 1,000 to 2,500 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 140 to 190 days

Map Unit Composition

Nighthawk and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Nighthawk

Setting

Landform: Hills

Properties and qualities

Parent material: Glacial till over metasedimentary rock

Slope range: 8 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Ecological site: DRY LOAMY 10-16 PZ (R008XY101WA)

Typical profile

A1—0 to 4 inches; loam

A2—4 to 8 inches; gravelly loam

Bw1—8 to 13 inches; gravelly loam

Bw2—13 to 22 inches; very gravelly loam

2Ck1—22 to 32 inches; very gravelly loam

2Ck2—32 to 60 inches; very gravelly coarse sandy loam

Dissimilar Minor Components

Cashmont soils

Percentage of map unit: 10 percent

Conconully soils

Percentage of map unit: 5 percent

Disautel soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

428—Nighthawk loam, 15 to 25 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 1,000 to 2,500 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 140 to 190 days

Map Unit Composition

Nighthawk and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Nighthawk

Setting

Landform: Hills

Properties and qualities

Parent material: Glacial till over metasedimentary rock

Slope range: 15 to 25 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Land capability subclass (irrigated): 6e

Ecological site: DRY LOAMY 10-16 PZ (R008XY101WA)

Typical profile

A1—0 to 4 inches; loam

A2—4 to 8 inches; gravelly loam

Bw1—8 to 13 inches; gravelly loam

Bw2—13 to 22 inches; very gravelly loam

2Ck1—22 to 32 inches; very gravelly loam

2Ck2—32 to 60 inches; very gravelly coarse sandy loam

Dissimilar Minor Components

Cashmont soils

Percentage of map unit: 10 percent

Conconully soils

Percentage of map unit: 5 percent

Disautel soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

***429—Nighthawk gravelly loam, 8 to 25 percent slopes,
extremely stony***

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 1,000 to 2,500 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 140 to 190 days

Map Unit Composition

Nighthawk, extremely stony surface, and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Nighthawk, Extremely Stony Surface

Setting

Landform: Hills

Properties and qualities

Parent material: Glacial till over metasedimentary rock

Slope range: 8 to 25 percent

Percentage of surface area covered with stones: 3 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: DRY LOAMY 10-16 PZ (R008XY101WA)

Typical profile

A1—0 to 4 inches; gravelly loam

A2—4 to 8 inches; gravelly loam

Bw1—8 to 13 inches; gravelly loam

Bw2—13 to 22 inches; very gravelly loam

2Ck1—22 to 32 inches; very gravelly loam

2Ck2—32 to 60 inches; very gravelly coarse sandy loam

Dissimilar Minor Components

Cashmont soils

Percentage of map unit: 10 percent

Conconully soils

Percentage of map unit: 5 percent

Disautel soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

430—Nighthawk gravelly loam, 25 to 65 percent slopes, extremely stony

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 1,000 to 2,500 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 140 to 190 days

Map Unit Composition

Nighthawk, extremely stony surface, and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Nighthawk, Extremely Stony Surface

Setting

Landform: Hills

Properties and qualities

Parent material: Glacial till over metasedimentary rock

Slope range: 25 to 65 percent

Percentage of surface area covered with stones: 3 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: DRY LOAMY 10-16 PZ (R008XY101WA)

Typical profile

A1—0 to 4 inches; gravelly loam

A2—4 to 8 inches; gravelly loam

Bw1—8 to 13 inches; gravelly loam

Bw2—13 to 22 inches; very gravelly loam

2Ck1—22 to 32 inches; very gravelly loam

2Ck2—32 to 60 inches; very gravelly coarse sandy loam

Dissimilar Minor Components

Cashmont soils

Percentage of map unit: 10 percent

Disautel soils

Percentage of map unit: 10 percent

Major Use

Livestock grazing

431—Okanogan loam, 0 to 5 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 700 to 2,000 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Okanogan and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Okanogan

Setting

Landform: Low stream terraces and flood plains

Properties and qualities

Parent material: Alluvium

Slope range: 0 to 5 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: Occasional (see Water Features table)

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): High (about 9.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3w

Land capability subclass (irrigated): 3w

Ecological site: DRY LOAMY 10-16 PZ (R008XY101WA)

Typical profile

Ap—0 to 3 inches; loam
A1—3 to 14 inches; loam
A2—14 to 31 inches; loam
AC1—31 to 45 inches; silt loam
AC2—45 to 48 inches; sandy loam
C—48 to 60 inches; sandy loam

Dissimilar Minor Components

Cashmere soils

Percentage of map unit: 5 percent

Leavenworth soils

Percentage of map unit: 5 percent

Tonasket soils

Percentage of map unit: 5 percent

Colville soils, poorly drained

Percentage of map unit: 3 percent

Colville soils, somewhat poorly drained

Percentage of map unit: 2 percent

Major Use

Crop production

432—Okanogan loam, sandy substratum, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau
Elevation: 700 to 2,000 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 110 to 140 days

Map Unit Composition

Okanogan and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Okanogan

Setting

Landform: Low stream terraces and flood plains

Properties and qualities

Parent material: Alluvium
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)
Frequency of flooding: Occasional (see Water Features table)
Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Moderate (about 8.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3w
Land capability subclass (irrigated): 3w
Ecological site: DRY LOAMY 10-16 PZ (R008XY101WA)

Typical profile

Ap—0 to 3 inches; loam
A1—3 to 14 inches; loam
A2—14 to 31 inches; loam
AC1—31 to 45 inches; silt loam
AC2—45 to 48 inches; sandy loam
C—48 to 60 inches; sand

Dissimilar Minor Components

Tonasket soils

Percentage of map unit: 5 percent

Xerofluvents

Percentage of map unit: 5 percent

Colville soils, poorly drained

Percentage of map unit: 3 percent

Colville soils, somewhat poorly drained

Percentage of map unit: 2 percent

Major Use

Crop production

433—Owhi ashy fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau
Elevation: 1,000 to 3,600 feet
Mean annual precipitation: 11 to 15 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 110 to 140 days

Map Unit Composition

Owhi and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Owhi

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Mixed volcanic ash (7 to 15 inches thick) over glacial outwash
Slope range: 0 to 3 percent
Depth to restrictive feature: 12 to 26 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity to transmit water (Ksat): High or very high (see Physical Properties table)
Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4s

Land capability subclass (irrigated): 4s

Ecological site: DRY STONY 10-16 PZ (R008XY201WA)

Typical profile

A1—0 to 5 inches; ashy fine sandy loam

A2—5 to 11 inches; ashy fine sandy loam

2Bw—11 to 24 inches; gravelly sandy loam

2CB—24 to 31 inches; very gravelly loamy sand

2C—31 to 60 inches; extremely gravelly coarse sand

Dissimilar Minor Components

Conconully soils

Percentage of map unit: 5 percent

Haley soils

Percentage of map unit: 5 percent

Pogue soils

Percentage of map unit: 5 percent

Winthrop soils

Percentage of map unit: 5 percent

Major Uses

Crop production, livestock grazing, and timber production

434—Owhi ashy fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 1,000 to 3,800 feet

Mean annual precipitation: 11 to 15 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Owhi and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Owhi

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Mixed volcanic ash (7 to 15 inches thick) over glacial outwash

Slope range: 3 to 8 percent

Depth to restrictive feature: 12 to 26 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4s

Land capability subclass (irrigated): 4s

Ecological site: DRY STONY 10-16 PZ (R008XY201WA)

Typical profile

A1—0 to 5 inches; ashy fine sandy loam

A2—5 to 11 inches; ashy fine sandy loam

2Bw—11 to 24 inches; gravelly sandy loam

2CB—24 to 31 inches; very gravelly loamy sand

2C—31 to 60 inches; extremely gravelly coarse sand

Dissimilar Minor Components

Conconully soils

Percentage of map unit: 5 percent

Haley soils

Percentage of map unit: 5 percent

Pogue soils

Percentage of map unit: 5 percent

Winthrop soils

Percentage of map unit: 5 percent

Major Uses

Crop production, livestock grazing, and timber production

435—Owhi ashy fine sandy loam, 0 to 25 percent slopes, extremely stony

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 1,000 to 4,000 feet

Mean annual precipitation: 11 to 15 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Owhi, extremely stony surface, and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Owhi, Extremely Stony Surface

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Mixed volcanic ash (7 to 15 inches thick) over glacial outwash

Slope range: 0 to 25 percent

Percentage of surface area covered with stones: 3 to 15 percent

Depth to restrictive feature: 12 to 26 inches to strongly contrasting textural stratification

Soil Survey of Okanogan County Area, Washington

Drainage class: Well drained
Capacity to transmit water (Ksat): High or very high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 3.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s
Ecological site: DRY STONY 10-16 PZ (R008XY201WA)

Typical profile

A1—0 to 5 inches; ashy fine sandy loam
A2—5 to 11 inches; ashy fine sandy loam
2Bw—11 to 24 inches; gravelly sandy loam
2CB—24 to 31 inches; very gravelly loamy sand
2C—31 to 60 inches; extremely gravelly coarse sand

Dissimilar Minor Components

Pogue soils

Percentage of map unit: 10 percent

Winthrop soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

436—Owhi ashy fine sandy loam, 25 to 45 percent slopes, extremely stony

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau
Elevation: 1,000 to 4,000 feet
Mean annual precipitation: 11 to 15 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 110 to 140 days

Map Unit Composition

Owhi, extremely stony surface, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Owhi, Extremely Stony Surface

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Mixed volcanic ash (7 to 15 inches thick) over glacial outwash
Slope range: 25 to 45 percent
Percentage of surface area covered with stones: 3 to 15 percent
Depth to restrictive feature: 12 to 26 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity to transmit water (Ksat): High or very high (see Physical Properties table)
Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: DRY STONY 10-16 PZ (R008XY201WA)

Typical profile

A1—0 to 5 inches; ashy fine sandy loam

A2—5 to 11 inches; ashy fine sandy loam

2Bw—11 to 24 inches; gravelly sandy loam

2CB—24 to 31 inches; very gravelly loamy sand

2C—31 to 60 inches; extremely gravelly coarse sand

Dissimilar Minor Components

Conconully soils

Percentage of map unit: 5 percent

Pogue soils

Percentage of map unit: 5 percent

Winthrop soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

437—Owhi gravelly ashy fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 1,000 to 4,000 feet

Mean annual precipitation: 11 to 15 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Owhi and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Owhi

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Mixed volcanic ash (7 to 15 inches thick) over glacial outwash

Slope range: 0 to 8 percent

Depth to restrictive feature: 12 to 26 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 3.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4s
Land capability subclass (irrigated): 4s
Ecological site: DRY STONY 10-16 PZ (R008XY201WA)

Typical profile

A1—0 to 5 inches; gravelly ashy fine sandy loam
A2—5 to 11 inches; ashy fine sandy loam
2Bw—11 to 24 inches; gravelly sandy loam
2CB—24 to 31 inches; very gravelly loamy sand
2C—31 to 60 inches; extremely gravelly coarse sand

Dissimilar Minor Components

Pogue soils

Percentage of map unit: 10 percent

Unnamed soils

Percentage of map unit: 10 percent

Major Uses

Crop production, livestock grazing, and timber production

438—Owhi-Haley complex, 3 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains
Elevation: 1,500 to 3,700 feet
Mean annual precipitation: 11 to 15 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 110 to 140 days

Map Unit Composition

Owhi and similar soils: 65 percent
Haley and similar soils: 35 percent

Characteristics of Owhi

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Mixed volcanic ash (7 to 15 inches thick) over glacial outwash
Slope range: 3 to 15 percent
Depth to restrictive feature: 12 to 26 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity to transmit water (Ksat): High or very high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 3.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4s

Land capability subclass (irrigated): 4s

Ecological site: DRY STONY 10-16 PZ (R008XY201WA)

Typical profile

A1—0 to 5 inches; ashy fine sandy loam

A2—5 to 11 inches; ashy fine sandy loam

2Bw—11 to 24 inches; gravelly sandy loam

2CB—24 to 31 inches; very gravelly loamy sand

2C—31 to 60 inches; extremely gravelly coarse sand

Characteristics of Haley

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Mixed volcanic ash (20 to 30 inches thick) over glacial outwash

Slope range: 3 to 15 percent

Depth to restrictive feature: 20 to 30 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Ecological site: SANDY 10-16 PZ (R008XY501WA)

Typical profile

Ap—0 to 8 inches; ashy fine sandy loam

A—8 to 12 inches; ashy fine sandy loam

Bw—12 to 25 inches; ashy fine sandy loam

2C—25 to 60 inches; sand

Major Uses

Crop production, livestock grazing, and timber production

439—Owhi-Haley complex, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 1,500 to 3,700 feet

Mean annual precipitation: 11 to 15 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Owhi and similar soils: 55 percent

Haley and similar soils: 45 percent

Characteristics of Owhi

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Mixed volcanic ash (7 to 15 inches thick) over glacial outwash

Slope range: 15 to 35 percent

Depth to restrictive feature: 12 to 26 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: DRY STONY 10-16 PZ (R008XY201WA)

Typical profile

A1—0 to 5 inches; ashy fine sandy loam

A2—5 to 11 inches; ashy fine sandy loam

2Bw—11 to 24 inches; gravelly sandy loam

2CB—24 to 31 inches; very gravelly loamy sand

2C—31 to 60 inches; extremely gravelly coarse sand

Characteristics of Haley

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Mixed volcanic ash (20 to 30 inches thick) over glacial outwash

Slope range: 15 to 35 percent

Depth to restrictive feature: 20 to 30 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Ecological site: SANDY 10-16 PZ (R008XY501WA)

Typical profile

Ap—0 to 8 inches; ashy fine sandy loam

A—8 to 12 inches; ashy fine sandy loam

Bw—12 to 25 inches; ashy fine sandy loam

2C—25 to 60 inches; sand

Major Uses

Livestock grazing and timber production

440—Owhi-Haley complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 1,500 to 3,700 feet

Mean annual precipitation: 11 to 15 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Owhi and similar soils: 55 percent

Haley and similar soils: 45 percent

Characteristics of Owhi

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Mixed volcanic ash (7 to 15 inches thick) over glacial outwash

Slope range: 35 to 65 percent

Depth to restrictive feature: 12 to 26 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: DRY STONY 10-16 PZ (R008XY201WA)

Typical profile

A1—0 to 5 inches; ashy fine sandy loam

A2—5 to 11 inches; ashy fine sandy loam

2Bw—11 to 24 inches; gravelly sandy loam

2CB—24 to 31 inches; very gravelly loamy sand

2C—31 to 60 inches; extremely gravelly coarse sand

Characteristics of Haley

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Mixed volcanic ash (20 to 30 inches thick) over glacial outwash

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 30 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Ecological site: SANDY 10-16 PZ (R008XY501WA)

Typical profile

Ap—0 to 8 inches; ashy fine sandy loam
A—8 to 12 inches; ashy fine sandy loam
Bw—12 to 25 inches; ashy fine sandy loam
2C—25 to 60 inches; sand

Major Uses

Livestock grazing and timber production

441—Oxerine ashy fine sandy loam, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 3,800 to 4,000 feet
Mean annual precipitation: 20 to 24 inches
Mean annual air temperature: 40 to 44 degrees F
Frost-free period: 90 to 120 days

Map Unit Composition

Oxerine and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Oxerine

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over colluvium and residuum derived from metasedimentary and andesitic rock
Slope range: 35 to 65 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 4.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 5 inches; ashy fine sandy loam
Bw—5 to 11 inches; gravelly ashy fine sandy loam
2C1—11 to 20 inches; very gravelly sandy loam
2C2—20 to 32 inches; extremely cobbly sandy loam
2R—32 to 36 inches; unweathered bedrock

Dissimilar Minor Components

Rock outcrop

Percentage of map unit: 10 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

***442—Oxerine-Lithic Haploxerepts-Rock outcrop complex,
35 to 65 percent slopes***

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 2,400 to 4,500 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 42 to 46 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Oxerine, warm, and similar soils: 55 percent

Lithic Haploxerepts, forested, cool, and similar soils: 25 percent

Rock outcrop: 15 percent

Dissimilar minor component: 5 percent

Characteristics of Oxerine, Warm

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over colluvium and residuum
derived from metasedimentary and andesitic rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/ninebark (CDS715)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 5 inches; gravelly ashy fine sandy loam

Bw—5 to 11 inches; gravelly ashy fine sandy loam

2C1—11 to 20 inches; very gravelly sandy loam

2C2—20 to 32 inches; extremely cobbly sandy loam

2R—32 to 36 inches; unweathered bedrock

Characteristics of Lithic Haploxerepts, Forested, Cool

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash or mixed volcanic ash (4 to 12 inches thick) over colluvium and residuum

Slope range: 35 to 65 percent

Depth to restrictive feature: 8 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/ninebark (CDS715)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 4 inches; cobbly ashy sandy loam

Bw—4 to 13 inches; cobbly ashy sandy loam

2C—13 to 19 inches; very gravelly sandy loam

2R—19 to 23 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 35 to 65 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Component

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

443—Oxerine-Nevine complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,000 to 5,100 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 42 to 46 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Oxerine, warm, and similar soils: 55 percent

Nevine, warm, and similar soils: 30 percent

Dissimilar minor components: 15 percent

Characteristics of Oxerine, Warm

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over colluvium and residuum derived from metasedimentary and andesitic rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/ninebark (CDS715)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 5 inches; gravelly ashy fine sandy loam

Bw—5 to 11 inches; gravelly ashy fine sandy loam

2C1—11 to 20 inches; very gravelly sandy loam

2C2—20 to 32 inches; extremely cobbly sandy loam

2R—32 to 36 inches; unweathered bedrock

Characteristics of Nevine, Warm

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 30 inches thick) over glacial till

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 7.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/ninebark (CDS715)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 4 inches; ashy fine sandy loam

Bw1—4 to 9 inches; ashy fine sandy loam

Bw2—9 to 21 inches; gravelly ashy fine sandy loam

2CB—21 to 38 inches; very gravelly sandy loam

2Cd1—38 to 51 inches; very gravelly sandy loam

2Cd2—51 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Louploup soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Use

Timber production

444—Oxerine-Rock outcrop complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,400 to 5,400 feet

Mean annual precipitation: 20 to 30 inches

Mean annual air temperature: 39 to 42 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Oxerine, cool, and similar soils: 75 percent

Rock outcrop: 15 percent

Dissimilar minor components: 10 percent

Characteristics of Oxerine, Cool

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over colluvium and residuum derived from metasedimentary and andesitic rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/mountain snowberry (CDS629)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 5 inches; gravelly ashy fine sandy loam

Bw—5 to 11 inches; gravelly ashy fine sandy loam

2C1—11 to 20 inches; very gravelly sandy loam

2C2—20 to 32 inches; extremely cobbly sandy loam

2R—32 to 36 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 35 to 65 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Lithic Haploxerepts

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

445—Pebcreek stony ashy sandy loam, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,500 to 5,000 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 39 to 42 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Pebcreek and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Pebcreek

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 14 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive features: 10 to 14 inches to strongly contrasting textural stratification and 30 to 45 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high to very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/low huckleberry (CDS832)

Typical profile

Oe—0 to 2 inches; moderately decomposed plant material

A—2 to 7 inches; stony ashy sandy loam

Bw—7 to 13 inches; gravelly ashy sandy loam
2C/B—13 to 39 inches; very gravelly sand
2C—39 to 44 inches; very gravelly loamy sand
2Cd—44 to 60 inches; gravelly sandy loam

Dissimilar Minor Components

Rock outcrop

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

446—Pebcreek-Brevco complex, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 3,000 to 5,500 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 39 to 42 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Pebcreek and similar soils: 45 percent

Brevco, cool, and similar soils: 40 percent

Dissimilar minor components: 15 percent

Characteristics of Pebcreek

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 14 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive features: 10 to 14 inches to strongly contrasting textural stratification and 30 to 45 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high to very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/low huckleberry (CDS832)

Typical profile

Oe—0 to 2 inches; moderately decomposed plant material

A—2 to 7 inches; ashy sandy loam

Bw—7 to 13 inches; gravelly ashy sandy loam

2C/B—13 to 39 inches; very gravelly sand

2C—39 to 44 inches; very gravelly loamy sand

2Cd—44 to 60 inches; gravelly sandy loam

Characteristics of Brevco, Cool

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 14 inches thick) over colluvium and residuum derived from granitic rock

Slope range: 15 to 35 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/low huckleberry (CDS832)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 4 inches; stony ashy coarse sandy loam

Bw—4 to 12 inches; gravelly ashy coarse sandy loam

2C1—12 to 26 inches; very gravelly sandy loam

2C2—26 to 39 inches; very cobbly coarse sandy loam

2R—39 to 43 inches; unweathered bedrock

Dissimilar Minor Components

Rock outcrop

Percentage of map unit: 10 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

447—Pebcreek-Brevco complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 3,000 to 5,500 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 39 to 42 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Pebcreek and similar soils: 50 percent

Brevco, cool, and similar soils: 30 percent

Dissimilar minor components: 20 percent

Characteristics of Pebcreek

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 14 inches thick) over glacial till

Slope range: 35 to 65 percent

Depth to restrictive features: 10 to 14 inches to strongly contrasting textural stratification and 30 to 45 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high to very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/low huckleberry (CDS832)

Typical profile

Oe—0 to 2 inches; moderately decomposed plant material

A—2 to 7 inches; ashy sandy loam

Bw—7 to 13 inches; gravelly ashy sandy loam

2C/B—13 to 39 inches; very gravelly sand

2C—39 to 44 inches; very gravelly loamy sand

2Cd—44 to 60 inches; gravelly sandy loam

Characteristics of Brevco, Cool

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 14 inches thick) over colluvium and residuum derived from granitic rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/low huckleberry (CDS832)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 4 inches; stony ashy coarse sandy loam

Bw—4 to 12 inches; gravelly ashy coarse sandy loam

2C1—12 to 26 inches; very gravelly sandy loam

2C2—26 to 39 inches; very cobbly coarse sandy loam

2R—39 to 43 inches; unweathered bedrock

Dissimilar Minor Components

Rock outcrop

Percentage of map unit: 10 percent

Myerscreek soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

448—Pebcreek-Lithic Haploxerepts-Rock outcrop complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,100 to 5,500 feet

Mean annual precipitation: 18 to 22 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Pebcreek, dry, and similar soils: 45 percent

Lithic Haploxerepts, forested, dry, and similar soils: 25 percent

Rock outcrop: 15 percent

Dissimilar minor components: 15 percent

Characteristics of Pebcreek, Dry

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 14 inches thick) over glacial till

Slope range: 35 to 65 percent

Depth to restrictive features: 10 to 14 inches to strongly contrasting textural stratification and 30 to 45 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high to very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/kinnikinnick (bearberry)/pinegrass (CDS655)

Typical profile

Oe—0 to 2 inches; moderately decomposed plant material

A—2 to 7 inches; stony ashy sandy loam

Bw—7 to 13 inches; gravelly ashy sandy loam

2C/B—13 to 39 inches; very gravelly sand

2C—39 to 44 inches; very gravelly loamy sand

2Cd—44 to 60 inches; gravelly sandy loam

Characteristics of Lithic Haploxerepts, Forested, Dry

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash or mixed volcanic ash (4 to 12 inches thick) over colluvium and residuum

Slope range: 35 to 65 percent

Depth to restrictive feature: 8 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/bitterbrush/pinegrass (CDS675)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 4 inches; cobbly ashy sandy loam

Bw—4 to 13 inches; cobbly ashy sandy loam

2C—13 to 19 inches; very gravelly sandy loam

2R—19 to 23 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 35 to 65 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Brevco soils

Percentage of map unit: 5 percent

Merkel soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

449—Peka stony ashy sandy loam, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 3,100 to 3,400 feet

Soil Survey of Okanogan County Area, Washington

Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 110 to 140 days

Map Unit Composition

Peka and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Peka

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 18 inches thick) over glacial till
Slope range: 15 to 35 percent
Depth to restrictive feature: 40 to 60 inches to dense material
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e
Plant community class: Ponderosa pine/bluebunch wheatgrass (CPG141)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 7 inches; stony ashy sandy loam
A2—7 to 16 inches; gravelly ashy sandy loam
2Bw—16 to 25 inches; very cobbly sandy loam
2C—25 to 50 inches; very cobbly sandy loam
2Cd—50 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Donavan soils

Percentage of map unit: 10 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Use

Timber production

450—Peka-Donavan complex, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 2,400 to 4,500 feet
Mean annual precipitation: 18 to 20 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 110 to 140 days

Map Unit Composition

Peka, moist, and similar soils: 60 percent

Donavan and similar soils: 25 percent

Dissimilar minor components: 15 percent

Characteristics of Peka, Moist

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 18 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: 40 to 60 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Ponderosa pine-Douglas-fir/bluebunch wheatgrass (CDG311) and ponderosa pine/bluebunch wheatgrass (CPG141)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A1—1 to 7 inches; stony ashy sandy loam

A2—7 to 16 inches; gravelly ashy sandy loam

2Bw—16 to 25 inches; very cobbly sandy loam

2C—25 to 50 inches; very cobbly sandy loam

2Cd—50 to 60 inches; very gravelly sandy loam

Characteristics of Donovan

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Mixed volcanic ash (12 to 18 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: 20 to 40 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Ponderosa pine/bluebunch wheatgrass (CPG141)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 7 inches; stony ashy loam
Bw1—7 to 11 inches; gravelly ashy loam
Bw2—11 to 16 inches; gravelly ashy sandy loam
2BC—16 to 27 inches; gravelly sandy loam
2Cd1—27 to 34 inches; gravelly sandy loam
2Cd2—34 to 60 inches; gravelly sandy loam

Dissimilar Minor Components

Vanbrunt soils

Percentage of map unit: 10 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

451—Peka-Swakane-Rock outcrop complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 2,000 to 4,000 feet
Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 110 to 140 days

Map Unit Composition

Peka and similar soils: 55 percent
Swakane and similar soils: 25 percent
Rock outcrop: 10 percent
Dissimilar minor component: 10 percent

Characteristics of Peka

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 18 inches thick) over glacial till
Slope range: 35 to 65 percent
Depth to restrictive feature: 40 to 60 inches to dense material
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Ponderosa pine-Douglas-fir/bluebunch wheatgrass (CDG311)
and ponderosa pine/bitterbrush/bluebunch wheatgrass (CPS241)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 7 inches; stony ashy sandy loam
A2—7 to 16 inches; gravelly ashy sandy loam
2Bw—16 to 25 inches; very cobbly sandy loam
2C—25 to 50 inches; very cobbly sandy loam
2Cd—50 to 60 inches; very gravelly sandy loam

Characteristics of Swakane

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 12 inches thick) over colluvium and residuum derived from granitic rock
Slope range: 35 to 65 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Very low (about 1.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Ecological site: STONY 16-24 PZ (R006XY202WA)

Typical profile

A1—0 to 4 inches; very stony ashy sandy loam
A2—4 to 11 inches; very cobbly ashy sandy loam
2Bw—11 to 17 inches; very gravelly sandy loam
2R—17 to 21 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains
Slope range: 35 to 65 percent
Description of areas: Barren areas of exposed bedrock
Land capability subclass (nonirrigated): 8
Typical profile: R—unweathered bedrock

Dissimilar Minor Component

Unnamed soils

Percentage of map unit: 10 percent

Major Uses

Livestock grazing and timber production

452—Pelican gravelly ashy loam, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 3,900 to 5,300 feet
Mean annual precipitation: 18 to 22 inches

Mean annual air temperature: 39 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Pelican and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Pelican

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 25 inches thick) over glacial till

Slope range: 35 to 65 percent

Depth to restrictive feature: 35 to 50 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: MOUNTAIN PARK (R006XY702WA)

Typical profile

A—0 to 11 inches; gravelly ashy loam

2Bw1—11 to 18 inches; gravelly sandy loam

2Bw2—18 to 28 inches; very gravelly sandy loam

3C1—28 to 37 inches; very gravelly sandy loam

3C2—37 to 46 inches; very gravelly sandy loam

3Cd—46 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Rock outcrop

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

453—Pettijohn-Mineral-Rock outcrop complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 3,300 to 4,600 feet

Mean annual precipitation: 18 to 24 inches

Mean annual air temperature: 42 to 46 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Pettijohn and similar soils: 45 percent

Mineral and similar soils: 20 percent

Rock outcrop: 20 percent

Dissimilar minor components: 15 percent

Characteristics of Pettijohn

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (30 to 45 inches thick) over colluvium derived from granitic rock

Slope range: 35 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): High (about 9.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 2 inches; moderately decomposed plant material

A—2 to 6 inches; stony ashy fine sandy loam

Bw1—6 to 26 inches; very cobbly ashy fine sandy loam

Bw2—26 to 44 inches; very stony ashy fine sandy loam

2C—44 to 60 inches; very gravelly sandy loam

Characteristics of Mineral

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 14 inches thick) over colluvium and residuum derived from granitic rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pinegrass (CDG131) and Douglas-fir/kinnikinnick (bearberry)/pinegrass (CDS655)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 7 inches; stony ashy loam

Bw—7 to 13 inches; very gravelly ashy loam

2C—13 to 24 inches; very stony sandy loam

2R—24 to 28 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 35 to 65 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Devore soils

Percentage of map unit: 5 percent

Nevine soils

Percentage of map unit: 5 percent

Rubble land

Percentage of map unit: 5 percent

Major Use

Timber production

454—Pettijohn-Wilma complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 3,800 to 4,300 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Pettijohn and similar soils: 50 percent

Wilma and similar soils: 35 percent

Dissimilar minor components: 15 percent

Characteristics of Pettijohn

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (30 to 45 inches thick) over colluvium derived from granitic rock

Slope range: 35 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): High (about 9.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 2 inches; moderately decomposed plant material
A—2 to 6 inches; stony ashy fine sandy loam
Bw1—6 to 26 inches; very cobbly ashy fine sandy loam
Bw2—26 to 44 inches; very stony ashy fine sandy loam
2C—44 to 60 inches; very gravelly sandy loam

Characteristics of Wilma

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (10 to 14 inches thick) over colluvium and residuum derived from granitic rock
Slope range: 35 to 65 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 3.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 7 inches; gravelly ashy fine sandy loam
Bw—7 to 13 inches; gravelly ashy fine sandy loam
2BC—13 to 18 inches; very gravelly fine sandy loam
2C—18 to 29 inches; extremely gravelly coarse sandy loam
2R—29 to 33 inches; unweathered bedrock

Dissimilar Minor Components

Brevco soils

Percentage of map unit: 5 percent

Longort soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

455—Pogue fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 700 to 2,200 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 140 to 190 days

Map Unit Composition

Pogue and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Pogue

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Loess over glacial outwash

Slope range: 0 to 3 percent

Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification

Drainage class: Somewhat excessively drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3s

Land capability subclass (irrigated): 3s

Ecological site: SANDY 10-16 PZ (R008XY501WA)

Typical profile

A—0 to 6 inches; fine sandy loam

BA—6 to 12 inches; gravelly fine sandy loam

Bw—12 to 29 inches; gravelly fine sandy loam

2C—29 to 60 inches; very gravelly sand

Dissimilar Minor Components

Cashmont soils

Percentage of map unit: 10 percent

Owhi soils

Percentage of map unit: 5 percent

Skaha soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

456—Pogue fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Soil Survey of Okanogan County Area, Washington

Elevation: 700 to 2,200 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Pogue and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Pogue

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Loess over glacial outwash
Slope range: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity to transmit water (Ksat): High or very high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 4.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3s
Land capability subclass (irrigated): 3e
Ecological site: SANDY 10-16 PZ (R008XY501WA)

Typical profile

A—0 to 6 inches; fine sandy loam
BA—6 to 12 inches; gravelly fine sandy loam
Bw—12 to 29 inches; gravelly fine sandy loam
2C—29 to 60 inches; very gravelly sand

Dissimilar Minor Components

Cashmont soils

Percentage of map unit: 10 percent

Owhi soils

Percentage of map unit: 5 percent

Skaha soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

457—Pogue fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau
Elevation: 700 to 2,200 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Pogue and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Pogue

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Loess over glacial outwash

Slope range: 8 to 15 percent

Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification

Drainage class: Somewhat excessively drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Ecological site: SANDY 10-16 PZ (R008XY501WA)

Typical profile

A—0 to 6 inches; fine sandy loam

BA—6 to 12 inches; gravelly fine sandy loam

Bw—12 to 29 inches; gravelly fine sandy loam

2C—29 to 60 inches; very gravelly sand

Dissimilar Minor Components

Cashmont soils

Percentage of map unit: 10 percent

Owhi soils

Percentage of map unit: 5 percent

Skaha soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

458—Pogue fine sandy loam, 15 to 25 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 700 to 2,200 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 140 to 190 days

Map Unit Composition

Pogue and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Pogue

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Loess over glacial outwash

Slope range: 15 to 25 percent

Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification

Drainage class: Somewhat excessively drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Land capability subclass (irrigated): 6e

Ecological site: SANDY 10-16 PZ (R008XY501WA)

Typical profile

A—0 to 6 inches; fine sandy loam

BA—6 to 12 inches; gravelly fine sandy loam

Bw—12 to 29 inches; gravelly fine sandy loam

2C—29 to 60 inches; very gravelly sand

Dissimilar Minor Components

Cashmont soils

Percentage of map unit: 10 percent

Skaha soils

Percentage of map unit: 10 percent

Major Uses

Crop production and livestock grazing

459—Pogue gravelly fine sandy loam, 0 to 25 percent slopes, extremely stony

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 700 to 2,200 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 140 to 190 days

Map Unit Composition

Pogue, extremely stony surface, and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Pogue, Extremely Stony Surface

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Loess over glacial outwash

Slope range: 0 to 25 percent

Percentage of surface area covered with stones: 3 to 15 percent

Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification

Drainage class: Somewhat excessively drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: SANDY 10-16 PZ (R008XY501WA)

Typical profile

A—0 to 6 inches; gravelly fine sandy loam

BA—6 to 12 inches; gravelly fine sandy loam

Bw—12 to 29 inches; gravelly fine sandy loam

2C—29 to 60 inches; very gravelly sand

Dissimilar Minor Components

Cashmont soils, extremely stony surface

Percentage of map unit: 10 percent

Cashmere soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

460—Pogue gravelly fine sandy loam, 25 to 65 percent slopes, extremely stony

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 700 to 2,200 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 140 to 190 days

Map Unit Composition

Pogue, extremely stony surface, and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Pogue, Extremely Stony Surface

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Loess over glacial outwash

Slope range: 25 to 65 percent

Percentage of surface area covered with stones: 3 to 15 percent

Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification

Drainage class: Somewhat excessively drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: SANDY 10-16 PZ (R008XY501WA)

Typical profile

A—0 to 6 inches; gravelly fine sandy loam

BA—6 to 12 inches; gravelly fine sandy loam

Bw—12 to 29 inches; gravelly fine sandy loam

2C—29 to 60 inches; very gravelly sand

Dissimilar Minor Components

Cashmont soils, extremely stony surface

Percentage of map unit: 10 percent

Cashmere soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

461—Pogue gravelly fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 700 to 2,200 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 140 to 190 days

Map Unit Composition

Pogue and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Pogue

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Loess over glacial outwash

Slope range: 0 to 8 percent

Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification

Drainage class: Somewhat excessively drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 4.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3s
Land capability subclass (irrigated): 3e
Ecological site: SANDY 10-16 PZ (R008XY501WA)

Typical profile

A—0 to 6 inches; gravelly fine sandy loam
BA—6 to 12 inches; gravelly fine sandy loam
Bw—12 to 29 inches; gravelly fine sandy loam
2C—29 to 60 inches; very gravelly sand

Dissimilar Minor Components

Cashmont soils, gravelly

Percentage of map unit: 10 percent

Owhi soils, gravelly

Percentage of map unit: 5 percent

Skaha soils, gravelly

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

462—Pogue gravelly fine sandy loam, 8 to 25 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau
Elevation: 700 to 2,200 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Pogue and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Pogue

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Loess over glacial outwash
Slope range: 8 to 25 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity to transmit water (Ksat): High or very high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 4.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e
Land capability subclass (irrigated): 6e
Ecological site: SANDY 10-16 PZ (R008XY501WA)

Typical profile

A—0 to 6 inches; gravelly fine sandy loam
BA—6 to 12 inches; gravelly fine sandy loam
Bw—12 to 29 inches; gravelly fine sandy loam
2C—29 to 60 inches; very gravelly sand

Dissimilar Minor Components

Cashmont soils, gravelly

Percentage of map unit: 10 percent

Owhi soils, gravelly

Percentage of map unit: 10 percent

Major Uses

Crop production and livestock grazing

463—Radercreek-Santop complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 3,300 to 4,100 feet
Mean annual precipitation: 20 to 24 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 90 to 120 days

Map Unit Composition

Radercreek and similar soils: 60 percent
Santop and similar soils: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Radercreek

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 24 inches thick) over colluvium and residuum derived from volcanic and sedimentary rock
Slope range: 35 to 65 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 5.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pachistima/pinegrass (CDS412)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 6 inches; gravelly ashy sandy loam

Bw1—6 to 13 inches; gravelly ashy sandy loam

Bw2—13 to 18 inches; very gravelly ashy sandy loam

2C1—18 to 25 inches; very cobbly sandy loam

2C2—25 to 44 inches; very cobbly sandy loam

2R—44 to 48 inches; unweathered bedrock

Characteristics of Santop

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 18 inches thick) over colluvium and residuum derived from volcanic and sedimentary rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 2 inches; moderately decomposed plant material

A—2 to 7 inches; gravelly ashy sandy loam

Bw—7 to 17 inches; very gravelly ashy sandy loam

2C—17 to 36 inches; very stony sandy loam

2R—36 to 40 inches; unweathered bedrock

Dissimilar Minor Components

Goshawk soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Stemilt soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

464—Redpeak-Ontrail complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,200 to 3,000 feet
Mean annual precipitation: 20 to 24 inches
Mean annual air temperature: 40 to 44 degrees F
Frost-free period: 90 to 120 days

Map Unit Composition

Redpeak and similar soils: 55 percent
Ontrail and similar soils: 30 percent
Dissimilar minor components: 15 percent

Characteristics of Redpeak

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 20 inches thick) over colluvium and residuum derived from volcanic and sedimentary rock
Slope range: 35 to 65 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 4.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 5 inches; gravelly ashy sandy loam
Bw1—5 to 10 inches; gravelly ashy sandy loam
Bw2—10 to 17 inches; very gravelly ashy sandy loam
2C1—17 to 29 inches; very gravelly sandy loam
2C2—29 to 36 inches; very gravelly sandy loam
2R—36 to 40 inches; unweathered bedrock

Characteristics of Ontrail

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 20 inches thick) over colluvium derived from sedimentary and volcanic rock
Slope range: 35 to 65 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 5.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 5 inches; gravelly ashy sandy loam

Bw—5 to 17 inches; gravelly ashy sandy loam

2C1—17 to 33 inches; very gravelly sandy loam

2C2—33 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Farway soils

Percentage of map unit: 5 percent

Johntom soils

Percentage of map unit: 5 percent

Veridge soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

465—Rommel-Devore-Rock outcrop complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 5,400 to 7,500 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 35 to 39 degrees F

Frost-free period: 60 to 80 days

Map Unit Composition

Rommel and similar soils: 55 percent

Devore, cold, and similar soils: 20 percent

Rock outcrop: 15 percent

Dissimilar minor components: 10 percent

Characteristics of Rommel

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over colluvium over glacial till derived from granitic rock

Slope range: 35 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Whitebark pine/grouse huckleberry/smooth woodrush (CAS311)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 5 inches; very stony ashy sandy loam

Bw1—5 to 9 inches; gravelly ashy sandy loam

Bw2—9 to 14 inches; very gravelly ashy sandy loam

2BC—14 to 30 inches; very cobbly sandy loam

2C1—30 to 42 inches; very cobbly sandy loam

3C2—42 to 60 inches; very cobbly loamy coarse sand

Characteristics of Devore, Cold

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over colluvium and residuum derived from granitic and metamorphic rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Whitebark pine/grouse huckleberry/smooth woodrush (CAS311)

Typical profile

Oe—0 to 3 inches; moderately decomposed plant material

C—3 to 4 inches; stony ashy sandy loam

2A—4 to 7 inches; very stony ashy fine sandy loam

2Bw—7 to 14 inches; very stony ashy fine sandy loam

3C1—14 to 26 inches; extremely stony coarse sandy loam

3C2—26 to 35 inches; extremely stony coarse sandy loam

3R—35 to 39 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 35 to 65 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Chutes, avalanche

Percentage of map unit: 5 percent

Treebutte soils

Percentage of map unit: 5 percent

Major Use

Timber production

466—Rendovy-Goshawk complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 3,500 to 3,600 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Rendovy and similar soils: 55 percent

Goshawk and similar soils: 25 percent

Dissimilar minor components: 20 percent

Characteristics of Rendovy

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over glacial till derived from volcanic and sedimentary rock

Slope range: 35 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 7.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 2 inches; moderately decomposed plant material

A—2 to 7 inches; gravelly ashy fine sandy loam

Bw—7 to 14 inches; gravelly ashy sandy loam

2Bt1—14 to 26 inches; very gravelly sandy loam

3Bt2—26 to 37 inches; very gravelly sandy clay loam

3Bt3—37 to 48 inches; very gravelly sandy clay loam

3Bt4—48 to 60 inches; very gravelly sandy clay loam

Characteristics of Goshawk

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over colluvium and residuum derived from volcanic and sedimentary rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 10 inches; gravelly ashy sandy loam

Bw—10 to 15 inches; gravelly ashy sandy loam

2Bt1—15 to 21 inches; extremely gravelly loam

2Bt2—21 to 28 inches; extremely gravelly loam

2R—28 to 36 inches; unweathered bedrock

Dissimilar Minor Components

Nicmar soils

Percentage of map unit: 5 percent

Rendovy soils

Percentage of map unit: 5 percent

Santop soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

467—Republic ashy loam, 3 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 3,000 to 4,700 feet

Mean annual precipitation: 17 to 20 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Republic and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Republic

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 20 inches thick) over glacial till

Slope range: 3 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 8.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Plant community class: Douglas-fir/pinegrass-bluebunch wheatgrass (CDG134)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A1—1 to 7 inches; ashy loam

A2—7 to 16 inches; ashy sandy loam

2Bw1—16 to 29 inches; sandy loam

2Bw2—29 to 36 inches; gravelly sandy loam

2C—36 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Mires soils

Percentage of map unit: 5 percent

Molson soils

Percentage of map unit: 4 percent

Haley soils

Percentage of map unit: 3 percent

Koepke soils

Percentage of map unit: 3 percent

Major Uses

Livestock grazing and timber production

468—Republic ashy loam, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 3,000 to 4,700 feet

Mean annual precipitation: 17 to 20 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Republic and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Republic

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 20 inches thick) over glacial till

Slope range: 15 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 8.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Plant community class: Douglas-fir/pinegrass-bluebunch wheatgrass (CDG134)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A1—1 to 7 inches; ashy loam

A2—7 to 16 inches; ashy sandy loam

2Bw1—16 to 29 inches; sandy loam

2Bw2—29 to 36 inches; gravelly sandy loam

2C—36 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Haley soils

Percentage of map unit: 5 percent

Koepke soils

Percentage of map unit: 5 percent

Mires soils

Percentage of map unit: 5 percent

Molson soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

469—Republic ashy loam, 30 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 3,000 to 4,700 feet

Mean annual precipitation: 17 to 20 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Republic and similar soils: 90 percent

Dissimilar minor component: 10 percent

Characteristics of Republic

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 20 inches thick) over glacial till

Slope range: 30 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 8.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pinegrass-bluebunch wheatgrass (CDG134)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A1—1 to 7 inches; ashy loam

A2—7 to 16 inches; ashy sandy loam

2Bw1—16 to 29 inches; sandy loam

2Bw2—29 to 36 inches; gravelly sandy loam

2C—36 to 60 inches; very gravelly sandy loam

Dissimilar Minor Component

Unnamed soils

Percentage of map unit: 10 percent

Major Uses

Livestock grazing and timber production

470—Republic ashy loam, gravelly substratum, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 3,000 to 4,700 feet

Mean annual precipitation: 17 to 20 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Republic and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Republic

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 20 inches thick) over glacial till

Soil Survey of Okanogan County Area, Washington

Slope range: 0 to 8 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 8.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Plant community class: Douglas-fir/pinegrass-bluebunch wheatgrass (CDG134)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A1—1 to 7 inches; ashy loam

A2—7 to 16 inches; ashy sandy loam

2Bw1—16 to 29 inches; sandy loam

2Bw2—29 to 36 inches; gravelly sandy loam

2C—36 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Mires soils

Percentage of map unit: 10 percent

Koepke soils

Percentage of map unit: 5 percent

Molson soils

Percentage of map unit: 5 percent

Major Uses

Crop production, livestock grazing, and timber production

471—Republic ashy loam, 15 to 45 percent slopes, extremely stony

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 3,000 to 4,700 feet

Mean annual precipitation: 17 to 20 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Republic, extremely stony surface, and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Republic, Extremely Stony Surface

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 20 inches thick) over glacial till

Slope range: 15 to 45 percent

Soil Survey of Okanogan County Area, Washington

Percentage of surface area covered with stones: 3 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 8.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pinegrass-bluebunch wheatgrass (CDG134)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A1—1 to 7 inches; ashy loam

A2—7 to 16 inches; ashy sandy loam

2Bw1—16 to 29 inches; sandy loam

2Bw2—29 to 36 inches; gravelly sandy loam

2C—36 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Havillah soils

Percentage of map unit: 5 percent

Mires soils

Percentage of map unit: 5 percent

Molson soils

Percentage of map unit: 5 percent

Republic soils, gravelly surface

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

472—Resner ashy fine sandy loam, 20 to 40 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 3,500 to 3,600 feet

Mean annual precipitation: 20 to 35 inches

Mean annual air temperature: 39 to 41 degrees F

Frost-free period: 70 to 90 days

Map Unit Composition

Resner and similar soils: 100 percent

Characteristics of Resner

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 22 inches thick) over glacial outwash or glacial till

Slope range: 20 to 40 percent

Depth to restrictive feature: 14 to 22 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 6.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Subalpine fir/blue (big) huckleberry (CES313)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

C—1 to 2 inches; ashy silt loam

2A—2 to 6 inches; ashy fine sandy loam

2Bw—6 to 19 inches; ashy fine sandy loam

3C—19 to 60 inches; very cobbly loamy sand

Major Uses

Livestock grazing and timber production

473—Resner-Sitdown complex, 0 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 3,500 to 6,000 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 35 to 39 degrees F

Frost-free period: 60 to 80 days

Map Unit Composition

Resner, cool, and similar soils: 55 percent

Sitdown, cold, and similar soils: 30 percent

Dissimilar minor components: 15 percent

Characteristics of Resner, Cool

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 22 inches thick) over glacial outwash or glacial till

Slope range: 0 to 15 percent

Depth to restrictive feature: 14 to 22 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Moderate (about 6.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Subalpine fir/dwarf huckleberry (CES422)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material
C—1 to 2 inches; ashy silt loam
2A—2 to 6 inches; ashy fine sandy loam
2Bw—6 to 19 inches; ashy fine sandy loam
3C—19 to 60 inches; very cobbly loamy sand

Characteristics of Sitdown, Cold

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (10 to 14 inches thick) over glacial outwash or glacial till
Slope range: 0 to 15 percent
Depth to restrictive feature: 10 to 14 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity to transmit water (Ksat): High or very high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 3.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Subalpine fir/dwarf huckleberry (CES422)

Typical profile

Oe—0 to 2 inches; moderately decomposed plant material
A—2 to 5 inches; gravelly ashy sandy loam
Bw—5 to 13 inches; gravelly ashy sandy loam
2C1—13 to 26 inches; very cobbly loamy sand
2C2—26 to 60 inches; extremely gravelly loamy sand

Dissimilar Minor Components

Manley soils

Percentage of map unit: 10 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

474—Resner-Sitdown complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 3,500 to 4,700 feet
Mean annual precipitation: 20 to 35 inches
Mean annual air temperature: 39 to 41 degrees F
Frost-free period: 70 to 90 days

Map Unit Composition

Resner and similar soils: 45 percent
Sitdown and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Resner

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 22 inches thick) over glacial outwash or glacial till
Slope range: 35 to 65 percent
Depth to restrictive feature: 14 to 22 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity to transmit water (Ksat): High or very high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Moderate (about 6.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Subalpine fir/blue (big) huckleberry (CES313)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material
C—1 to 2 inches; ashy silt loam
2A—2 to 6 inches; ashy fine sandy loam
2Bw—6 to 19 inches; ashy fine sandy loam
3C—19 to 60 inches; very cobbly loamy sand

Characteristics of Sitdown

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (10 to 14 inches thick) over glacial outwash or glacial till
Slope range: 35 to 65 percent
Depth to restrictive feature: 10 to 14 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity to transmit water (Ksat): High or very high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 3.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Subalpine fir/blue (big) huckleberry (CES313)

Typical profile

Oe—0 to 2 inches; moderately decomposed plant material

A—2 to 5 inches; gravelly ashy sandy loam

Bw—5 to 13 inches; gravelly ashy sandy loam

2C1—13 to 26 inches; very cobbly loamy sand

2C2—26 to 60 inches; extremely gravelly loamy sand

Dissimilar Minor Components

Devore soils

Percentage of map unit: 5 percent

Manley soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

475—Riverwash

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Map Unit Composition

Riverwash: 100 percent

Characteristics of Riverwash

Description of areas

Sandy, gravelly, and cobbly alluvial deposits associated with active perennial and intermittent streams and rivers

Properties and qualities

Parent material: Alluvium

Slope range: 0 to 3 percent

Depth to restrictive feature: None within a depth of 60 inches

Frequency of flooding: Frequent (see Water Features table)

Frequency of ponding: None

Seasonal high water table (minimum depth): At the soil surface to a depth of 24 inches (see Water Features table)

Interpretive groups

Land capability subclass (nonirrigated): 8

Typical profile

C—0 to 60 inches; stratified sand to extremely cobbly sand

Major Use

Wildlife habitat

476—Rock outcrop

Major land resource area (MLRA): 8—Columbia Plateau

Map unit composition: Rock outcrop—100 percent

Landform: Mountains

Slope range: 0 to 90 percent
Description of areas: Barren areas of exposed bedrock
Land capability subclass (nonirrigated): 8
Typical profile: R—unweathered bedrock

477—Rock outcrop-Donavan-Peka complex, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 1,500 to 4,100 feet
Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 110 to 140 days

Map Unit Composition

Rock outcrop: 35 percent
Donavan and similar soils: 30 percent
Peka and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Rock Outcrop

Landform: Mountains
Slope range: 15 to 35 percent
Description of areas: Barren areas of exposed bedrock
Land capability subclass (nonirrigated): 8
Typical profile: R—unweathered bedrock

Characteristics of Donovan

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (12 to 18 inches thick) over glacial till
Slope range: 15 to 35 percent
Depth to restrictive feature: 20 to 40 inches to dense material
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e
Plant community class: Ponderosa pine/bluebunch wheatgrass (CPG141)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 7 inches; stony ashy loam
Bw1—7 to 11 inches; gravelly ashy loam
Bw2—11 to 16 inches; gravelly ashy sandy loam
2BC—16 to 27 inches; gravelly sandy loam

2Cd1—27 to 34 inches; gravelly sandy loam

2Cd2—34 to 60 inches; gravelly sandy loam

Characteristics of Peka

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 18 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: 40 to 60 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Ponderosa pine/bluebunch wheatgrass (CPG141) and ponderosa pine-Douglas-fir/bluebunch wheatgrass (CDG311)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A1—1 to 7 inches; stony ashy sandy loam

A2—7 to 16 inches; gravelly ashy sandy loam

2Bw—16 to 25 inches; very cobbly sandy loam

2C—25 to 50 inches; very cobbly sandy loam

2Cd—50 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Conconully soils

Percentage of map unit: 5 percent

Lani soils

Percentage of map unit: 5 percent

Molson soils

Percentage of map unit: 3 percent

Vanbrunt soils

Percentage of map unit: 2 percent

Major Uses

Livestock grazing and timber production

478—Rock outcrop-Lithic Haplocryepts-Rubble land complex, 35 to 90 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 1,100 to 7,800 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 37 to 40 degrees F

Frost-free period: 70 to 90 days

Map Unit Composition

Rock outcrop: 45 percent

Lithic Haplocryepts, xeric, forested, and similar soils: 35 percent

Rubble land: 20 percent

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 35 to 90 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Characteristics of Lithic Haplocryepts, Xeric, Forested

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash or volcanic ash (4 to 12 inches thick) over colluvium and residuum

Slope range: 35 to 90 percent

Depth to restrictive feature: 8 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 2.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Subalpine fir/grouse huckleberry/smooth woodrush (CES425)

Typical profile

A—0 to 4 inches; ashy fine sandy loam

2Bw—4 to 16 inches; very stony sandy loam

2R—16 to 20 inches; unweathered bedrock

Characteristics of Rubble Land

Landform: Mountains

Slope range: 35 to 90 percent

Description of areas: Colluvial deposits of rock fragments; voids and spaces between fragments contain little, if any, soil material; bedrock typically is present, but depth to bedrock is highly variable

Land capability subclass (nonirrigated): 8

Typical profile: C—fragmental material

Major Use

Livestock grazing

479—Rock outcrop-Rubble land complex

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Map Unit Composition

Rock outcrop: 50 percent
Rubble land: 40 percent
Dissimilar minor component: 10 percent

Characteristics of Rock Outcrop

Landform: Mountains
Slope range: 5 to 100 percent
Description of areas: Barren areas of exposed bedrock
Land capability subclass (nonirrigated): 8
Typical profile: R—unweathered bedrock

Characteristics of Rubble Land

Landform: Mountains
Slope range: 5 to 100 percent
Description of areas: Colluvial deposits of rock fragments; voids and spaces between fragments contain little, if any, soil material; bedrock typically is present, but depth to bedrock is highly variable
Land capability subclass (nonirrigated): 8
Typical profile: C—fragmental material

Dissimilar Minor Component

Unnamed soils

Percentage of map unit: 10 percent

Major Use

Wildlife habitat

480—Rufus-Wynhoff-Rock outcrop complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 3,000 to 4,700 feet
Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 47 to 52 degrees F
Frost-free period: 100 to 140 days

Map Unit Composition

Rufus and similar soils: 55 percent
Wynhoff and similar soils: 30 percent
Rock outcrop: 10 percent
Dissimilar minor component: 5 percent

Characteristics of Rufus

Setting

Landform: Mountains and hills

Properties and qualities

Parent material: Mixed volcanic ash (10 to 20 inches thick) over colluvium and residuum derived from metasedimentary rock
Slope range: 35 to 65 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Very low (about 2.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Ponderosa pine/bluebunch wheatgrass (CPG141)

Typical profile

A1—0 to 6 inches; flaggy ashy sandy loam
A2—6 to 14 inches; very channery ashy sandy loam
Bw—14 to 18 inches; extremely flaggy ashy sandy loam
2R—18 to 28 inches; unweathered bedrock

Characteristics of Wynhoff

Setting

Landform: Mountains and hills

Properties and qualities

Parent material: Colluvium and residuum derived from metasedimentary rock
Slope range: 35 to 65 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Very low (about 2.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Ecological site: COOL STONY 16-24 PZ (R006XY203WA)

Typical profile

A1—0 to 5 inches; gravelly sandy loam
A2—5 to 9 inches; gravelly sandy loam
Bw—9 to 18 inches; very gravelly sandy loam
C—18 to 24 inches; extremely gravelly sandy loam
R—24 to 34 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains
Slope range: 35 to 65 percent
Description of areas: Barren areas of exposed bedrock
Land capability subclass (nonirrigated): 8
Typical profile: R—unweathered bedrock

Dissimilar Minor Component

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

481—Rufus-Wynhoff-Rock outcrop complex, 50 to 90 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 3,000 to 4,700 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 47 to 52 degrees F

Frost-free period: 100 to 140 days

Map Unit Composition

Rufus and similar soils: 40 percent

Wynhoff and similar soils: 25 percent

Rock outcrop: 20 percent

Dissimilar minor components: 15 percent

Characteristics of Rufus

Setting

Landform: Mountains and hills

Properties and qualities

Parent material: Mixed volcanic ash (10 to 20 inches thick) over colluvium and residuum derived from metasedimentary rock

Slope range: 50 to 90 percent

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 2.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Ponderosa pine/bluebunch wheatgrass (CPG141)

Typical profile

A1—0 to 6 inches; flaggy ashy sandy loam

A2—6 to 14 inches; very channery ashy sandy loam

Bw—14 to 18 inches; extremely flaggy ashy sandy loam

2R—18 to 28 inches; unweathered bedrock

Characteristics of Wynhoff

Setting

Landform: Mountains and hills

Properties and qualities

Parent material: Colluvium and residuum derived from metasedimentary rock

Slope range: 50 to 90 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 1.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: COOL STONY 16-24 PZ (R006XY203WA)

Typical profile

A1—0 to 5 inches; gravelly sandy loam

A2—5 to 9 inches; gravelly sandy loam

Bw—9 to 18 inches; very gravelly sandy loam

C—18 to 24 inches; extremely gravelly sandy loam

R—24 to 34 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 50 to 90 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Lithic Haploxerepts

Percentage of map unit: 10 percent

Rubble land

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

482—Sacheen loamy sand, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 2,900 to 4,400 feet

Mean annual precipitation: 18 to 22 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Sacheen and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Sacheen

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Glacial outwash or glaciofluvial deposits

Slope range: 35 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Somewhat excessively drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 6 inches; loamy sand

C1—6 to 16 inches; loamy sand

C2—16 to 60 inches; loamy sand

Dissimilar Minor Components

Pebcreek soils

Percentage of map unit: 10 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

483—Salcreek ashy loam, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 3,600 to 4,000 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Salcreek and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Salcreek

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (14 to 20 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): High (about 9.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 7 inches; ashy loam

AB—7 to 14 inches; ashy loam
Bw—14 to 21 inches; gravelly ashy sandy loam
2Bt1—21 to 29 inches; gravelly sandy loam
2Bt2—29 to 36 inches; gravelly clay loam
2Bt3—36 to 45 inches; gravelly clay loam
2Bt4—45 to 60 inches; gravelly clay loam

Dissimilar Minor Components

Oxerine soils

Percentage of map unit: 5 percent

Rendovy soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

484—Salcreek ashy loam, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 3,600 to 4,000 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Salcreek and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Salcreek

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (14 to 20 inches thick) over glacial till

Slope range: 35 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): High (about 9.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 7 inches; ashy loam

AB—7 to 14 inches; ashy loam
Bw—14 to 21 inches; gravelly ashy sandy loam
2Bt1—21 to 29 inches; gravelly sandy loam
2Bt2—29 to 37 inches; gravelly clay loam
2Bt3—37 to 45 inches; gravelly clay loam
2Bt4—45 to 60 inches; gravelly clay loam

Dissimilar Minor Components

Oxerine soils

Percentage of map unit: 5 percent

Rendovy soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

485—Scheiner-Myerscreek complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 3,400 to 4,200 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 37 to 40 degrees F

Frost-free period: 60 to 90 days

Map Unit Composition

Scheiner and similar soils: 55 percent

Myerscreek and similar soils: 30 percent

Dissimilar minor components: 15 percent

Characteristics of Scheiner

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 14 inches thick) over glaciofluvial material

Slope range: 35 to 65 percent

Depth to restrictive feature: 7 to 14 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Subalpine fir/big huckleberry (CES342)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

C—1 to 3 inches; ashy sandy loam
2A—3 to 8 inches; ashy sandy loam
2Bw—8 to 13 inches; ashy sandy loam
3BC—13 to 17 inches; loamy sand
3C1—17 to 49 inches; sand
3C2—49 to 60 inches; gravelly sand

Characteristics of Myerscreek

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over glacial till

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 35 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Subalpine fir/big huckleberry (CES342)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

C—1 to 2 inches; ashy silt loam

2A—2 to 5 inches; ashy fine sandy loam

2Bw—5 to 13 inches; ashy fine sandy loam

3CB—13 to 32 inches; very gravelly sandy loam

3Cd1—32 to 47 inches; very gravelly sandy loam

3Cd2—47 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Cryofluvents

Percentage of map unit: 5 percent

Manley soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and wildlife habitat

486—Scoop gravelly ashy loam, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 3,300 to 4,400 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 42 to 45 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Scoop and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Scoap

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 20 inches thick) over glacial till and colluvium

Slope range: 15 to 35 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 8.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/common snowberry (CDS636) and Douglas-fir/common snowberry (CDS633)

Typical profile

Oe—0 to 2 inches; moderately decomposed plant material

A1—2 to 9 inches; gravelly ashy loam

A2—9 to 22 inches; gravelly ashy sandy loam

2Bw—22 to 34 inches; very gravelly sandy loam

2BC—34 to 44 inches; very gravelly sandy loam

2C—44 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Mineral soils

Percentage of map unit: 5 percent

Nevine soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

487—Setill-Johntom complex, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 3,000 to 3,900 feet

Mean annual precipitation: 15 to 18 inches

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Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Setill and similar soils: 55 percent

Johntom and similar soils: 30 percent

Dissimilar minor components: 15 percent

Characteristics of Setill

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 20 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: 25 to 35 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately low to high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 6.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Ponderosa pine/bitterbrush/bluebunch wheatgrass (CPS241)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A1—1 to 7 inches; ashy loam

A2—7 to 11 inches; ashy loam

BA—11 to 20 inches; gravelly ashy loam

2Bt—20 to 27 inches; very gravelly loam

2Btd1—27 to 39 inches; very gravelly clay loam

2Btd2—39 to 60 inches; very gravelly clay loam

Characteristics of Johntom

Setting

Landform: Mountains

Properties and qualities

Parent material: Colluvium and residuum derived from sedimentary and volcanic rock

Slope range: 15 to 35 percent

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 1.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Ecological site: STONY 16-24 PZ (R006XY202WA)

Typical profile

A1—0 to 3 inches; gravelly loam

A2—3 to 12 inches; very flaggy loam

R—12 to 16 inches; unweathered bedrock

Dissimilar Minor Components

Rock outcrop

Percentage of map unit: 10 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

488—Shalrock-Johntom complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 3,400 to 4,300 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 42 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Shalrock, cool, and similar soils: 55 percent

Johntom and similar soils: 30 percent

Dissimilar minor components: 15 percent

Characteristics of Shalrock, Cool

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 20 inches thick) over colluvium and residuum derived from sedimentary rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/mountain snowberry (CDS629)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A1—1 to 8 inches; very stony ashy sandy loam

A2—8 to 11 inches; gravelly ashy sandy loam

Bw—11 to 16 inches; very cobbly ashy sandy loam

2C—16 to 25 inches; very cobbly sandy loam

2R—25 to 29 inches; unweathered bedrock

Characteristics of Johntom

Setting

Landform: Mountains

Properties and qualities

Parent material: Colluvium and residuum derived from sedimentary and volcanic rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 1.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: STONY 16-24 PZ (R006XY202WA)

Typical profile

A1—0 to 3 inches; gravelly loam

A2—3 to 12 inches; very flaggy loam

R—12 to 16 inches; unweathered bedrock

Dissimilar Minor Components

Radercreek soils

Percentage of map unit: 10 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

489—Shalrock-Rock outcrop complex, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 3,400 to 4,000 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 42 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Shalrock and similar soils: 50 percent

Rock outcrop: 35 percent

Dissimilar minor components: 15 percent

Characteristics of Shalrock

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 20 inches thick) over colluvium and residuum derived from sedimentary rock

Slope range: 15 to 35 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A1—1 to 8 inches; very stony ashy sandy loam

A2—8 to 11 inches; gravelly ashy sandy loam

Bw—11 to 16 inches; very cobbly ashy sandy loam

2C—16 to 25 inches; very cobbly sandy loam

2R—25 to 29 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 15 to 35 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Goshawk soils

Percentage of map unit: 5 percent

Santop soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

490—Shalrock-Rock outcrop complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 3,400 to 4,000 feet

Mean annual precipitation: 20 to 24 inches
Mean annual air temperature: 42 to 44 degrees F
Frost-free period: 90 to 120 days

Map Unit Composition

Shalrock and similar soils: 60 percent
Rock outcrop: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Shalrock

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 20 inches thick) over colluvium and residuum derived from sedimentary rock
Slope range: 35 to 65 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 3.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material
A1—1 to 8 inches; very stony ashy sandy loam
A2—8 to 11 inches; gravelly ashy sandy loam
Bw—11 to 16 inches; very cobbly ashy sandy loam
2C—16 to 25 inches; very cobbly sandy loam
2R—25 to 29 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains
Slope range: 35 to 65 percent
Description of areas: Barren areas of exposed bedrock
Land capability subclass (nonirrigated): 8
Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Nicmar soils

Percentage of map unit: 10 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

491—Sinlahekin-Peka-Hodgson association, 3 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 1,500 to 2,300 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Sinlahekin and similar soils: 60 percent

Peka and similar soils: 25 percent

Hodgson and similar soils: 15 percent

Characteristics of Sinlahekin

Setting

Landform: Outwash terraces of mountains and hills

Properties and qualities

Parent material: Mixed volcanic ash (10 to 18 inches thick) over glacial outwash

Slope range: 3 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Plant community class: Ponderosa pine/bitterbrush/bluebunch wheatgrass (CPS241)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A1—1 to 7 inches; cobbly ashy sandy loam

A2—7 to 14 inches; gravelly ashy very fine sandy loam

2Bw1—14 to 23 inches; cobbly sandy loam

2Bw2—23 to 35 inches; extremely gravelly very fine sandy loam

2Bk—35 to 60 inches; extremely gravelly fine sand

Characteristics of Peka

Setting

Landform: Mountains and hills

Properties and qualities

Parent material: Mixed volcanic ash (10 to 18 inches thick) over glacial till

Slope range: 3 to 15 percent

Depth to restrictive feature: 40 to 60 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

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Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4s

Land capability subclass (irrigated): 4e

Plant community class: Ponderosa pine-Douglas-fir/bluebunch wheatgrass (CDG311)
and ponderosa pine/bluebunch wheatgrass (CPG141)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A1—1 to 7 inches; stony ashy sandy loam

A2—7 to 16 inches; gravelly ashy sandy loam

2Bw—16 to 25 inches; very cobbly sandy loam

2C—25 to 50 inches; very cobbly sandy loam

2Cd—50 to 60 inches; very gravelly sandy loam

Characteristics of Hodgson

Setting

Landform: Glacial lake terraces of mountains and hills

Properties and qualities

Parent material: Mixed volcanic ash (7 to 14 inches thick) over glacial lake sediment

Slope range: 3 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Moderately well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): About 30 to 42 inches (see Water Features table)

Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)

Sodicity (maximum): Sodium adsorption ratio about 3

Available water capacity (entire profile): Very high (about 12.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Plant community class: Douglas-fir/common snowberry (CDS636)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 7 inches; ashy silt loam

Bw—7 to 10 inches; ashy silt loam

2Bt—10 to 16 inches; silt loam

2C—16 to 26 inches; silt loam

2Ck1—26 to 41 inches; silty clay loam

2Ck2—41 to 60 inches; silty clay loam

Major Uses

Livestock grazing and timber production

492—Sitdown stony ashy sandy loam, 0 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 5,400 to 6,200 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 35 to 39 degrees F

Frost-free period: 60 to 90 days

Map Unit Composition

Sitdown, cool, and similar soils: 90 percent

Dissimilar minor component: 10 percent

Characteristics of Sitdown, Cool

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (10 to 14 inches thick) over glacial outwash or glacial till

Slope range: 0 to 15 percent

Depth to restrictive feature: 10 to 14 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Subalpine fir/grouse huckleberry (CES426) and subalpine fir/grouse huckleberry (CES412)

Typical profile

Oe—0 to 2 inches; moderately decomposed plant material

A—2 to 5 inches; stony ashy sandy loam

Bw—5 to 13 inches; gravelly ashy sandy loam

2C1—13 to 26 inches; very cobbly loamy sand

2C2—26 to 60 inches; extremely gravelly loamy sand

Dissimilar Minor Component

Unnamed soils

Percentage of map unit: 10 percent

Major Uses

Livestock grazing and timber production

493—Sitdown stony ashy sandy loam, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 5,400 to 6,200 feet
Mean annual precipitation: 25 to 35 inches
Mean annual air temperature: 35 to 39 degrees F
Frost-free period: 60 to 90 days

Map Unit Composition

Sitdown, cool, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Sitdown, Cool

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (10 to 14 inches thick) over glacial outwash and glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: 10 to 14 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Subalpine fir/grouse huckleberry (CES426)

Typical profile

Oe—0 to 2 inches; moderately decomposed plant material

A—2 to 5 inches; stony ashy sandy loam

Bw—5 to 13 inches; gravelly ashy sandy loam

2C1—13 to 26 inches; very cobbly loamy sand

2C2—26 to 60 inches; extremely gravelly loamy sand

Dissimilar Minor Components

Myerscreek soils

Percentage of map unit: 5 percent

Wellsfar soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

494—Sitdown-Rock outcrop complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 4,200 to 5,600 feet

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Mean annual precipitation: 20 to 35 inches
Mean annual air temperature: 39 to 41 degrees F
Frost-free period: 70 to 90 days

Map Unit Composition

Sitdown and similar soils: 65 percent
Rock outcrop: 25 percent
Dissimilar minor component: 10 percent

Characteristics of Sitdown

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (10 to 14 inches thick) over glacial outwash or glacial till
Slope range: 35 to 65 percent
Depth to restrictive feature: 10 to 14 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity to transmit water (Ksat): High or very high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 3.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Subalpine fir/blue (big) huckleberry (CES313)

Typical profile

Oe—0 to 2 inches; moderately decomposed plant material
A—2 to 5 inches; stony ashy sandy loam
Bw—5 to 13 inches; gravelly ashy sandy loam
2C1—13 to 26 inches; very cobbly loamy sand
2C2—26 to 60 inches; extremely gravelly loamy sand

Characteristics of Rock Outcrop

Landform: Mountains
Slope range: 35 to 65 percent
Description of areas: Barren areas of exposed bedrock
Land capability subclass (nonirrigated): 8
Typical profile: R—unweathered bedrock

Dissimilar Minor Component

Unnamed soils

Percentage of map unit: 10 percent

Major Uses

Livestock grazing and timber production

495—Sitdown-Wellsfar-Rock outcrop complex, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 5,300 to 6,200 feet
Mean annual precipitation: 25 to 35 inches
Mean annual air temperature: 35 to 39 degrees F
Frost-free period: 60 to 90 days

Map Unit Composition

Sitdown, cool, and similar soils: 45 percent
Wellsfar and similar soils: 35 percent
Rock outcrop: 10 percent
Dissimilar minor component: 10 percent

Characteristics of Sitdown, Cool

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (10 to 14 inches thick) over glacial outwash or glacial till
Slope range: 15 to 35 percent
Depth to restrictive feature: 10 to 14 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity to transmit water (Ksat): High or very high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 3.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e
Plant community class: Subalpine fir/grouse huckleberry (CES426)

Typical profile

Oe—0 to 2 inches; moderately decomposed plant material
A—2 to 5 inches; stony ashy sandy loam
Bw—5 to 13 inches; gravelly ashy sandy loam
2C1—13 to 26 inches; very cobbly loamy sand
2C2—26 to 60 inches; extremely gravelly loamy sand

Characteristics of Wellsfar

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 14 inches thick) over colluvium and residuum derived from granite
Slope range: 15 to 35 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 3.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e
Plant community class: Subalpine fir/grouse huckleberry (CES426)

Typical profile

Oe—0 to 2 inches; moderately decomposed plant material
A—2 to 5 inches; gravelly ashy sandy loam
Bw1—5 to 10 inches; gravelly ashy sandy loam
2Bw2—10 to 18 inches; very gravelly coarse sandy loam
2C—18 to 27 inches; very gravelly coarse sandy loam
2Cr—27 to 37 inches; weathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains
Slope range: 15 to 35 percent
Description of areas: Barren areas of exposed bedrock
Land capability subclass (nonirrigated): 8
Typical profile: R—unweathered bedrock

Dissimilar Minor Component

Unnamed soils

Percentage of map unit: 10 percent

Major Uses

Livestock grazing and timber production

496—Skaha gravelly loamy sand, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau
Elevation: 800 to 1,500 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 47 to 52 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Skaha and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Skaha

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Glacial outwash
Slope range: 0 to 8 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity to transmit water (Ksat): High or very high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Very low (about 2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4s
Land capability subclass (irrigated): 4s
Ecological site: SANDS 10-16 PZ (R008XY502WA)

Typical profile

Ap—0 to 7 inches; gravelly loamy sand
C1—7 to 13 inches; gravelly loamy sand
C2—13 to 23 inches; very gravelly loamy sand
C3—23 to 60 inches; extremely gravelly coarse sand

Dissimilar Minor Components

Ewall soils

Percentage of map unit: 10 percent

Aeneas soils

Percentage of map unit: 5 percent

Pogue soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

497—Skaha gravelly loamy sand, 8 to 25 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau
Elevation: 800 to 1,500 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 47 to 52 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Skaha and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Skaha

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Glacial outwash
Slope range: 8 to 25 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity to transmit water (Ksat): High or very high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Very low (about 2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e
Land capability subclass (irrigated): 6e
Ecological site: SANDS 10-16 PZ (R008XY502WA)

Typical profile

Ap—0 to 7 inches; gravelly loamy sand
C1—7 to 13 inches; gravelly loamy sand

C2—13 to 23 inches; very gravelly loamy sand
C3—23 to 60 inches; extremely gravelly coarse sand

Dissimilar Minor Components

Ewall soils

Percentage of map unit: 10 percent

Pogue soils

Percentage of map unit: 10 percent

Major Uses

Crop production and livestock grazing

498—Skaha gravelly loamy sand, 25 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 800 to 1,500 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 47 to 52 degrees F

Frost-free period: 140 to 190 days

Map Unit Composition

Skaha and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Skaha

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Glacial outwash

Slope range: 25 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Excessively drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: SANDS 10-16 PZ (R008XY502WA)

Typical profile

Ap—0 to 7 inches; gravelly loamy sand

C1—7 to 13 inches; gravelly loamy sand

C2—13 to 23 inches; very gravelly loamy sand

C3—23 to 60 inches; extremely gravelly coarse sand

Dissimilar Minor Components

Ewall soils

Percentage of map unit: 10 percent

Pogue soils

Percentage of map unit: 10 percent

Major Use

Livestock grazing

499—Smokejump-Jantill complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 5,400 to 6,500 feet

Mean annual precipitation: 30 to 35 inches

Mean annual air temperature: 35 to 40 degrees F

Frost-free period: 60 to 80 days

Map Unit Composition

Smokejump and similar soils: 60 percent

Jantill and similar soils: 25 percent

Dissimilar minor components: 15 percent

Characteristics of Smokejump

Setting

Landform: North-facing slopes of mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over colluvium and residuum derived from gneiss, granodiorite, and granite

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Subalpine fir/Cascade azalea (CES214)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 5 inches; stony ashy fine sandy loam

Bw—5 to 14 inches; very stony ashy sandy loam

2C1—14 to 29 inches; very stony sandy loam

2C2—29 to 33 inches; extremely stony sandy loam

2R—33 to 37 inches; unweathered bedrock

Characteristics of Jantill

Setting

Landform: North-facing slopes of mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over glacial till

Slope range: 35 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Somewhat excessively drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Subalpine fir/Cascade azalea (CES214)

Typical profile

Oe—0 to 2 inches; moderately decomposed plant material

C—2 to 4 inches; stony ashy silt loam

2A—4 to 6 inches; stony ashy sandy loam

2Bw—6 to 13 inches; stony ashy sandy loam

3C1—13 to 29 inches; very stony loamy sand

3C2—29 to 60 inches; very stony loamy sand

Dissimilar Minor Components

Unnamed soils

Percentage of map unit: 10 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

500—Smokejump-Rock outcrop complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 5,800 to 6,800 feet

Mean annual precipitation: 30 to 35 inches

Mean annual air temperature: 35 to 40 degrees F

Frost-free period: 60 to 80 days

Map Unit Composition

Smokejump and similar soils: 70 percent

Rock outcrop: 20 percent

Dissimilar minor component: 10 percent

Characteristics of Smokejump

Setting

Landform: North-facing slopes of mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over colluvium and residuum derived from gneiss, granodiorite, and granite

Slope range: 35 to 65 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 3.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Subalpine fir/Cascade azalea (CES214)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 5 inches; stony ashy fine sandy loam
Bw—5 to 14 inches; very stony ashy sandy loam
2C1—14 to 29 inches; very stony sandy loam
2C2—29 to 33 inches; extremely stony sandy loam
2R—33 to 37 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains
Slope range: 35 to 65 percent
Description of areas: Barren areas of exposed bedrock
Land capability subclass (nonirrigated): 8
Typical profile: R—unweathered bedrock

Dissimilar Minor Component

Unnamed soils

Percentage of map unit: 10 percent

Major Uses

Livestock grazing and timber production

501—Smokejump-Twentymile complex, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,800 to 6,800 feet
Mean annual precipitation: 30 to 35 inches
Mean annual air temperature: 35 to 40 degrees F
Frost-free period: 60 to 80 days

Map Unit Composition

Smokejump and similar soils: 50 percent
Twentymile and similar soils: 30 percent
Dissimilar minor components: 20 percent

Characteristics of Smokejump

Setting

Landform: North-facing slopes of mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over colluvium and residuum derived from gneiss, granodiorite, and granite

Slope range: 15 to 35 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Subalpine fir/Cascade azalea (CES214)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 5 inches; stony ashy fine sandy loam

Bw—5 to 14 inches; very stony ashy sandy loam

2C1—14 to 29 inches; very stony sandy loam

2C2—29 to 33 inches; extremely stony sandy loam

2R—33 to 37 inches; unweathered bedrock

Characteristics of Twentymile

Setting

Landform: North-facing slopes of mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: 20 to 35 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Subalpine fir/Cascade azalea (CES214)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

C—1 to 2 inches; ashy silt loam

2A—2 to 5 inches; stony ashy fine sandy loam

2Bw—5 to 14 inches; gravelly ashy fine sandy loam

3CB—14 to 32 inches; very gravelly sandy loam

3Cd1—32 to 45 inches; very gravelly sandy loam

3Cd2—45 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Treebutte soils

Percentage of map unit: 10 percent

Sitdown soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

502—Stapaloo ash fine sandy loam, 0 to 25 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 3,400 to 3,900 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Stapaloo and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Stapaloo

Setting

Landform: Mountains and outwash terraces

Properties and qualities

Parent material: Mixed volcanic ash (7 to 21 inches thick) over glaciofluvial deposits

Slope range: 0 to 25 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 8.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Plant community class: Douglas-fir/dwarf huckleberry (CDS831) and Douglas-fir/dwarf huckleberry (CDS813)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 4 inches; ashy fine sandy loam

Bw1—4 to 14 inches; ashy fine sandy loam

Bw2—14 to 22 inches; ashy fine sandy loam

2C1—22 to 35 inches; fine sandy loam

2C2—35 to 51 inches; very fine sandy loam

2C3—51 to 60 inches; gravelly very fine sandy loam

Dissimilar Minor Components

Louploup soils

Percentage of map unit: 5 percent

Merkel soils

Percentage of map unit: 5 percent

Torboy soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

503—Stemilt-Midpeak complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,300 to 3,000 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Stemilt and similar soils: 60 percent

Midpeak and similar soils: 25 percent

Dissimilar minor components: 15 percent

Characteristics of Stemilt

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 22 inches thick) over colluvium derived from volcanic and sedimentary rock

Slope range: 35 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A1—1 to 8 inches; gravelly ashy sandy loam

A2—8 to 13 inches; gravelly ashy sandy loam

Bw—13 to 22 inches; very gravelly ashy sandy loam

2Bt1—22 to 33 inches; very gravelly clay loam

2Bt2—33 to 47 inches; very gravelly clay loam

2Bt3—47 to 60 inches; very gravelly clay loam

Characteristics of Midpeak

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 15 inches thick) over colluvium and residuum derived from volcanic and sedimentary rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A1—1 to 7 inches; gravelly ashy sandy loam

A2—7 to 16 inches; very gravelly ashy sandy loam

2Bw—16 to 24 inches; very gravelly sandy loam

2C—24 to 37 inches; extremely gravelly sandy loam

2R—37 to 41 inches; unweathered bedrock

Dissimilar Minor Components

Rock outcrop

Percentage of map unit: 10 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

504—Stepstone ashy fine sandy loam, 3 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 3,000 to 4,600 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 39 to 42 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Stepstone and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Stepstone

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 24 inches thick) over glacial till

Slope range: 3 to 15 percent

Depth to restrictive feature: 14 to 24 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 6.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Plant community class: Douglas-fir/dwarf huckleberry (CDS831) and Douglas-fir/dwarf huckleberry (CDS813)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 2 inches; ashy fine sandy loam

Bw1—2 to 6 inches; ashy fine sandy loam

Bw2—6 to 19 inches; ashy fine sandy loam

2CB—19 to 23 inches; very gravelly sandy loam

2C1—23 to 39 inches; very gravelly loamy sand

2C2—39 to 60 inches; very gravelly loamy sand

Dissimilar Minor Components

Nevine soils

Percentage of map unit: 10 percent

Torboy soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

505—Stepstone ashy fine sandy loam, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 3,000 to 4,200 feet

Mean annual precipitation: 18 to 22 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Stepstone, dry, and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Stepstone, Dry

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 24 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: 14 to 24 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 6.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 2 inches; ashy fine sandy loam

Bw1—2 to 6 inches; ashy fine sandy loam

Bw2—6 to 19 inches; ashy fine sandy loam

2CB—19 to 23 inches; very gravelly sandy loam

2C1—23 to 39 inches; very gravelly loamy sand

2C2—39 to 60 inches; very gravelly loamy sand

Dissimilar Minor Components

Merkel soils

Percentage of map unit: 5 percent

Mineral soils

Percentage of map unit: 5 percent

Nevine soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

506—Stepstone-Torboy complex, 0 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 3,000 to 4,600 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 39 to 42 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Stepstone and similar soils: 60 percent

Torboy and similar soils: 25 percent

Dissimilar minor components: 15 percent

Characteristics of Stepstone

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 24 inches thick) over glacial till

Slope range: 3 to 15 percent

Depth to restrictive feature: 14 to 24 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 6.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Plant community class: Douglas-fir/dwarf huckleberry (CDS831)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 2 inches; ashy fine sandy loam

Bw1—2 to 6 inches; ashy fine sandy loam

Bw2—6 to 19 inches; ashy fine sandy loam

2CB—19 to 23 inches; very gravelly sandy loam

2C1—23 to 39 inches; very gravelly loamy sand

2C2—39 to 60 inches; very gravelly loamy sand

Characteristics of Torboy

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (14 to 20 inches thick) over glacial outwash

Slope range: 0 to 15 percent

Depth to restrictive feature: 14 to 20 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Plant community class: Douglas-fir/dwarf huckleberry (CDS831)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 6 inches; ashy sandy loam

Bw1—6 to 11 inches; ashy sandy loam

Bw2—11 to 19 inches; ashy sandy loam

2C1—19 to 28 inches; loamy sand

2C2—28 to 38 inches; loamy sand

2C3—38 to 60 inches; gravelly loamy sand

Dissimilar Minor Components

Goddard soils

Percentage of map unit: 5 percent

Nevine soils

Percentage of map unit: 5 percent

Parmenter soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

507—Storer-Swakane-Rock outcrop complex, 35 to 75 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,600 to 4,000 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 47 to 52 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Storer and similar soils: 55 percent

Swakane and similar soils: 25 percent

Rock outcrop: 10 percent

Dissimilar minor components: 10 percent

Characteristics of Storer

Setting

Landform: South-facing slopes of hills and mountains

Properties and qualities

Parent material: Colluvium and residuum derived from metamorphic and metavolcanic rock

Slope range: 35 to 75 percent

Depth to restrictive feature: 40 to 60 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: STONY 16-24 PZ (R006XY202WA)

Typical profile

A1—0 to 5 inches; gravelly sandy loam

A2—5 to 12 inches; very gravelly sandy loam

Bw—12 to 19 inches; very gravelly sandy loam
C1—19 to 31 inches; extremely gravelly sandy loam
C2—31 to 42 inches; extremely channery sandy loam
R—42 to 46 inches; unweathered bedrock

Characteristics of Swakane

Setting

Landform: South-facing slopes of hills and mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 12 inches thick) over colluvium and residuum derived from granitic rock

Slope range: 35 to 75 percent

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 1.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: STONY 16-24 PZ (R006XY202WA)

Typical profile

A1—0 to 4 inches; very stony ashy sandy loam

A2—4 to 11 inches; very cobbly ashy sandy loam

2Bw—11 to 17 inches; very gravelly sandy loam

2R—17 to 21 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 35 to 75 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Wagberg soils

Percentage of map unit: 5 percent

Lithic Ultic Haploxerolls

Percentage of map unit: 3 percent

Wenner soils

Percentage of map unit: 2 percent

Major Use

Livestock grazing

508—Strat gravelly fine sandy loam, 0 to 10 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 800 to 900 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 47 to 52 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Strat and similar soils: 90 percent
Dissimilar minor component: 10 percent

Characteristics of Strat

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Mixed loess over glacial outwash
Slope range: 0 to 10 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately high to very high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Very low (about 2.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4s
Land capability subclass (irrigated): 4s
Ecological site: SANDY 10-16 PZ (R008XY501WA)

Typical profile

A—0 to 10 inches; gravelly fine sandy loam
Bw1—10 to 18 inches; very gravelly fine sandy loam
Bw2—18 to 22 inches; very gravelly fine sandy loam
2Bkq—22 to 60 inches; extremely gravelly loamy sand

Dissimilar Minor Component

Unnamed soils

Percentage of map unit: 10 percent

Major Use

Livestock grazing

509—Swakane-Peka-Rock outcrop complex, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains
Elevation: 2,100 to 4,200 feet
Mean annual precipitation: 18 to 20 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 110 to 140 days

Map Unit Composition

Swakane and similar soils: 40 percent
Peka, moist, and similar soils: 30 percent

Rock outcrop: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Swakane

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 12 inches thick) over colluvium and residuum derived from granitic rock

Slope range: 15 to 35 percent

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 1.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Ecological site: STONY 16-24 PZ (R006XY202WA)

Typical profile

A1—0 to 4 inches; very stony ashy sandy loam

A2—4 to 11 inches; very cobbly ashy sandy loam

2Bw—11 to 17 inches; very gravelly sandy loam

2R—17 to 21 inches; unweathered bedrock

Characteristics of Peka, Moist

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 18 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: 40 to 60 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Plant community class: Ponderosa pine-Douglas-fir/bluebunch wheatgrass (CDG311) and ponderosa pine/bluebunch wheatgrass (CPG141)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A1—1 to 7 inches; stony ashy sandy loam

A2—7 to 16 inches; gravelly ashy sandy loam

2Bw—16 to 25 inches; very cobbly sandy loam

2C—25 to 50 inches; very cobbly sandy loam

2Cd—50 to 60 inches; very gravelly sandy loam

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 15 to 35 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Donavan soils

Percentage of map unit: 10 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

510—Swakane-Rock outcrop complex, 35 to 75 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,100 to 4,500 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Swakane and similar soils: 60 percent

Rock outcrop: 30 percent

Dissimilar minor component: 10 percent

Characteristics of Swakane

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 12 inches thick) over colluvium and residuum derived from granitic rock

Slope range: 35 to 75 percent

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 1.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: STONY 16-24 PZ (R006XY202WA)

Typical profile

A1—0 to 4 inches; very stony ashy sandy loam

A2—4 to 11 inches; very cobbly ashy sandy loam

2Bw—11 to 17 inches; very gravelly sandy loam

2R—17 to 21 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 35 to 75 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Component

Unnamed soils

Percentage of map unit: 10 percent

Major Use

Livestock grazing

511—Swakane-Rock outcrop-Peka complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 2,000 to 4,000 feet

Mean annual precipitation: 18 to 20 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Swakane and similar soils: 40 percent

Rock outcrop: 30 percent

Peka, moist, and similar soils: 20 percent

Dissimilar minor components: 10 percent

Characteristics of Swakane

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 12 inches thick) over colluvium and residuum derived from granitic rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 1.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: STONY 16-24 PZ (R006XY202WA)

Typical profile

A1—0 to 4 inches; very stony ashy sandy loam

A2—4 to 11 inches; very cobbly ashy sandy loam

2Bw—11 to 17 inches; very gravelly sandy loam

2R—17 to 21 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 35 to 65 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Characteristics of Peka, Moist

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 18 inches thick) over glacial till

Slope range: 35 to 65 percent

Depth to restrictive feature: 40 to 60 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Ponderosa pine-Douglas-fir/bluebunch wheatgrass (CDG311) and ponderosa pine/bluebunch wheatgrass (CPG141)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A1—1 to 7 inches; stony ashy sandy loam

A2—7 to 16 inches; gravelly ashy sandy loam

2Bw—16 to 25 inches; very cobbly sandy loam

2C—25 to 50 inches; very cobbly sandy loam

2Cd—50 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Donavan soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

512—Sycreek ashy loam, 5 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,800 to 4,400 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Sycreek and similar soils: 90 percent

Dissimilar minor component: 10 percent

Characteristics of Sycreek

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 15 inches thick) over glacial till

Slope range: 5 to 35 percent

Depth to restrictive feature: 35 to 45 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately low to high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 7.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/common snowberry (CDS636)

Typical profile

Oe—0 to 2 inches; moderately decomposed plant material

A—2 to 8 inches; ashy loam

AB—8 to 16 inches; ashy loam

2Bt1—16 to 27 inches; very gravelly sandy clay loam

2Bt2—27 to 44 inches; very gravelly sandy clay loam

3CBd—44 to 60 inches; very gravelly clay loam

Dissimilar Minor Component

Unnamed soils

Percentage of map unit: 10 percent

Major Uses

Livestock grazing and wildlife habitat

513—Synarep-Colville-Xerofluvents complex, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 1,500 to 3,000 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 45 to 47 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Synarep and similar soils: 40 percent

Colville, poorly drained, and similar soils: 35 percent

Xerofluvents and similar soils: 15 percent

Dissimilar minor component: 10 percent

Characteristics of Synarep

Setting

Landform: Low stream terraces

Properties and qualities

Parent material: Volcanic ash (40 to 55 inches thick) over alluvium

Slope range: 0 to 3 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Moderately well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: Rare (see Water Features table)

Frequency of ponding: None

Seasonal high water table (minimum depth): About 36 to 48 inches (see Water Features table)

Sodicity (maximum): Sodium adsorption ratio about 1

Available water capacity (entire profile): High (about 11.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 2e

Land capability subclass (irrigated): 2e

Ecological site: WET ALKALI MEADOW 10-16 PZ (R008XY603WA)

Typical profile

Ap—0 to 8 inches; ashy silt loam

Bw—8 to 33 inches; ashy silt loam

BC—33 to 46 inches; ashy silt loam

2C—46 to 60 inches; sandy loam

Characteristics of Colville, Poorly Drained

Setting

Landform: Depressions and drainageways of flood plains

Properties and qualities

Parent material: Alluvium

Slope range: 0 to 3 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Poorly drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: Occasional (see Water Features table)

Frequency of ponding: None

Seasonal high water table (minimum depth): About 12 to 30 inches (see Water Features table)

Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)

Sodicity (maximum): Sodium adsorption ratio about 3

Available water capacity (entire profile): High (about 11.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6w

Land capability subclass (irrigated): 6w

Ecological site: WET MEADOW 16-24 PZ (R044XY601WA)

Typical profile

Ap1—0 to 4 inches; silt loam
Ap2—4 to 9 inches; silt loam
A—9 to 17 inches; silty clay loam
2Bw—17 to 21 inches; silt loam
2Bg1—21 to 33 inches; silty clay loam
2Bg2—33 to 43 inches; silty clay loam
2Bg3—43 to 60 inches; silty clay loam

Characteristics of Xerofluvents

Setting

Landform: Flood plains

Properties and qualities

Parent material: Alluvium

Slope range: 0 to 3 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Moderately well drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: Occasional (see Water Features table)

Frequency of ponding: None

Seasonal high water table (minimum depth): About 36 to 48 inches (see Water Features table)

Available water capacity (entire profile): Moderate (about 6.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6w

Land capability subclass (irrigated): 6w

Plant community class: Douglas-fir/common snowberry, flood plain, riparian (CDS628)

Typical profile

A—0 to 8 inches; sandy loam
AC—8 to 30 inches; sandy loam
C—30 to 60 inches; loamy sand

Dissimilar Minor Component

Leavenworth soils

Percentage of map unit: 10 percent

Major Uses

Crop production, livestock grazing, and wildlife habitat

514—Thout-Rock outcrop complex, cool, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 2,700 to 5,200 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Thout and similar soils: 70 percent

Rock outcrop: 15 percent

Dissimilar minor components: 15 percent

Characteristics of Thout

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 14 inches thick) over colluvium and residuum derived from volcanic and sedimentary rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 2.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/mountain snowberry (CDS629)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 5 inches; gravelly ashy sandy loam

Bw1—5 to 12 inches; very gravelly ashy sandy loam

2Bw2—12 to 25 inches; very gravelly sandy loam

2R—25 to 29 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 35 to 65 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Baldknob soils

Percentage of map unit: 5 percent

Johntom soils

Percentage of map unit: 5 percent

Scoop soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

515—Thow-Vingulch complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,700 to 4,000 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Thow and similar soils: 55 percent

Vingulch and similar soils: 35 percent

Dissimilar minor component: 10 percent

Characteristics of Thow

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash and pumice

Slope range: 35 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): High (about 11 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pachistima/pinegrass (CDS412)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

C—1 to 6 inches; ashy loamy fine sand

2A—6 to 12 inches; ashy sandy loam

2Bw1—12 to 38 inches; paragravelly ashy coarse sandy loam

2Bw2—38 to 51 inches; paragravelly ashy loamy coarse sand

2Bw3—51 to 60 inches; paragravelly ashy loamy sand

Characteristics of Vingulch

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash and pumice (14 to 36 inches thick) over colluvium and residuum derived from volcanic and sedimentary rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 6.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pachistima/pinegrass (CDS412)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

C—1 to 4 inches; ashy loamy very fine sand

2A—4 to 12 inches; ashy coarse sandy loam

2Bw1—12 to 22 inches; paragravelly ashy coarse sandy loam

2Bw2—22 to 28 inches; paragravelly ashy coarse sandy loam

2C1—28 to 34 inches; paragravelly ashy loamy coarse sand

3C2—34 to 39 inches; very gravelly sandy loam

3R—39 to 43 inches; unweathered bedrock

Dissimilar Minor Component

Unnamed soils

Percentage of map unit: 10 percent

Major Uses

Livestock grazing and timber production

516—Thrapp-Aquandic Xerofluvents complex, 0 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,000 to 3,800 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Thrapp and similar soils: 65 percent

Aquandic Xerofluvents and similar soils: 25 percent

Dissimilar minor component: 10 percent

Characteristics of Thrapp

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 15 inches thick) over glacial till

Slope range: 5 to 35 percent

Depth to restrictive feature: 35 to 45 inches to dense material

Drainage class: Moderately well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): About 30 to 42 inches (see Water Features table)

Available water capacity (entire profile): Moderate (about 7.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/common snowberry (CDS636)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A1—1 to 5 inches; ashy loam

A2—5 to 13 inches; ashy loam

2Bw—13 to 23 inches; sandy loam

2C1—23 to 30 inches; gravelly sandy loam

2C2—30 to 37 inches; gravelly sandy loam

2Cd—37 to 60 inches; gravelly sandy loam

Characteristics of Aquandic Xerofluvents

Setting

Landform: Low stream terraces and flood plains of mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over alluvium

Slope range: 0 to 5 percent

Depth to restrictive feature: 40 to 60 inches to strongly contrasting textural stratification

Drainage class: Somewhat poorly drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: Occasional (see Water Features table)

Frequency of ponding: None

Seasonal high water table (minimum depth): About 24 to 48 inches (see Water Features table)

Available water capacity (entire profile): Moderate (about 7.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3w

Plant community class: Douglas-fir/common snowberry, flood plain, riparian (CDS628)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 5 inches; ashy sandy loam

C—5 to 9 inches; ashy sandy loam

Ab—9 to 14 inches; ashy sandy loam

2C1—14 to 25 inches; gravelly loamy sand

2C2—25 to 45 inches; sandy loam

2C3—45 to 51 inches; very gravelly loamy sand

2C4—51 to 60 inches; very gravelly loamy sand

Dissimilar Minor Component

Unnamed soils

Percentage of map unit: 10 percent

Major Uses

Timber production and wildlife habitat

517—Thuso ashy loam, 3 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 2,600 to 3,600 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 45 to 52 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Thuso and similar soils: 90 percent

Dissimilar minor component: 10 percent

Characteristics of Thuso

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (15 to 25 inches thick) over colluvium derived from metasedimentary rock

Slope range: 3 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Ecological site: STONY 16-24 PZ (R006XY202WA)

Typical profile

A1—0 to 12 inches; ashy loam

A2—12 to 25 inches; gravelly ashy sandy loam

2Bw—25 to 37 inches; very cobbly sandy loam

2C—37 to 61 inches; very cobbly sandy loam

Dissimilar Minor Component

Unnamed soils

Percentage of map unit: 10 percent

Major Use

Livestock grazing

518—Thuso ashy loam, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,600 to 3,600 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 45 to 52 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Thuso and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Thuso

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (15 to 25 inches thick) over colluvium derived from metasedimentary rock

Slope range: 15 to 35 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Ecological site: STONY 16-24 PZ (R006XY202WA)

Typical profile

A1—0 to 12 inches; ashy loam

A2—12 to 25 inches; gravelly ashy sandy loam

2Bw—25 to 37 inches; very cobbly sandy loam

2C—37 to 61 inches; very cobbly sandy loam

Dissimilar Minor Components

Conconully soils

Percentage of map unit: 5 percent

Lithic Haploxerepts

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

519—Thuso ashy sandy loam, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,600 to 3,600 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Thuso, cool, and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Thuso, Cool

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (15 to 25 inches thick) over colluvium derived from metasedimentary rock

Slope range: 35 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: COOL STONY 16-24 PZ (R006XY203WA)

Typical profile

A1—0 to 12 inches; ashy sandy loam

A2—12 to 25 inches; gravelly ashy sandy loam

2Bw—25 to 37 inches; very cobbly sandy loam

2C—37 to 61 inches; very cobbly sandy loam

Dissimilar Minor Components

Wynhoff soils

Percentage of map unit: 10 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Use

Livestock grazing

***520—Thuso-Lithic Haploxerepts-Rock outcrop complex,
35 to 65 percent slopes***

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,600 to 3,600 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 45 to 52 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Thuso and similar soils: 35 percent

Lithic Haploxerepts, range, moist, and similar soils: 30 percent

Rock outcrop: 20 percent

Dissimilar minor components: 15 percent

Characteristics of Thuso

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (15 to 25 inches thick) over colluvium derived from metasedimentary rock

Slope range: 35 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: STONY 16-24 PZ (R006XY202WA)

Typical profile

A1—0 to 12 inches; ashy loam

A2—12 to 25 inches; gravelly ashy sandy loam

2Bw—25 to 37 inches; very cobbly sandy loam

2C—37 to 61 inches; very cobbly sandy loam

Characteristics of Lithic Haploxerepts, Range, Moist

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash or mixed volcanic ash (4 to 12 inches thick) over colluvium and residuum

Slope range: 35 to 65 percent

Depth to restrictive feature: 8 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 2.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: DRY STONY 16-24 PZ (R006XY201WA)

Typical profile

A—0 to 3 inches; cobbly ashy sandy loam

Bw—3 to 12 inches; cobbly ashy sandy loam

2C—12 to 18 inches; very gravelly sandy loam

2R—18 to 22 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 35 to 65 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Conconully soils

Percentage of map unit: 10 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

521—Toats-Longswamp complex, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 4,600 to 5,500 feet

Mean annual precipitation: 25 to 30 inches

Mean annual air temperature: 37 to 40 degrees F

Frost-free period: 70 to 90 days

Map Unit Composition

Toats and similar soils: 55 percent

Longswamp and similar soils: 30 percent

Dissimilar minor components: 15 percent

Characteristics of Toats

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (12 to 14 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: 12 to 14 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 6.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Ecological site: HIGH MOUNTAIN PARK (R006XY703WA)

Typical profile

A1—0 to 5 inches; ashy loam

A2—5 to 14 inches; ashy loam

2Bw—14 to 23 inches; very cobbly loam

2C1—23 to 40 inches; very cobbly sandy loam

2C2—40 to 52 inches; extremely stony sandy loam

2C3—52 to 60 inches; extremely stony sandy loam

Characteristics of Longswamp

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (12 to 20 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Moderately well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): About 24 to 42 inches (see Water Features table)

Available water capacity (entire profile): High (about 9.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Quaking aspen/pinegrass (HQG111)

Typical profile

A1—0 to 7 inches; ashy loam

A2—7 to 20 inches; ashy loam

2AC—20 to 25 inches; gravelly sandy clay loam

2C—25 to 39 inches; gravelly sandy clay loam

3Cg—39 to 60 inches; gravelly silt loam

Dissimilar Minor Components

Burget soils

Percentage of map unit: 5 percent

Crocamp soils

Percentage of map unit: 5 percent

Myerscreek soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

522—Tonasket silt loam, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 800 to 2,000 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 140 to 190 days

Map Unit Composition

Tonasket and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Tonasket

Setting

Landform: Glacial lake terraces

Properties and qualities

Parent material: Glaciolacustrine deposits

Slope range: 0 to 3 percent

Depth to restrictive feature: None within a depth of 60 inches

Soil Survey of Okanogan County Area, Washington

Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): High (about 11.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3s
Land capability subclass (irrigated): 3s
Ecological site: DRY LOAMY 10-16 PZ (R008XY101WA)

Typical profile

Ap—0 to 8 inches; silt loam
Bw1—8 to 15 inches; silt loam
Bw2—15 to 28 inches; silt loam
2Bk1—28 to 41 inches; stratified fine sand to silt loam
2Bk2—41 to 65 inches; stratified fine sand to silt loam

Dissimilar Minor Components

Cashmere soils

Percentage of map unit: 5 percent

Ewall soils

Percentage of map unit: 5 percent

Okanogan soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

523—Tonasket silt loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau
Elevation: 800 to 2,000 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Tonasket and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Tonasket

Setting

Landform: Glacial lake terraces

Properties and qualities

Parent material: Glaciolacustrine deposits
Slope range: 3 to 8 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): High (about 11.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3s

Land capability subclass (irrigated): 3e

Ecological site: DRY LOAMY 10-16 PZ (R008XY101WA)

Typical profile

Ap—0 to 8 inches; silt loam

Bw1—8 to 15 inches; silt loam

Bw2—15 to 28 inches; silt loam

2Bk1—28 to 41 inches; stratified fine sand to silt loam

2Bk2—41 to 65 inches; stratified fine sand to silt loam

Dissimilar Minor Components

Cashmere soils

Percentage of map unit: 5 percent

Ewall soils

Percentage of map unit: 5 percent

Okanogan soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

524—Tonasket silt loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 800 to 2,000 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 140 to 190 days

Map Unit Composition

Tonasket and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Tonasket

Setting

Landform: Glacial lake terraces

Properties and qualities

Parent material: Glaciolacustrine deposits

Slope range: 8 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): High (about 11.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 4e
Ecological site: DRY LOAMY 10-16 PZ (R008XY101WA)

Typical profile

Ap—0 to 8 inches; silt loam
Bw1—8 to 15 inches; silt loam
Bw2—15 to 28 inches; silt loam
2Bk1—28 to 41 inches; stratified fine sand to silt loam
2Bk2—41 to 65 inches; stratified fine sand to silt loam

Dissimilar Minor Components

Cashmere soils

Percentage of map unit: 5 percent

Cashmont soils

Percentage of map unit: 5 percent

Ewall soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

525—Tonasket silt loam, 15 to 25 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau
Elevation: 800 to 2,000 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Tonasket and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Tonasket

Setting

Landform: Glacial lake terraces

Properties and qualities

Parent material: Glaciolacustrine deposits
Slope range: 15 to 25 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): High (about 11.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e
Land capability subclass (irrigated): 6e
Ecological site: DRY LOAMY 10-16 PZ (R008XY101WA)

Typical profile

A—0 to 8 inches; silt loam
Bw1—8 to 15 inches; silt loam
Bw2—15 to 28 inches; silt loam
2Bk1—28 to 41 inches; stratified fine sand to silt loam
2Bk2—41 to 65 inches; stratified fine sand to silt loam

Dissimilar Minor Components

Cashmere soils

Percentage of map unit: 5 percent

Cashmont soils

Percentage of map unit: 5 percent

Ewall soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

526—Tonasket silt loam, 25 to 45 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau
Elevation: 800 to 2,000 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Tonasket and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Tonasket

Setting

Landform: Glacial lake terraces

Properties and qualities

Parent material: Glaciolacustrine deposits
Slope range: 25 to 45 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): High (about 11.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: DRY LOAMY 10-16 PZ (R008XY101WA)

Typical profile

A—0 to 8 inches; silt loam

Bw1—8 to 15 inches; silt loam

Bw2—15 to 28 inches; silt loam

2Bk1—28 to 41 inches; stratified fine sand to silt loam

2Bk2—41 to 65 inches; stratified fine sand to silt loam

Dissimilar Minor Components

Cashmere soils

Percentage of map unit: 5 percent

Cashmont soils

Percentage of map unit: 5 percent

Ewall soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

***527—Tonasket silt loam, 0 to 45 percent slopes,
extremely stony***

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 800 to 2,000 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 140 to 190 days

Map Unit Composition

Tonasket, extremely stony surface, and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Tonasket, Extremely Stony Surface

Setting

Landform: Glacial lake terraces

Properties and qualities

Parent material: Glaciolacustrine deposits

Slope range: 0 to 45 percent

Percentage of surface area covered with stones: 3 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): High (about 11.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: DRY LOAMY 10-16 PZ (R008XY101WA)

Typical profile

A—0 to 8 inches; silt loam

Bw1—8 to 15 inches; silt loam

Bw2—15 to 28 inches; silt loam

2Bk1—28 to 41 inches; stratified fine sand to silt loam

2Bk2—41 to 65 inches; stratified fine sand to silt loam

Dissimilar Minor Components

Cashmere soils

Percentage of map unit: 5 percent

Cashmont soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

528—Twentymile stony ashy fine sandy loam, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 4,800 to 6,400 feet

Mean annual precipitation: 30 to 35 inches

Mean annual air temperature: 35 to 40 degrees F

Frost-free period: 60 to 80 days

Map Unit Composition

Twentymile and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Twentymile

Setting

Landform: North-facing slopes of mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: 20 to 35 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Subalpine fir/Cascade azalea (CES214)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

C—1 to 2 inches; ashy silt loam

2A—2 to 5 inches; stony ashy fine sandy loam

2Bw—5 to 14 inches; gravelly ashy fine sandy loam

3CB—14 to 32 inches; very gravelly sandy loam

3Cd1—32 to 45 inches; very gravelly sandy loam

3Cd2—45 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Rock outcrop

Percentage of map unit: 5 percent

Sitdown soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

529—Twentymile-Smokejump complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 4,800 to 6,800 feet

Mean annual precipitation: 30 to 35 inches

Mean annual air temperature: 35 to 40 degrees F

Frost-free period: 60 to 80 days

Map Unit Composition

Twentymile and similar soils: 65 percent

Smokejump and similar soils: 25 percent

Dissimilar minor component: 10 percent

Characteristics of Twentymile

Setting

Landform: North-facing slopes of mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over glacial till

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 35 inches to dense material

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Subalpine fir/Cascade azalea (CES214)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

C—1 to 2 inches; ashy silt loam

2A—2 to 5 inches; stony ashy fine sandy loam

2Bw—5 to 14 inches; gravelly ashy fine sandy loam

3CB—14 to 32 inches; very gravelly sandy loam

3Cd1—32 to 45 inches; very gravelly sandy loam

3Cd2—45 to 60 inches; very gravelly sandy loam

Characteristics of Smokejump

Setting

Landform: North-facing slopes of mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over colluvium and residuum derived from gneiss, granodiorite, and granite

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Subalpine fir/Cascade azalea (CES214)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 5 inches; stony ashy fine sandy loam

Bw—5 to 14 inches; very stony ashy sandy loam

2C1—14 to 29 inches; very stony sandy loam

2C2—29 to 33 inches; extremely stony sandy loam

2R—33 to 37 inches; unweathered bedrock

Dissimilar Minor Component

Unnamed soils

Percentage of map unit: 10 percent

Major Uses

Livestock grazing and timber production

530—Vallan-Rock outcrop complex, 15 to 50 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 3,000 to 3,900 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 43 to 45 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Vallan and similar soils: 60 percent

Rock outcrop: 40 percent

Characteristics of Vallan

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (1 to 3 inches thick) over colluvium and residuum derived from rhyodacite and andesitic rock

Slope range: 15 to 50 percent

Depth to restrictive feature: 6 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 2.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: DRY STONY 16-24 PZ (R043AY201WA)

Typical profile

A—0 to 2 inches; ashy loam

2Bw—2 to 10 inches; loam

2Bt—10 to 16 inches; gravelly loam

2R—16 to 20 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 15 to 50 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Major Uses

Livestock grazing and timber production

531—Vanbrunt-Swakane-Rock outcrop complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 2,000 to 4,600 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 45 to 52 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Vanbrunt and similar soils: 55 percent

Swakane and similar soils: 20 percent

Rock outcrop: 10 percent
Dissimilar minor components: 15 percent

Characteristics of Vanbrunt

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 19 inches thick) over colluvium and residuum derived from granitic rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Ponderosa pine-Douglas-fir/bluebunch wheatgrass (CDG311) and ponderosa pine/bitterbrush/bluebunch wheatgrass (CPS241)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A1—1 to 8 inches; stony ashy sandy loam

A2—8 to 13 inches; very cobbly ashy sandy loam

2Bw—13 to 20 inches; very cobbly sandy loam

2C—20 to 26 inches; very cobbly sandy loam

2R—26 to 30 inches; unweathered bedrock

Characteristics of Swakane

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 12 inches thick) over colluvium and residuum derived from granitic rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 1.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: STONY 16-24 PZ (R006XY202WA)

Typical profile

A1—0 to 4 inches; very stony ashy sandy loam

A2—4 to 11 inches; very cobbly ashy sandy loam

2Bw—11 to 17 inches; very gravelly sandy loam

2R—17 to 21 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 35 to 65 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Leiko soils

Percentage of map unit: 10 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

532—Verhart-Rock outcrop complex, cold, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 4,800 to 6,600 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 37 to 40 degrees F

Frost-free period: 60 to 80 days

Map Unit Composition

Verhart, cold, and similar soils: 55 percent

Rock outcrop: 40 percent

Dissimilar minor component: 5 percent

Characteristics of Verhart, Cold

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 14 inches thick) over colluvium and residuum derived from sedimentary rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Whitebark pine/pinegrass (CAG112)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 5 inches; stony ashy sandy loam

Bw—5 to 12 inches; very gravelly ashy sandy loam

2C—12 to 25 inches; very gravelly sandy loam

2R—25 to 29 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 35 to 65 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Component

Unnamed soils

Percentage of map unit: 5 percent

Major Use

Timber production

533—Veridge-Farway complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,800 to 3,000 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Veridge and similar soils: 55 percent

Farway and similar soils: 25 percent

Dissimilar minor components: 20 percent

Characteristics of Veridge

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over colluvium and residuum derived from sedimentary rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 5 inches; gravelly ashy sandy loam

Bw—5 to 13 inches; gravelly ashy sandy loam
2CB—13 to 22 inches; very gravelly sandy loam
2C—22 to 31 inches; very cobbly sandy loam
2R—31 to 35 inches; unweathered bedrock

Characteristics of Farway

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 30 inches thick) over colluvium derived from volcanic and sedimentary rock

Slope range: 35 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 6.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 5 inches; gravelly ashy sandy loam

Bw1—5 to 10 inches; gravelly ashy sandy loam

Bw2—10 to 21 inches; gravelly ashy sandy loam

2C—21 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Finney soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Shalrock soils

Percentage of map unit: 5 percent

Stapaloop soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

534—Veridge-Farway complex, moist, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,800 to 3,700 feet

Mean annual precipitation: 22 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Veridge, moist, and similar soils: 55 percent

Farway, moist, and similar soils: 30 percent

Dissimilar minor components: 15 percent

Characteristics of Veridge, Moist

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches) over colluvium and residuum derived from sedimentary rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pachistima/pinegrass (CDS412)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 5 inches; gravelly ashy sandy loam

Bw—5 to 13 inches; gravelly ashy sandy loam

2CB—13 to 22 inches; very gravelly sandy loam

2C—22 to 31 inches; very cobbly sandy loam

2R—31 to 35 inches; unweathered bedrock

Characteristics of Farway, Moist

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (14 to 30 inches thick) over colluvium derived from volcanic and sedimentary rock

Slope range: 35 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 6.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pachistima/pinegrass (CDS412)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 5 inches; gravelly ashy sandy loam

Bw1—5 to 10 inches; gravelly ashy sandy loam

Bw2—10 to 21 inches; gravelly ashy sandy loam

2C—21 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Santop soils

Percentage of map unit: 5 percent

Yellcreek soils

Percentage of map unit: 5 percent

Shalrock soils

Percentage of map unit: 3 percent

Rock outcrop

Percentage of map unit: 2 percent

Major Uses

Livestock grazing and timber production

535—Veridge-Rock outcrop complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,800 to 3,000 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Veridge and similar soils: 60 percent

Rock outcrop: 25 percent

Dissimilar minor components: 15 percent

Characteristics of Veridge

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (7 to 14 inches thick) over colluvium and residuum derived from sedimentary rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 5 inches; gravelly ashy sandy loam

Bw—5 to 13 inches; gravelly ashy sandy loam

2CB—13 to 22 inches; very gravelly sandy loam

2C—22 to 31 inches; very cobbly sandy loam

2R—31 to 35 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 35 to 65 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Johntom soils

Percentage of map unit: 5 percent

Redpeak soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

536—Vinegar ashy very fine sandy loam, 0 to 5 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,200 to 2,400 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Vinegar and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Vinegar

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash and pumice

Slope range: 0 to 5 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Very high (about 12.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e
Plant community class: Douglas-fir/pachistima/pinegrass (CDS412)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 6 inches; ashy very fine sandy loam
Bw1—6 to 16 inches; ashy coarse sandy loam
Bw2—16 to 34 inches; paragravelly ashy coarse sandy loam
Bw3—34 to 60 inches; paragravelly ashy coarse sandy loam

Dissimilar Minor Components

Thow soils

Percentage of map unit: 10 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

537—Vinegar-Thow complex, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 2,700 to 4,000 feet
Mean annual precipitation: 20 to 24 inches
Mean annual air temperature: 40 to 44 degrees F
Frost-free period: 90 to 120 days

Map Unit Composition

Vinegar and similar soils: 55 percent
Thow and similar soils: 35 percent
Dissimilar minor component: 10 percent

Characteristics of Vinegar

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash and pumice
Slope range: 15 to 35 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Very high (about 12.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/pachistima/pinegrass (CDS412)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 6 inches; ashy sandy loam

Bw1—6 to 16 inches; ashy coarse sandy loam

Bw2—16 to 34 inches; paragravelly ashy coarse sandy loam

Bw3—34 to 60 inches; paragravelly ashy coarse sandy loam

Characteristics of Thow

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash and pumice

Slope range: 15 to 35 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): High (about 11 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/pachistima/pinegrass (CDS412)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

C—1 to 6 inches; ashy loamy fine sand

2A—6 to 12 inches; ashy sandy loam

2Bw1—12 to 38 inches; paragravelly ashy coarse sandy loam

2Bw2—38 to 51 inches; paragravelly ashy loamy coarse sand

2Bw3—51 to 60 inches; paragravelly ashy loamy sand

Dissimilar Minor Component

Unnamed soils

Percentage of map unit: 10 percent

Major Uses

Livestock grazing and timber production

538—Vingulch-Rock outcrop complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,700 to 4,000 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Vingulch and similar soils: 75 percent

Rock outcrop: 15 percent

Dissimilar minor components: 10 percent

Characteristics of Vingulch

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash and pumice (14 to 36 inches thick) over colluvium and residuum derived from volcanic and sedimentary rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 6.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pachistima/pinegrass (CDS412)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

C—1 to 4 inches; ashy loamy very fine sand

2A—4 to 12 inches; ashy coarse sandy loam

2Bw1—12 to 22 inches; paragravelly ashy coarse sandy loam

2Bw2—22 to 28 inches; paragravelly ashy coarse sandy loam

2C1—28 to 34 inches; paragravelly ashy loamy coarse sand

3C2—34 to 39 inches; very gravelly sandy loam

3R—39 to 43 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 35 to 65 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Leftcreek soils

Percentage of map unit: 5 percent

Thow soils

Percentage of map unit: 3 percent

Vinegar soils

Percentage of map unit: 2 percent

Major Uses

Livestock grazing and timber production

**539—Vitrandic Humicryepts-Lithic Humicryepts complex,
35 to 70 percent slopes**

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 7,100 to 7,800 feet

Mean annual precipitation: 30 to 35 inches

Mean annual air temperature: 35 to 40 degrees F

Frost-free period: 40 to 70 days

Map Unit Composition

Vitrandic Humicryepts, nonforested, and similar soils: 50 percent

Lithic Humicryepts, nonforested, udic, and similar soils: 50 percent

Characteristics of Vitrandic Humicryepts, Nonforested

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 25 inches thick) over colluvium and residuum derived from metamorphic, sedimentary, and volcanic rock

Slope range: 35 to 70 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Alpine Zone series, Eastern Washington (CA)

Typical profile

A1—0 to 4 inches; gravelly ashy sandy loam

A2—4 to 12 inches; gravelly ashy sandy loam

Bw—12 to 20 inches; very gravelly ashy sandy loam

2C—20 to 31 inches; very gravelly sandy loam

2R—31 to 35 inches; unweathered bedrock

Characteristics of Lithic Humicryepts, Nonforested, Udic

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash or mixed volcanic ash (4 to 12 inches thick) over colluvium and residuum

Slope range: 35 to 70 percent

Depth to restrictive feature: 8 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 2.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Alpine Zone series, Eastern Washington (CA)

Typical profile

A—0 to 5 inches; very stony ashy fine sandy loam

Bw—5 to 11 inches; very stony ashy fine sandy loam

2C—11 to 20 inches; extremely stony sandy loam

2R—20 to 30 inches; unweathered bedrock

Major Uses

Livestock grazing and timber production

540—Vitrandic Haploxerepts-Lithic Haploxerepts-Rock outcrop complex, dry, 15 to 90 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 2,600 to 3,800 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Vitrandic Haploxerepts and similar soils: 35 percent

Lithic Haploxerepts, forested, dry, and similar soils: 30 percent

Rock outcrop: 20 percent

Dissimilar minor components: 15 percent

Characteristics of Vitrandic Haploxerepts

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 22 inches thick) over colluvium and residuum derived from volcanic and sedimentary rock

Slope range: 15 to 90 percent

Depth to restrictive feature: 40 to 60 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Ponderosa pine-Douglas-fir/bluebunch wheatgrass (CDG311)

Typical profile

Oe—0 to 2 inches; moderately decomposed plant material

A—2 to 6 inches; gravelly ashy sandy loam

Bw1—6 to 11 inches; gravelly ashy sandy loam

Bw2—11 to 17 inches; very gravelly ashy sandy loam

BC—17 to 24 inches; very gravelly ashy loam

2C1—24 to 37 inches; very gravelly sandy loam

2C2—37 to 47 inches; very gravelly sandy loam

2R—47 to 49 inches; unweathered bedrock

Characteristics of Lithic Haploxerepts, Forested, Dry

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash or mixed volcanic ash (4 to 12 inches thick) over colluvium and residuum

Slope range: 15 to 90 percent

Depth to restrictive feature: 8 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: VERY SHALLOW 10-16 PZ (R008XY301WA)

Plant community class: Ponderosa pine-Douglas-fir/bluebunch wheatgrass (CDG311)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 4 inches; cobbly ashy sandy loam

Bw—4 to 13 inches; cobbly ashy sandy loam

2C—13 to 19 inches; very gravelly sandy loam

2R—19 to 23 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 15 to 90 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Rubble land

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 10 percent

Major Uses

Livestock grazing and timber production

541—Vitrixerandic Haplocryepts-Cryaquolls, 0 to 5 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 3,900 to 4,400 feet

Mean annual precipitation: 25 to 35 inches
Mean annual air temperature: 37 to 42 degrees F
Frost-free period: 70 to 90 days

Map Unit Composition

Vitriixerandic Haplocryepts, forested, and similar soils: 60 percent
Cryaquolls, somewhat poorly drained, till substratum, and similar soils: 30 percent
Dissimilar minor component: 10 percent

Characteristics of Vitriixerandic Haplocryepts, Forested

Setting

Landform: Outwash terraces and outwash plains of mountains

Properties and qualities

Parent material: Mixed volcanic ash (12 to 25 inches thick) over glacial outwash and glacial till

Slope range: 0 to 5 percent

Depth to restrictive feature: 12 to 25 inches to strongly contrasting textural stratification

Drainage class: Moderately well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: Rare (see Water Features table)

Frequency of ponding: None

Seasonal high water table (minimum depth): About 30 to 48 inches (see Water Features table)

Available water capacity (entire profile): Moderate (about 6.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Subalpine fir/twinflower (CEF211) and subalpine fir/twinflower (CEF222)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 4 inches; ashy fine sandy loam

Bw1—4 to 12 inches; ashy fine sandy loam

Bw2—12 to 21 inches; ashy fine sandy loam

2C1—21 to 28 inches; very gravelly fine sandy loam

2C2—28 to 42 inches; very gravelly sandy loam

2Cg—42 to 60 inches; very gravelly sandy loam

Characteristics of Cryaquolls, Somewhat Poorly Drained, Till Substratum

Setting

Landform: Depressions and drainageways of mountains

Properties and qualities

Parent material: Mixed alluvium over glacial till and glacial outwash

Slope range: 0 to 5 percent

Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification

Drainage class: Somewhat poorly drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: Occasional (see Water Features table)

Frequency of ponding: Rare (see Water Features table)

Seasonal high water table (minimum depth): About 24 to 36 inches (see Water Features table)

Available water capacity (entire profile): Moderate (about 6.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6w

Plant community class: Subalpine fir series, wetland (CEW0)

Typical profile

Oe—0 to 2 inches; moderately decomposed plant material

A1—2 to 9 inches; loam

A2—9 to 17 inches; loam

Bg—17 to 21 inches; silt loam

2Cg1—21 to 31 inches; sandy loam

2Cg2—31 to 40 inches; gravelly loamy coarse sand

2Cg3—40 to 60 inches; gravelly fine sandy loam

Dissimilar Minor Component

Unnamed soils

Percentage of map unit: 10 percent

Major Uses

Livestock grazing and wildlife habitat

542—Wadams ashy sandy loam, 3 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 1,900 to 2,900 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Wadams and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Wadams

Setting

Landform: Mountains and hills

Properties and qualities

Parent material: Volcanic ash (24 to 36 inches thick) over glacial till

Slope range: 3 to 15 percent

Depth to restrictive feature: 24 to 36 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 6.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Plant community class: Ponderosa pine/bitterbrush/bluebunch wheatgrass
(CPS241)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 5 inches; ashy sandy loam
Bw1—5 to 24 inches; ashy sandy loam
Bw2—24 to 32 inches; paragravelly ashy sandy loam
2C1—32 to 45 inches; cobbly loamy sand
2C2—45 to 60 inches; very stony loamy sand

Dissimilar Minor Components

Kartar soils

Percentage of map unit: 10 percent

Lani soils

Percentage of map unit: 10 percent

Major Uses

Crop production, livestock grazing, and timber production

***543—Wadams ashy sandy loam, 0 to 25 percent slopes,
extremely stony***

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 2,200 to 3,000 feet
Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 110 to 140 days

Map Unit Composition

Wadams, extremely stony surface, and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Wadams, Extremely Stony Surface

Setting

Landform: Mountains and hills

Properties and qualities

Parent material: Volcanic ash (24 to 36 inches thick) over glacial till
Slope range: 0 to 25 percent
Percentage of surface area covered with stones: 3 to 15 percent
Depth to restrictive feature: 24 to 36 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Moderate (about 6.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s
Plant community class: Ponderosa pine/bitterbrush/bluebunch wheatgrass
(CPS241)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 5 inches; ashy sandy loam
Bw1—5 to 24 inches; ashy sandy loam
Bw2—24 to 32 inches; paragravelly ashy sandy loam
2C1—32 to 45 inches; cobbly loamy sand
2C2—45 to 60 inches; very stony loamy sand

Dissimilar Minor Components

Kartar soils

Percentage of map unit: 10 percent

Lani soils

Percentage of map unit: 10 percent

Major Uses

Livestock grazing and timber production

544—Wagberg stony ashy fine sandy loam, 5 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 2,000 to 3,700 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 45 to 52 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Wagberg and similar soils: 100 percent

Characteristics of Wagberg

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 14 inches thick) over glacial till

Slope range: 5 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: STONY 16-24 PZ (R006XY202WA)

Typical profile

A—0 to 10 inches; stony ashy fine sandy loam
Bw1—10 to 14 inches; gravelly ashy sandy loam
2Bw2—14 to 24 inches; very gravelly sandy loam
2C1—24 to 35 inches; very gravelly sandy loam
2C2—35 to 60 inches; very gravelly loamy sand

Major Use

Livestock grazing

545—Wagberg stony ashy fine sandy loam, 30 to 60 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 2,000 to 3,700 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 45 to 52 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Wagberg and similar soils: 100 percent

Characteristics of Wagberg

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 14 inches thick) over glacial till

Slope range: 30 to 60 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: STONY 16-24 PZ (R006XY202WA)

Typical profile

A—0 to 10 inches; stony ashy fine sandy loam

Bw1—10 to 14 inches; gravelly ashy sandy loam

2Bw2—14 to 24 inches; very gravelly sandy loam

2C1—24 to 35 inches; very gravelly sandy loam

2C2—35 to 60 inches; very gravelly loamy sand

Major Use

Livestock grazing

546—Wagberg-Lithic Ultic Haploxerolls-Rock outcrop complex, 35 to 90 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 2,000 to 3,700 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Wagberg, cool, and similar soils: 50 percent

Lithic Ultic Haploxerolls and similar soils: 20 percent

Rock outcrop: 20 percent

Dissimilar minor components: 10 percent

Characteristics of Wagberg, Cool

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 14 inches thick) over glacial till

Slope range: 35 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: COOL STONY 16-24 PZ (R006XY203WA)

Typical profile

A—0 to 10 inches; stony ashy fine sandy loam

Bw1—10 to 14 inches; gravelly ashy sandy loam

2Bw2—14 to 24 inches; very gravelly sandy loam

2C1—24 to 35 inches; very gravelly sandy loam

2C2—35 to 60 inches; very gravelly loamy sand

Characteristics of Lithic Ultic Haploxerolls

Setting

Landform: Mountains

Properties and qualities

Parent material: Colluvium and residuum derived from metasedimentary and sedimentary rock

Slope range: 35 to 90 percent

Depth to restrictive feature: 8 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 1.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: STONY 16-24 PZ (R006XY202WA)

Typical profile

A—0 to 10 inches; very stony sandy loam
C—10 to 15 inches; very cobbly sandy loam
R—15 to 25 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains
Slope range: 35 to 90 percent
Description of areas: Barren areas of exposed bedrock
Land capability subclass (nonirrigated): 8
Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Rubble land

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

547—Wagberg-Swakane complex, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 2,000 to 3,700 feet
Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 45 to 52 degrees F
Frost-free period: 110 to 140 days

Map Unit Composition

Wagberg and similar soils: 65 percent
Swakane and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Wagberg

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 14 inches thick) over glacial till
Slope range: 15 to 35 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 4.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s
Ecological site: STONY 16-24 PZ (R006XY202WA)

Typical profile

A—0 to 10 inches; ashy sandy loam
Bw1—10 to 14 inches; gravelly ashy sandy loam
2Bw2—14 to 24 inches; very gravelly sandy loam
2C1—24 to 35 inches; very gravelly sandy loam
2C2—35 to 60 inches; very gravelly loamy sand

Characteristics of Swakane

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 12 inches thick) over colluvium and residuum derived from granitic rock
Slope range: 15 to 35 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Very low (about 1.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e
Ecological site: STONY 16-24 PZ (R006XY202WA)

Typical profile

A1—0 to 4 inches; very stony ashy sandy loam
A2—4 to 11 inches; very cobbly ashy sandy loam
2Bw—11 to 17 inches; very gravelly sandy loam
2R—17 to 21 inches; unweathered bedrock

Dissimilar Minor Components

Lithic Ultic Haploxerolls

Percentage of map unit: 5 percent

Storer soils

Percentage of map unit: 5 percent

Wenner soils

Percentage of map unit: 3 percent

Rock outcrop

Percentage of map unit: 2 percent

Major Use

Livestock grazing

548—Wagberg-Swakane-Rock outcrop complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,000 to 3,700 feet
Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 45 to 52 degrees F
Frost-free period: 110 to 140 days

Map Unit Composition

Wagberg and similar soils: 55 percent
Swakane and similar soils: 20 percent
Rock outcrop: 10 percent
Dissimilar minor components: 15 percent

Characteristics of Wagberg

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 14 inches thick) over glacial till
Slope range: 35 to 65 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 4.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Ecological site: STONY 16-24 PZ (R006XY202WA)

Typical profile

A—0 to 10 inches; ashy sandy loam
Bw1—10 to 14 inches; gravelly ashy sandy loam
2Bw2—14 to 24 inches; very gravelly sandy loam
2C1—24 to 35 inches; very gravelly sandy loam
2C2—35 to 60 inches; very gravelly loamy sand

Characteristics of Swakane

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 12 inches thick) over colluvium and residuum derived from granitic rock
Slope range: 35 to 65 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Very low (about 1.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Ecological site: STONY 16-24 PZ (R006XY202WA)

Typical profile

A1—0 to 4 inches; very stony ashy sandy loam
A2—4 to 11 inches; very cobbly ashy sandy loam
2Bw—11 to 17 inches; very gravelly sandy loam
2R—17 to 21 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains
Slope range: 35 to 65 percent
Description of areas: Barren areas of exposed bedrock
Land capability subclass (nonirrigated): 8
Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Lithic Ultic Haploxerolls

Percentage of map unit: 5 percent

Storer soils

Percentage of map unit: 5 percent

Wenner soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

549—Wagberg-Swakane-Rock outcrop complex, 45 to 90 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 2,000 to 3,700 feet
Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 45 to 52 degrees F
Frost-free period: 110 to 140 days

Map Unit Composition

Wagberg, extremely stony surface, and similar soils: 30 percent
Swakane and similar soils: 30 percent
Rock outcrop: 20 percent
Dissimilar minor component: 20 percent

Characteristics of Wagberg, Extremely Stony Surface

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 14 inches thick) over glacial till
Slope range: 45 to 90 percent
Percentage of surface area covered with stones: 3 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: STONY 16-24 PZ (R006XY202WA)

Typical profile

A—0 to 10 inches; ashy sandy loam

Bw1—10 to 14 inches; gravelly ashy sandy loam

2Bw2—14 to 24 inches; very gravelly sandy loam

2C1—24 to 35 inches; very gravelly sandy loam

2C2—35 to 60 inches; very gravelly loamy sand

Characteristics of Swakane

Setting

Landform: South-facing slopes of mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 12 inches thick) over colluvium and residuum derived from granitic rock

Slope range: 45 to 90 percent

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 1.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: STONY 16-24 PZ (R006XY202WA)

Typical profile

A1—0 to 4 inches; very stony ashy sandy loam

A2—4 to 11 inches; very cobbly ashy sandy loam

2Bw—11 to 17 inches; very gravelly sandy loam

2R—17 to 21 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 45 to 90 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Component

Unnamed soils

Percentage of map unit: 20 percent

Major Use

Livestock grazing

550—Wapal ashy coarse sandy loam, 0 to 20 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 2,200 to 5,000 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 43 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Wapal, cool, and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Wapal, Cool

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Mixed volcanic ash (10 to 20 inches thick) over glacial outwash

Slope range: 0 to 20 percent

Depth to restrictive feature: 10 to 20 inches to strongly contrasting textural stratification

Drainage class: Somewhat excessively drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 2.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Plant community class: Douglas-fir/dwarf huckleberry (CDS831)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 5 inches; ashy coarse sandy loam

Bw—5 to 12 inches; very gravelly ashy coarse sandy loam

2C1—12 to 33 inches; extremely cobbly loamy coarse sand

2C2—33 to 60 inches; very gravelly loamy coarse sand

Dissimilar Minor Components

Goddard soils

Percentage of map unit: 5 percent

Merkel soils

Percentage of map unit: 5 percent

Torboy soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

551—Wapal stony ashy coarse sandy loam, 0 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 2,200 to 5,000 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 43 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Wapal, cool, and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Wapal, Cool

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Mixed volcanic ash (10 to 20 inches thick) over glacial outwash

Slope range: 0 to 15 percent

Depth to restrictive feature: 10 to 20 inches to strongly contrasting textural stratification

Drainage class: Somewhat excessively drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 2.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4s

Plant community class: Douglas-fir/dwarf huckleberry (CDS831)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 5 inches; stony ashy coarse sandy loam

Bw—5 to 12 inches; very gravelly ashy coarse sandy loam

2C1—12 to 33 inches; extremely cobbly loamy coarse sand

2C2—33 to 60 inches; very gravelly loamy coarse sand

Dissimilar Minor Components

Torboy soils

Percentage of map unit: 10 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

552—Wapal stony ashy coarse sandy loam, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 2,600 to 3,700 feet

Mean annual precipitation: 18 to 22 inches

Mean annual air temperature: 40 to 45 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Wapal, dry, and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Wapal, Dry

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Mixed volcanic ash (10 to 20 inches thick) over glacial outwash

Slope range: 15 to 35 percent

Depth to restrictive feature: 10 to 20 inches to strongly contrasting textural stratification

Drainage class: Somewhat excessively drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 2.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/bitterbrush/pinegrass (CDS675)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 5 inches; stony ashy coarse sandy loam

Bw—5 to 12 inches; very gravelly ashy coarse sandy loam

2C1—12 to 33 inches; extremely cobbly loamy coarse sand

2C2—33 to 60 inches; very gravelly loamy coarse sand

Dissimilar Minor Components

Brevco soils

Percentage of map unit: 5 percent

Pebcreek soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 3 percent

Sacheen soils

Percentage of map unit: 2 percent

Major Uses

Livestock grazing and timber production

553—Wapal stony ashy coarse sandy loam, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,600 to 4,600 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 45 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Wapal and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Wapal

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Mixed volcanic ash (10 to 20 inches thick) over glacial outwash

Slope range: 35 to 65 percent

Depth to restrictive feature: 10 to 20 inches to strongly contrasting textural stratification

Drainage class: Somewhat excessively drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 2.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/kinnikinnick (bearberry)/pinegrass (CDS655)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 5 inches; stony ashy coarse sandy loam

Bw—5 to 12 inches; very gravelly ashy coarse sandy loam

2C1—12 to 33 inches; extremely cobbly loamy coarse sand

2C2—33 to 60 inches; very gravelly loamy coarse sand

Dissimilar Minor Components

Merkel soils

Percentage of map unit: 10 percent

Pebcreek soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

554—Wapal-Brevco complex, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Soil Survey of Okanogan County Area, Washington

Elevation: 3,000 to 5,500 feet
Mean annual precipitation: 20 to 24 inches
Mean annual air temperature: 40 to 45 degrees F
Frost-free period: 90 to 120 days

Map Unit Composition

Wapal and similar soils: 60 percent
Brevco and similar soils: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Wapal

Setting

Landform: Outwash terraces of mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 20 inches thick) over glacial outwash
Slope range: 15 to 35 percent
Depth to restrictive feature: 10 to 20 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity to transmit water (Ksat): High or very high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Very low (about 2.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e
Plant community class: Douglas-fir/kinnikinnick (bearberry)/pinegrass (CDS655)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 5 inches; stony ashy coarse sandy loam
Bw—5 to 12 inches; very gravelly ashy coarse sandy loam
2C1—12 to 33 inches; extremely cobbly loamy coarse sand
2C2—33 to 60 inches; very gravelly loamy coarse sand

Characteristics of Brevco

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 14 inches thick) over colluvium and residuum derived from granitic rock
Slope range: 15 to 35 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 3.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e
Plant community class: Douglas-fir/kinnikinnick (bearberry)/pinegrass (CDS655)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 4 inches; stony ashy coarse sandy loam

Bw—4 to 12 inches; stony ashy coarse sandy loam

2C1—12 to 26 inches; very gravelly sandy loam

2C2—26 to 39 inches; very cobbly coarse sandy loam

2R—39 to 43 inches; unweathered bedrock

Dissimilar Minor Components

Merkel soils

Percentage of map unit: 5 percent

Pebcreek soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

555—Wapal-Brevco complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 3,000 to 5,500 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 45 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Wapal and similar soils: 60 percent

Brevco and similar soils: 25 percent

Dissimilar minor components: 15 percent

Characteristics of Wapal

Setting

Landform: Outwash terraces of mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 20 inches thick) over glacial outwash

Slope range: 35 to 65 percent

Depth to restrictive feature: 10 to 20 inches to strongly contrasting textural stratification

Drainage class: Somewhat excessively drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 2.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/kinnikinnick (bearberry)/pinegrass (CDS655)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 5 inches; stony ashy coarse sandy loam
Bw—5 to 12 inches; very gravelly ashy coarse sandy loam
2C1—12 to 33 inches; extremely cobbly loamy coarse sand
2C2—33 to 60 inches; very gravelly loamy coarse sand

Characteristics of Brevco

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 14 inches thick) over colluvium and residuum derived from granitic rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/kinnikinnick (bearberry)/pinegrass (CDS655)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 4 inches; stony ashy coarse sandy loam
Bw—4 to 12 inches; gravelly ashy coarse sandy loam
2C1—12 to 26 inches; very gravelly sandy loam
2C2—26 to 39 inches; very cobbly coarse sandy loam
2R—39 to 43 inches; unweathered bedrock

Dissimilar Minor Components

Merkel soils

Percentage of map unit: 5 percent

Pebcreek soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

556—Wapal-Rock outcrop complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 2,300 to 4,400 feet

Mean annual precipitation: 18 to 22 inches

Mean annual air temperature: 40 to 45 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Wapal, dry, and similar soils: 70 percent

Rock outcrop: 15 percent

Dissimilar minor components: 15 percent

Characteristics of Wapal, Dry

Setting

Landform: Outwash terraces of mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 20 inches thick) over glacial outwash

Slope range: 35 to 65 percent

Depth to restrictive feature: 10 to 20 inches to strongly contrasting textural stratification

Drainage class: Somewhat excessively drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 2.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/bitterbrush/pinegrass (CDS675)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 5 inches; stony ashy coarse sandy loam

Bw—5 to 12 inches; very gravelly ashy coarse sandy loam

2C1—12 to 33 inches; extremely cobbly loamy coarse sand

2C2—33 to 60 inches; very gravelly loamy coarse sand

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 35 to 65 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Brevco soils

Percentage of map unit: 10 percent

Rubble land

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

557—Wapal-Sacheen complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 2,300 to 4,400 feet

Mean annual precipitation: 18 to 22 inches

Mean annual air temperature: 43 to 45 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Wapal, dry, warm, and similar soils: 50 percent

Sacheen and similar soils: 30 percent

Dissimilar minor components: 20 percent

Characteristics of Wapal, Dry, Warm

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Mixed volcanic ash (10 to 20 inches thick) over glacial outwash

Slope range: 35 to 65 percent

Depth to restrictive feature: 10 to 20 inches to strongly contrasting textural stratification

Drainage class: Somewhat excessively drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 2.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 5 inches; stony ashy coarse sandy loam

Bw—5 to 12 inches; very gravelly ashy coarse sandy loam

2C1—12 to 33 inches; extremely cobbly loamy coarse sand

2C2—33 to 60 inches; very gravelly loamy coarse sand

Characteristics of Sacheen

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Glacial outwash or glaciofluvial deposits

Slope range: 35 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Somewhat excessively drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pinegrass (CDG131) and Douglas-fir/kinnikinnick (bearberry)/pinegrass (CDS655)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 6 inches; loamy sand

C1—6 to 16 inches; loamy sand

C2—16 to 60 inches; loamy sand

Dissimilar Minor Components

Merkel soils

Percentage of map unit: 5 percent

Sitdown soils

Percentage of map unit: 5 percent

Stapaloop soils

Percentage of map unit: 5 percent

Stepstone soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

558—Water

Major land resource area (MLRA): Not assigned because this map unit and its polygons occur throughout the survey area

Map unit composition: Water—100 percent

Description of areas: Streams, rivers, lakes, and reservoirs; inundated by water in most years; depending on time of year and amount of spring runoff, boundary between water and soil polygons can fluctuate

Land capability subclass (nonirrigated): 8

Major use: Aquatic habitat

559—Wenner ashy loam, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 2,700 to 3,100 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Wenner and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Wenner

Setting

Landform: Hills

Properties and qualities

Parent material: Mixed volcanic ash (10 to 18 inches thick) over glacial till

Slope range: 15 to 35 percent

Depth to restrictive feature: None within a depth of 60 inches

Soil Survey of Okanogan County Area, Washington

Drainage class: Well drained
Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): High (about 9.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e
Ecological site: STONY 16-24 PZ (R006XY202WA)

Typical profile

A1—0 to 5 inches; ashy loam
A2—5 to 12 inches; ashy loam
AB—12 to 18 inches; gravelly ashy sandy loam
2Bt1—18 to 25 inches; gravelly clay loam
2Bt2—25 to 33 inches; gravelly clay loam
2Bt3—33 to 60 inches; gravelly clay loam

Dissimilar Minor Components

Storer soils

Percentage of map unit: 5 percent

Swakane soils

Percentage of map unit: 5 percent

Wagberg soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

560—Wilder-Republic complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 2,500 to 3,400 feet
Mean annual precipitation: 17 to 20 inches
Mean annual air temperature: 40 to 44 degrees F
Frost-free period: 90 to 120 days

Map Unit Composition

Wilder and similar soils: 55 percent
Republic and similar soils: 30 percent
Dissimilar minor components: 15 percent

Characteristics of Wilder

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (14 to 20 inches thick) over glaciofluvial deposits
Slope range: 35 to 65 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained

Soil Survey of Okanogan County Area, Washington

Capacity to transmit water (Ksat): Moderately high to very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 6.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/bluebunch wheatgrass (CDG322)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A1—1 to 7 inches; ashy sandy loam

A2—7 to 11 inches; ashy sandy loam

Bw—11 to 16 inches; ashy sandy loam

2BC—16 to 22 inches; loamy sand

2C1—22 to 40 inches; gravelly loamy sand

2C2—40 to 60 inches; sand

Characteristics of Republic

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (10 to 20 inches thick) over glacial till

Slope range: 35 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): Moderately high or high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Moderate (about 8.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pinegrass—bluebunch wheatgrass (CDG134)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A1—1 to 7 inches; ashy loam

A2—7 to 16 inches; ashy sandy loam

2Bw1—16 to 29 inches; sandy loam

2Bw2—29 to 36 inches; gravelly sandy loam

2C—36 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Donovan soils

Percentage of map unit: 10 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

**561—Wilma-Lithic Haploxerepts-Rock outcrop complex,
15 to 35 percent slopes**

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,300 to 4,800 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Wilma and similar soils: 45 percent

Lithic Haploxerepts, forested, and similar soils: 25 percent

Rock outcrop: 15 percent

Dissimilar minor components: 15 percent

Characteristics of Wilma

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (10 to 14 inches thick) over colluvium and residuum derived from granitic rock

Slope range: 15 to 35 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 7 inches; gravelly ashy fine sandy loam

Bw—7 to 13 inches; gravelly ashy fine sandy loam

2BC—13 to 18 inches; very gravelly fine sandy loam

2C—18 to 29 inches; extremely gravelly coarse sandy loam

2R—29 to 33 inches; unweathered bedrock

Characteristics of Lithic Haploxerepts, Forested

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash or mixed volcanic ash (4 to 12 inches thick) over colluvium and residuum

Slope range: 15 to 35 percent

Depth to restrictive feature: 8 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Soil Survey of Okanogan County Area, Washington

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Douglas-fir/pinegrass (CDG131) and Douglas-fir/kinnikinnick (bearberry)/pinegrass (CDS655)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 4 inches; cobbly ashy sandy loam

Bw—4 to 13 inches; cobbly ashy sandy loam

2C—13 to 19 inches; very gravelly sandy loam

2R—19 to 23 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 15 to 35 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Merkel soils

Percentage of map unit: 5 percent

Nevine soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

562—Wilma-Lithic Haploxerepts-Rock outcrop complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,300 to 4,800 feet

Mean annual precipitation: 22 to 25 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Wilma, moist, and similar soils: 55 percent

Lithic Haploxerepts, forested, and similar soils: 25 percent

Rock outcrop: 10 percent

Dissimilar minor components: 10 percent

Characteristics of Wilma, Moist

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (10 to 14 inches thick) over colluvium and residuum derived from granitic rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/kinnikinnick (bearberry)/pinegrass (CDS655)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 7 inches; gravelly ashy fine sandy loam

Bw—7 to 13 inches; gravelly ashy fine sandy loam

2BC—13 to 18 inches; very gravelly fine sandy loam

2C—18 to 29 inches; extremely gravelly coarse sandy loam

2R—29 to 33 inches; unweathered bedrock

Characteristics of Lithic Haploxerepts, Forested

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash or mixed volcanic ash (4 to 12 inches thick) over colluvium and residuum

Slope range: 35 to 65 percent

Depth to restrictive feature: 8 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 4 inches; cobbly ashy sandy loam

Bw—4 to 13 inches; cobbly ashy sandy loam

2C—13 to 19 inches; very gravelly sandy loam

2R—19 to 23 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 35 to 65 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Brevco soils

Percentage of map unit: 5 percent

Pettijohn soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

563—Wilma-Rock outcrop complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,000 to 3,400 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 42 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Wilma, cool, and similar soils: 60 percent

Rock outcrop: 20 percent

Dissimilar minor components: 20 percent

Characteristics of Wilma, Cool

Setting

Landform: Mountains

Properties and qualities

Parent material: Volcanic ash (10 to 14 inches thick) over colluvium and residuum derived from granitic rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/low huckleberry (CDS832)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 7 inches; gravelly ashy fine sandy loam

Bw—7 to 13 inches; gravelly ashy fine sandy loam

2BC—13 to 18 inches; very gravelly fine sandy loam

2C—18 to 29 inches; extremely gravelly coarse sandy loam

2R—29 to 33 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 35 to 65 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Nevine soils

Percentage of map unit: 10 percent

Brevco soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

564—Winsand-Verhart complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 43A—Northern Rocky Mountains

Elevation: 4,800 to 5,800 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 37 to 42 degrees F

Frost-free period: 70 to 90 days

Map Unit Composition

Winsand and similar soils: 60 percent

Verhart and similar soils: 20 percent

Dissimilar minor components: 20 percent

Characteristics of Winsand

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 14 inches thick) over colluvium and residuum derived from sedimentary rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 40 to 60 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 4.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Subalpine fir/pinegrass (CEG310)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 6 inches; gravelly ashy sandy loam

Bw—6 to 13 inches; gravelly ashy sandy loam
2C1—13 to 25 inches; very cobbly sandy loam
2C2—25 to 44 inches; very cobbly sandy loam
2R—44 to 48 inches; unweathered bedrock

Characteristics of Verhart

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 14 inches thick) over colluvium and residuum derived from sedimentary rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 3.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Subalpine fir/pinegrass (CEG310)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 5 inches; stony ashy sandy loam

Bw—5 to 12 inches; very gravelly ashy sandy loam

2C—12 to 25 inches; very gravelly sandy loam

2R—25 to 29 inches; unweathered bedrock

Dissimilar Minor Components

Longort soils

Percentage of map unit: 5 percent

Nicmar soils

Percentage of map unit: 5 percent

Unnamed soils

Percentage of map unit: 10 percent

Major Uses

Livestock grazing and timber production

565—Winthrop gravelly loamy sand, 0 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 1,300 to 2,700 feet

Mean annual precipitation: 11 to 15 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Winthrop and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Winthrop

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Glacial outwash

Slope range: 0 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Excessively drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4s

Land capability subclass (irrigated): 4e

Plant community class: Ponderosa pine/bluebunch wheatgrass (CPG141)

Typical profile

A1—0 to 5 inches; gravelly loamy sand

A2—5 to 13 inches; gravelly loamy sand

C1—13 to 25 inches; very gravelly loamy sand

C2—25 to 60 inches; very gravelly sand

Dissimilar Minor Components

Ewall soils

Percentage of map unit: 5 percent

Owhi soils

Percentage of map unit: 5 percent

Major Uses

Crop production and timber production

566—Winthrop loamy sand, 0 to 45 percent slopes, extremely stony

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 1,300 to 2,700 feet

Mean annual precipitation: 11 to 15 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Winthrop, extremely stony surface, and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Winthrop, Extremely Stony Surface

Setting

Landform: Outwash terraces

Properties and qualities

Parent material: Glacial outwash

Slope range: 0 to 45 percent

Percentage of surface area covered with stones: 3 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Excessively drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Ponderosa pine/bluebunch wheatgrass (CPG141)

Typical profile

A1—0 to 5 inches; loamy sand

A2—5 to 13 inches; gravelly loamy sand

C1—13 to 25 inches; very gravelly loamy sand

C2—25 to 60 inches; very gravelly sand

Dissimilar Minor Components

Ewall soils

Percentage of map unit: 5 percent

Leiko soils

Percentage of map unit: 5 percent

Owhi soils

Percentage of map unit: 5 percent

Major Use

Timber production

567—Wynhoff gravelly sandy loam, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,500 to 4,200 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Wynhoff and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Wynhoff

Setting

Landform: South-facing slopes of mountains and hills

Properties and qualities

Parent material: Colluvium and residuum derived from granite or metasedimentary rock

Slope range: 35 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 2.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: COOL STONY 16-24 PZ (R006XY203WA)

Typical profile

A1—0 to 5 inches; gravelly sandy loam

A2—5 to 9 inches; gravelly sandy loam

Bw—9 to 18 inches; very gravelly sandy loam

C—18 to 24 inches; extremely gravelly sandy loam

R—24 to 34 inches; unweathered bedrock

Dissimilar Minor Components

Rock outcrop

Percentage of map unit: 10 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

568—Wynhoff-Lithic Haploxerepts-Rock outcrop complex, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,800 to 3,100 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Wynhoff and similar soils: 50 percent

Lithic Haploxerepts, range, moist, and similar soils: 20 percent

Rock outcrop: 15 percent

Dissimilar minor components: 15 percent

Characteristics of Wynhoff

Setting

Landform: South-facing slopes of mountains and hills

Properties and qualities

Parent material: Colluvium and residuum derived from granite or metasedimentary rock

Slope range: 15 to 35 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 2.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Ecological site: COOL STONY 16-24 PZ (R006XY203WA)

Typical profile

A1—0 to 5 inches; gravelly sandy loam

A2—5 to 9 inches; gravelly sandy loam

Bw—9 to 18 inches; very gravelly sandy loam

C—18 to 24 inches; extremely gravelly sandy loam

R—24 to 34 inches; unweathered bedrock

Characteristics of Lithic Haploxerepts, Range, Moist

Setting

Landform: South-facing slopes of mountains and hills

Properties and qualities

Parent material: Volcanic ash or mixed volcanic ash (4 to 12 inches thick) over colluvium and residuum

Slope range: 15 to 35 percent

Depth to restrictive feature: 8 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Very low (about 2.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Ecological site: DRY STONY 16-24 PZ (R006XY201WA)

Typical profile

A—0 to 3 inches; cobbly ashy sandy loam

Bw—3 to 12 inches; cobbly ashy sandy loam

2C—12 to 18 inches; very gravelly sandy loam

2R—18 to 22 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains

Slope range: 15 to 35 percent

Description of areas: Barren areas of exposed bedrock

Land capability subclass (nonirrigated): 8

Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Wagberg soils

Percentage of map unit: 10 percent

Unnamed soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

569—Xerofluvents, wet, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8—Columbia Plateau

Elevation: 800 to 4,200 feet

Mean annual precipitation: 12 to 20 inches

Mean annual air temperature: 42 to 47 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Xerofluvents, wet, and similar soils: 100 percent

Characteristics of Xerofluvents, Wet

Setting

Landform: Flood plains

Properties and qualities

Parent material: Alluvium

Slope range: 0 to 3 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Somewhat poorly drained

Capacity to transmit water (Ksat): High or very high (see Physical Properties table)

Frequency of flooding: Occasional (see Water Features table)

Frequency of ponding: None

Seasonal high water table (minimum depth): About 18 to 30 inches (see Water Features table)

Available water capacity (entire profile): Moderate (about 6.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3w

Land capability subclass (irrigated): 3w

Plant community class: Douglas-fir/common snowberry, flood plain, riparian (CDS628)

Typical profile

A—0 to 8 inches; sandy loam

AC—8 to 30 inches; sandy loam

C—30 to 60 inches; loamy sand

Major Use

Wildlife habitat

570—Yellcreek-Midpeak-Rock outcrop complex, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 2,300 to 4,500 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Yellcreek and similar soils: 55 percent

Midpeak and similar soils: 25 percent

Rock outcrop: 10 percent

Dissimilar minor components: 10 percent

Characteristics of Yellcreek

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 25 inches thick) over colluvium derived from volcanic and sedimentary rock

Slope range: 35 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity to transmit water (Ksat): High

Frequency of flooding: None

Frequency of ponding: None

Seasonal high water table (minimum depth): More than 72 inches

Available water capacity (entire profile): Low (about 5.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/pachistima/pinegrass (CDS412)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material

A1—1 to 6 inches; gravelly ashy sandy loam

A2—6 to 13 inches; very gravelly ashy sandy loam

Bw—13 to 26 inches; very gravelly ashy sandy loam

2C1—26 to 36 inches; extremely gravelly sandy loam

2C2—36 to 60 inches; extremely gravelly sandy loam

Characteristics of Midpeak

Setting

Landform: Mountains

Properties and qualities

Parent material: Mixed volcanic ash (7 to 15 inches thick) over colluvium and residuum derived from volcanic and sedimentary rock

Slope range: 35 to 65 percent

Soil Survey of Okanogan County Area, Washington

Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity to transmit water (Ksat): High
Frequency of flooding: None
Frequency of ponding: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity (entire profile): Low (about 4.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Douglas-fir/pinegrass (CDG131)

Typical profile

Oe—0 to 1 inch; moderately decomposed plant material
A1—1 to 7 inches; gravelly ashy sandy loam
A2—7 to 16 inches; very gravelly ashy sandy loam
2Bw—16 to 24 inches; very gravelly sandy loam
2C—24 to 37 inches; extremely gravelly sandy loam
2R—37 to 41 inches; unweathered bedrock

Characteristics of Rock Outcrop

Landform: Mountains
Slope range: 35 to 65 percent
Description of areas: Barren areas of exposed bedrock
Land capability subclass (nonirrigated): 8
Typical profile: R—unweathered bedrock

Dissimilar Minor Components

Chutes, avalanche

Percentage of map unit: 5 percent

Johntom soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as rangeland and forestland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; for agricultural waste management; and as wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of gravel, sand, reclamation material, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Soil Survey Information on the Internet

Soil survey reports have traditionally contained tables providing interpretations regarding the use of the soils. The interpretation tables for this survey as well as the soil properties tables contained in this report are available online from the Web Soil Survey at <http://websoilsurvey.nrcs.usda.gov/app/> and Soil Data Mart at <http://soildatamart.nrcs.usda.gov>.

The interpretation information is provided online instead of in this publication so that the information can be more readily updated. The information on the Web Soil Survey is the official soil survey information.

The information listed below is currently available online for each soil map unit component. This list will expand with time as additional reports and interpretations are developed.

Soil Properties and Qualities

Soil chemical properties: Content of calcium carbonate, cation-exchange capacity, electrical conductivity (EC), pH, content of gypsum, and sodium adsorption ratio

Soil Survey of Okanogan County Area, Washington

Soil erosion factors: K-factor (whole soil and rock free), T-factor, wind erodibility group, and wind erodibility index

Soil physical properties: Available water capacity; bulk density; linear extensibility; content of organic matter, clay, sand, and silt; saturated hydraulic conductivity; surface texture; water content; liquid limit; and plasticity index

Soil qualities and features: Depth to restrictive layer, drainage class, frost action, hydrologic soil group, parent material, Unified soil classification, and AASHTO group classification

Water features: Depth to water table and frequency of flooding and ponding

Suitabilities and Limitations for Use

Building site development: Risk of corrosion of steel and concrete and suitability for shallow excavations, dwellings, and other uses

Construction materials: Potential as a source of gravel, sand, roadfill, topsoil, and other material

Disaster recovery planning: Suitability for disposal of animal carcasses in case of catastrophic mortality, suitability as a location for a composting facility, and other ratings

Land classification: Ecological site name and ID (number), farmland classification (prime, unique, and statewide importance), hydric rating by map unit, irrigated and nonirrigated capability class and subclass, conservation tree and shrub suitability group, and forage suitability group

Land management: Forestry and rangeland interpretations

Military operations: Vehicle trafficability, suitability for evacuations, and other ratings

Recreational development: Suitability for camp areas, off-road motorcycle trails, paths and trails, picnic areas, and playgrounds

Sanitary facilities: Suitability for septic tank absorption fields, sanitary landfills, sewage lagoons, and daily cover for landfill

Vegetative productivity: Forest productivity, crop productivity index, range production, and yields of irrigated and nonirrigated crops by map unit or component

Waste management: Disposal of wastewater, treatment of wastewater, land application of sewage sludge, and disposal of manure and food-processing waste

Water management: Suitability for irrigation, pond reservoir areas, excavated ponds, and embankments, dikes, and levees

Soil Reports

Building site development: Dwellings and small commercial buildings, roads and streets, shallow excavations, and lawns and landscaping

Construction materials: Source of reclamation material, roadfill, and topsoil

Land classifications: Land capability classification, prime and other important farmland, taxonomic classification of the soils, hydric soils, and conservation tree and shrub suitability group

Land management: Forestland and rangeland

Recreational development: Camp areas, picnic areas, and playgrounds; and paths, trails, and golf fairways

Sanitary facilities: Landfills and sewage disposal

Soil chemical properties: Cation-exchange capacity, soil reaction, content of calcium carbonate and gypsum, salinity, and sodium adsorption ratio

Soil erosion: RUSLE2 related attributes and windbreaks and environmental plantings

Soil physical properties: Engineering properties, physical soil properties, and particle-size and coarse fragments

Soil qualities and features: Restrictive layer, subsidence, potential for frost action, and risk of corrosion

Vegetative productivity: Forestland productivity, rangeland productivity, and irrigated and nonirrigated yields

Waste management: Agricultural disposal of manure, food-processing waste, and sewage sludge; agricultural disposal of wastewater by irrigation and overland flow; agricultural disposal of wastewater by rapid infiltration and slow rate treatment; and large animal carcass disposal

Water features: Hydrologic group, surface runoff, water table, ponding, and flooding

Water management: Ponds and embankments and irrigation

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit (USDA, 1961). Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral, for example, 2*e*. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w*, *s*, or *c* because

the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, forestland, wildlife habitat, or recreation.

The capability classification of the soils in this survey area is given in the section "Detailed Soil Map Units" and in [table 5](#).

Prime Farmland and Other Important Farmland

[Table 6](#) lists the map units in the survey area that are considered prime farmland, unique farmland, and farmland of statewide importance. This list does not constitute a recommendation for a particular land use.

In an effort to identify the extent and location of important farmlands, the Natural Resources Conservation Service, in cooperation with other interested Federal, State, and local government organizations, has inventoried land that can be used for the production of the Nation's food supply.

Prime farmland is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil quality, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. The water supply is dependable and of adequate quality. Prime farmland is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

A recent trend in land use in some areas has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

For some soils identified in the table as prime farmland, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures.

Unique farmland is land other than prime farmland that is used for the production of specific high-value food and fiber crops, such as citrus, tree nuts, olives, cranberries, and other fruits and vegetables. It has the special combination of soil quality, growing season, moisture supply, temperature, humidity, air drainage, elevation, and aspect needed for the soil to economically produce sustainable high yields of these crops when properly managed. The water supply is dependable and of adequate quality. Nearness to markets is an additional consideration. Unique farmland is not based on national criteria.

In some areas, land that does not meet the criteria for prime or unique farmland is considered to be *farmland of statewide importance* for the production of food, feed, fiber, forage, and oilseed crops. The criteria for defining and delineating farmland of

statewide importance are determined by the appropriate State agencies. Generally, this land includes areas of soils that nearly meet the requirements for prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. Some areas may produce as high a yield as prime farmland if conditions are favorable. Farmland of statewide importance may include tracts of land that have been designated for agriculture by State law.

Rangeland

The map units and map unit components that have an overstory canopy cover of less than 25 percent are classified as rangeland. Some soil series, such as the Wagberg series, have a vegetative cover of only grasses, and others, such as the Crocamp series, have grasses and shrubs. Rangeland plant communities are identified by the Natural Resources Conservation Service as ecological sites. The ecological sites are identified by a site name and number. For example, Sandy 10-16 P.Z. (R008XY501WA). The ecological site name and number are given in the section "Detailed Soil Map Units" under the heading "Interpretive Groups."

An ecological site is the product of all the environmental factors responsible for its development. It has characteristic soils that developed over time throughout the soil development process; a characteristic hydrology that developed over time, particularly infiltration and runoff; and a characteristic plant community (kind and amount of vegetation). The hydrology of the site is influenced by development of the soil and plant community. The vegetation, soils, and hydrology are all interrelated. Each is influenced by the others, and each influences the development of the others. The plant community on an ecological site is typified by an association of species that differs from that of other ecological sites in the kind and proportion of species or in total production. Percent composition of individual species on an ecological site is determined by percent dry weight. Descriptions of ecological sites are provided in the Field Office Technical Guide, which is available online at <http://www.wa.nrcs.usda.gov/> or at the local office of the Natural Resources Conservation Service.

Range management requires knowledge of the kinds of soil and of the historic climax plant community. It also requires an evaluation of the present range similarity index and rangeland trend. Range similarity index is determined by comparing the present plant community with the historic climax plant community on a particular rangeland ecological site. The more closely the existing community resembles the historic community, the higher the range similarity index. Rangeland trend is defined as the direction of change in an existing plant community relative to the historic climax plant community. Further information about the range similarity index and rangeland trend is available in chapter 4 of the National Range and Pasture Handbook (<http://www.glti.nrcs.usda.gov/technical/publications/nrph.html>).

The objective in range management is to control grazing so that the plants growing on a site are about the same in kind and amount as the historic climax plant community for that site. Such management generally results in the optimum production of vegetation, control of undesirable brush species, conservation of water, and control of erosion. Sometimes, however, an area with a range similarity index somewhat below the potential meets grazing needs, provides wildlife habitat, and protects soil and water resources.

Many acres of woodland in the survey area are grazeable by livestock. Most of this land is grazed by cattle or has been grazed by sheep and cattle. Generally, the primary use of the woodland is the production of wood fiber and the secondary use is grazing. The forest understory produces forage for wildlife and livestock. Unlike rangeland that supports dominantly grass plants, the woodland understory consists of dominantly shrubby plants and broadleaf succulent plants as well as young trees.

The impact of forestry activities on the production and composition of woodland understory is greater than the impact of grazing activities. During the early period of

settlement, grass production was high, shrubs were sparse, and fast-moving ground fires were common. Heavily barked trees were relatively undamaged by these fires. As practices were implemented to control fires, brush replaced much of the grass and shade-tolerant trees gained a foothold. As the canopy closed, livestock forage decreased dramatically. Typically, the number of livestock was not adjusted to this decrease in forage and overgrazing resulted.

Silvicultural practices, such as harvesting of shelter wood and thinning for commercial production, increase forage production by opening up the canopy. Using managed burns to dispose of slash and controlling plant competition also increase timber and forage production.

Areas of rangeland are intermingled with forested areas. The areas of rangeland produce a majority of the forage in the survey area. Depending on their size, these areas may occur as separate detailed soil map units or as complexes with timbered areas.

Most of the forested soils that are grazed by livestock and wildlife are on south-facing slopes of 0 to 65 percent at elevations of 1,000 to 5,000 feet. Variations in slope, aspect, elevation, climate, and soils throughout the grazeable woodland affect the understory plant community. The time of year when the forage is ready for grazing varies depending on aspect and elevation. Generally, forage plants at the lowest elevations have adequate growth for livestock grazing by mid-May and those at the highest elevations are adequate by mid-July.

Forestland

The map units and map unit components in the survey area that are not correlated to an ecological site are correlated to a plant associations, riparian and wetland series, plant association group, or vegetation series.

Most of the survey area is on the eastern slopes of the North Cascade Mountains and in the Okanogan River Valley and Methow River Valley. The survey area spans a variety of climatic zones. The majority of the area is in the drier rainshadow of the North Cascades. The eastern edge of the survey area is a transition zone and supports more maritime plant communities.

Several references were used in correlating plant associations, riparian and wetland series, plant association groups, and vegetation series to soil map unit components. The Field Guide for Forested Plant Associations of the Wenatchee National Forest (Lillybridge and others, 1995) was used for map units west of the Okanogan River. The Forested Plant Associations of the Colville National Forest (Williams and others, 1995) was used for map units east of the Okanogan River. For map units that occurred both east and west of the Okanogan River, a plant association from each guide was correlated to the map unit. The quaking aspen/pinegrass (HQG111) plant association is referenced in Forested Plant Associations of the Okanogan National Forest (Williams and Lillybridge, 1983). The Classification and Management of Aquatic, Riparian, and Wetland Sites on the National Forests of Eastern Washington: Series Descriptions (Kovalchik and Clausnitzer, 2004) was used for all map unit components that are limited by wetness. The publication Pacific Northwest Ecoclass Codes for Seral and Potential Natural Communities (Hall, 1998) provides a list of codes to identify various vegetation resources in the Pacific Northwest. The codes encompass three parts—potential natural community (PNC), seral status, and vegetation structure. All references to plant associations, plant association groups (subseries), and series codes in Region 6 of the Forest Service are online at <http://www.reo.gov/ecoshare/codesets/>.

As previously mentioned, rangeland map unit components have an overstory canopy cover of less than 25 percent. Forestland map unit components have an overstory canopy cover of 25 percent or more. In this survey area, however, some of the forestland is grazed by cattle. The productivity and management sections of the

field guides describing plant associations for the Wenatchee and Colville National Forests indicate which plant associations are suitable for grazing.

In many instances, all map unit components of a soil series can be correlated to a single plant association. For example, all map unit components of the Republic series are correlated to the Douglas-fir/pinegrass-bluebunch wheatgrass (CDG134) plant association. In some instances, however, a soil series is correlated to more than one plant association. If this occurs, a phase of the soil series is identified. For example, the Myerscreek soil, cool phase, is correlated to the subalpine fir/grouse blueberry (huckleberry) (CES426) plant association and the Myerscreek soil, moist phase, is correlated to the subalpine fir/twinflower (CEF222) plant association.

Plant Associations

Three broad climatic and forest vegetation zones are within the survey area. They are ponderosa pine climax, Douglas-fir climax, and subalpine fir climax zones.

Ponderosa pine climax.—This is a transition zone between areas of rangeland and the Douglas-fir climax zone. In this zone, the soils typically have a mesic soil temperature regime and a xeric soil moisture regime. Ponderosa pine/bitterbrush/bluebunch wheatgrass is an example of a plant association in this climax zone.

Douglas-fir climax.—This zone is between the ponderosa pine climax zone and the subalpine fir climax zone. The soils typically have a frigid soil temperature regime and a xeric soil moisture regime. Douglas-fir/pinegrass is an example of a plant association in this climax zone.

Subalpine fir climax.—This zone is at higher elevations than the Douglas-fir climax zone. In this zone, the soils typically have a cryic soil temperature regime and a xeric or udic soil moisture regime. Subalpine fir/grouse huckleberry is an example of a plant association in this climax zone.

Riparian and Wetland Series

The acreage of map units or map unit components in the survey area that are limited by wetness is very small but still important. The soils are recognized as map unit components above the soil series level and the vegetative communities are recognized as riparian and wetland series. Examples are Aquandic Endoaquolls, quaking aspen series, wetland, or willow series, wetland; Cryaquolls, subalpine fir series, wetland, or Engelmann spruce series, wetland; and Xerofluvents, Douglas-fir/common snowberry, flood plain, riparian.

Plant Association Groups and Vegetation Series

At the higher elevations in the survey area, less intensive management is needed than at the lower elevations. The soils in areas at the higher elevations are recognized as map unit components above the soil series level and the vegetative communities are recognized as plant association groups and vegetation series. Examples are Haploxerandic Haplocryepts, subalpine fir/blue (big) huckleberry-twinflower group, Eastern Washington; and Typic Humicryepts, Lithic Humicryepts, Vitrandic Humicryepts, and Humic Vitricryands, alpine zone series, Eastern Washington.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey.

Soil properties are determined by field examination of the soils and by laboratory testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine particle-size distribution and chemical and physical characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in tables. They include engineering soil properties, physical and chemical properties, and pertinent soil and water features.

Engineering Soil Properties

[Table 7](#) gives the engineering classifications and the range of engineering properties for the layers of each soil in the survey area.

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

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

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

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages

are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an oven-dry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and plasticity index (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

Physical Soil Properties

Table 8 shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

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

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

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter.

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

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, saturated hydraulic conductivity (*K_{sat}*), plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (oven-dry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $1/3$ - or $1/10$ -bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute linear extensibility, shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Saturated hydraulic conductivity (K_{sat}) refers to the ability of a soil to transmit water or air. The estimates in the table indicate the rate of water movement, in micrometers per second, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic

conductivity (Ksat) is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at $1/3$ - or $1/10$ -bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In the table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

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

Erosion factors are shown in the table as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

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

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

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are described in the "National Soil Survey Handbook," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface

layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Chemical Properties

[Table 9](#) shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

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

Cation-exchange capacity (CEC) is the total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil. It commonly is measured at neutral pH of 7.0 (CEC-7), but it may be measured at some other stated pH value. Soils that have a low CEC hold fewer cations and may require more frequent applications of fertilizer than those that have a high CEC. The ability to retain cations minimizes the risk of ground-water pollution.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

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

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

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

Water Features

[Table 10](#) gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

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

The four hydrologic soil groups are:

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

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

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

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

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. The table indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. The table indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Soil Features

Table 11 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

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

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

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

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

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

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff, 1999 and 2006). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Mollisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Xeroll (*Xer*, meaning dry, plus *oll*, from Mollisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Haploxerolls (*Hapl*, meaning minimal horizonation, plus *xeroll*, the suborder of the Mollisols that has a xeric moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Haploxerolls.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is loamy-skeletal, mixed, superactive, mesic Typic Haploxerolls.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

[Table 12](#) indicates the order, suborder, great group, subgroup, and family of the taxonomic units in the survey area.

Taxonomic Units and Their Morphology

In this section, each taxonomic unit recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each unit. A pedon, a small three-dimensional area of soil, that is typical of the taxonomic unit in the survey area is described. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" (Soil Survey Division Staff, 1993) and in the "Field Book for Describing and Sampling Soils" (Schoeneberger and others, 2002). Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" (Soil Survey Staff, 1999) and in "Keys to Soil Taxonomy" (Soil Survey Staff, 2006). Unless otherwise indicated, colors in the descriptions are for dry soil. Following the pedon description is the range of important characteristics of the soils in the taxonomic unit.

Aeneas Series

Depth class: Very deep

Drainage class: Well drained

Landform: Outwash terraces

Parent material: Glacial outwash

Slope range: 0 to 8 percent

Elevation: 700 to 1,600 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 140 to 190 days

Taxonomic classification: Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Aridic Haploxerolls

Typical Pedon

Aeneas fine sandy loam, 0 to 3 percent slopes, about 3 miles north of Monse; 75 feet west and 50 feet north of the southeast corner of the southeast $\frac{1}{4}$ northeast $\frac{1}{4}$ of section 20, T. 31 N., R. 25 E.; latitude 48 degrees 10 minutes 17 seconds north and longitude 119 degrees 42 minutes 45 seconds west; NAD 83.

A1—0 to 2 inches; grayish brown (10YR 5/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many very fine and fine tubular pores; neutral; abrupt smooth boundary.

A2—2 to 8 inches; grayish brown (10YR 5/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak coarse granular structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; many very fine and fine tubular pores; neutral; clear smooth boundary.

Bw—8 to 16 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; many very fine and fine tubular and interstitial pores; 5 percent gravel; neutral; clear smooth boundary.

C1—16 to 26 inches; yellowish brown (10YR 5/4) fine sandy loam, dark yellowish brown (10YR 3/4) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; few very fine and fine tubular pores; 5 percent gravel; neutral; gradual smooth boundary.

2C2—26 to 30 inches; light yellowish brown (10YR 6/4) loamy sand, dark yellowish brown (10YR 4/4) moist; single grain; loose, nonsticky and nonplastic; few very fine and fine roots; many very fine and fine interstitial pores; 5 percent gravel; neutral; abrupt wavy boundary.

2C3—30 to 60 inches; sand; single grain; loose, nonsticky and nonplastic; few very fine and fine roots; many very fine and fine interstitial pores; 5 percent gravel; neutral.

Range in Characteristics

Thickness of the mollic epipedon: 7 to 20 inches

Depth to the sandy substratum (2C horizon): 21 to 36 inches

C1 horizon:

Texture—fine sandy loam or sandy loam

2C horizon:

Texture—loamy sand, loamy fine sand, coarse sand, or sand

Lenses of gravel less than 6 inches thick may be in the profile.

Aits Series

Depth class: Very deep

Drainage class: Well drained

Landform: Mountains and hills

Parent material: Volcanic ash (7 to 14 inches thick) over glacial till

Slope range: 15 to 35 percent

Elevation: 4,000 to 4,600 feet

Mean annual precipitation: 22 to 30 inches

Mean annual air temperature: 41 to 43 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Coarse-loamy, isotic, frigid Andic Haploxerepts

Typical Pedon

Aits ashy loam; Stevens County Area, Washington; 1,460 feet east and 2,400 feet south of the northwest corner of section 26, T. 40 N., R. 37 E.; latitude 48 degrees 56 minutes 17 seconds north and longitude 118 degrees 4 minutes 38 seconds west; NAD 83.

Oi—0 to 1 inch; slightly decomposed mat of leaves, twigs, needles, and roots; abrupt smooth boundary.

A—1 to 3 inches; brown (10YR 5/3) ashy loam, dark brown (10YR 4/2) moist; weak fine granular structure; soft, friable, nonsticky and nonplastic; weakly smeary; many fine roots; many fine pores; 5 percent gravel; slightly acid; abrupt smooth boundary.

Bw1—3 to 12 inches; brown (7.5YR 5/4) ashy loam, dark brown (7.5YR 3/3) moist; weak fine and medium subangular blocky structure and moderate medium and coarse granular; soft, friable, nonsticky and slightly plastic; weakly smeary; many fine roots; many fine pores; slightly acid; clear wavy boundary.

2Bw2—12 to 17 inches; light gray (10YR 7/2) gravelly loam, light olive brown (2.5Y 5/4) moist; moderate medium and coarse subangular blocky structure; hard, firm, slightly sticky and slightly plastic; many fine roots; many fine pores; 15 percent gravel; slightly acid; gradual wavy boundary.

2Bw3—17 to 34 inches; grayish brown (10YR 5/2) gravelly loam, dark grayish brown (2.5Y 4/2) moist; few pockets and lenses of clay loam that is brown (10YR 4/3) moist; moderate medium and fine subangular blocky structure; hard, firm, slightly sticky and slightly plastic; many fine roots; many fine pores; 25 percent gravel; neutral; gradual wavy boundary.

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2Bw4—34 to 45 inches; light gray (2.5Y 7/2) gravelly loam, grayish brown (2.5Y 5/2) moist; moderate medium and coarse angular blocky structure; hard, firm, slightly sticky and slightly plastic; many fine pores; 25 percent gravel; slightly acid; gradual wavy boundary.

2Bt—45 to 60 inches; pale olive (5Y 6/3) very gravelly clay loam, olive (5Y 4/3) moist; moderate medium and coarse angular blocky structure; very hard, firm, moderately sticky and moderately plastic; many faint clay films on faces of ped; 50 percent gravel; slightly acid.

Range in Characteristics

Thickness of the volcanic ash: 7 to 14 inches

Content of rock fragments: 0 to 35 percent in the upper 40 inches and 15 to 50 percent below

A horizon:

Value—3 to 7 dry, 3 to 5 moist

Chroma—1 to 4 dry or moist

Bw horizon:

Hue—7.5YR or 10YR

Value—4 to 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—ashy loam or ashy very fine sandy loam

2Bw and 2Bt horizons:

Hue—2.5Y, 5Y, or 10YR

Value—5 to 7 dry, 4 or 5 moist

Chroma—2 to 4 dry or moist

Texture of the 2Bw horizon—gravelly loam, gravelly clay loam, or very gravelly sandy clay loam

Texture of the 2Bt horizon—gravelly loam, gravelly sandy clay loam, or very gravelly clay loam

Andic Dystricryepts

Depth class: Moderately deep to very deep

Drainage class: Well drained

Landform: Mountains

Parent material: Volcanic ash (7 to 14 inches thick) over glacial till, colluvium, or residuum

Slope range: 20 to 90 percent

Elevation: 6,600 to 7,700 feet

Mean annual precipitation: 35 to 40 inches

Mean annual air temperature: 35 to 40 degrees F

Frost-free period: 40 to 70 days

Taxonomic classification: Andic Dystricryepts

Reference Pedon

Andic Dystricryepts; Okanogan National Forest Area, Washington; about 5 miles west of Wauconda; about 2,200 feet east and 2,000 feet south of the northwest corner of section 2, T. 38 N, R. 29 E.; latitude 48 degrees 49 minutes 24 seconds north and longitude 119 degrees 7 minutes 32 seconds west; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of needles, moss, twigs, and grass; abrupt smooth boundary.

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- C—1 to 2 inches; light gray (10YR 7/2) ashy silt loam (recent volcanic ash), light brownish gray (10YR 6/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine and common medium roots; few fine pores; moderately acid; abrupt smooth boundary.
- 2A—2 to 5 inches pale brown (10YR 6/3) ashy fine sandy loam, dark brown (10YR 4/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine and common medium roots; common fine pores; 5 percent gravel; moderately acid; clear wavy boundary.
- 2Bw—5 to 11 inches; light yellowish brown (10YR 6/4) ashy fine sandy loam, dark brown (10YR 4/6) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine and common coarse roots; few fine pores; 5 percent gravel; moderately acid; clear wavy boundary.
- 3C1—11 to 22 inches; grayish brown (10YR 5/2) cobbly sandy loam, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium roots; few very fine pores; 10 percent gravel and 15 percent cobbles; slightly acid; gradual wavy boundary.
- 3C2—22 to 60 inches; light brownish gray (10YR 6/2) gravelly loamy sand, grayish brown (10YR 5/2) moist; massive; soft, very friable, nonsticky and nonplastic; few fine pores; 20 percent gravel and 10 percent cobbles; slightly acid.

Range in Characteristics

Thickness of the volcanic ash: 7 to 14 inches

Depth to bedrock: 20 to 60 inches or more

The C horizon is not present in some pedons.

2A horizon:

Hue—7.5YR or 10YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 to 6 dry or moist

Texture—ashy fine sandy loam, stony ashy fine sandy loam, or gravelly ashy sandy loam

Content of gravel—5 to 20 percent

Content of cobbles—0 to 5 percent

Content of stones—0 to 5 percent

2Bw horizon:

Hue—7.5YR or 10YR

Value—4 to 6 dry, 3 to 5 moist

Chroma—2 to 6 dry or moist

Textures—ashy fine sandy loam, stony ashy fine sandy loam, or gravelly ashy sandy loam

Content of gravel—5 to 25 percent

Content of cobbles—0 to 5 percent

Content of stones—0 to 5 percent

3C horizon:

Hue—2.5Y or 10YR

Value—5 or 6 dry, 2 to 5 moist

Chroma—2 or 3 dry or moist

Texture—cobbly sandy loam, very gravelly fine sandy loam, or stony loamy sand in the upper part and gravelly loamy sand, cobbly loamy sand, or very stony fine sandy loam in the lower part

Content of gravel—5 to 35 percent

Content of cobbles—5 to 15 percent

Content of stones—0 to 30 percent

Aquandic Dystrocryepts

Depth class: Moderately deep or deep

Drainage class: Somewhat poorly drained

Landform: Mountains

Parent material: Mixed volcanic ash (7 to 11 inches thick) over glacial till or alluvium

Slope range: 0 to 15 percent

Elevation: 4,000 to 6,800 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 35 to 40 degrees F

Frost-free period: 60 to 80 days

Taxonomic classification: Aquandic Dystrocryepts

Reference Pedon

Aquandic Dystrocryepts; classification was Aquic Dystrocryepts in the Okanogan National Forest Area, Washington, soil survey but was changed to Aquandic Dystrocryepts in this survey due to changes in Soil Taxonomy; about 10 miles northwest of Conconully; about 2,500 feet east and 800 feet south of the northwest corner of section 21, T. 36 N., R. 23 E.; latitude 48 degrees 36 minutes 36 seconds north and longitude 119 degrees 57 minutes 36 seconds west; NAD 83.

Oe—0 to 3 inches; moderately decomposed mat of needles, twigs, and leaves; abrupt smooth boundary.

A—3 to 9 inches; gray (10YR 5/2) ashy fine sandy loam, dark gray (10YR 4/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and common medium and coarse roots; few fine pores; 5 percent gravel; slightly acid; clear smooth boundary.

AB—9 to 14 inches; grayish brown (10YR 5/2) ashy sandy loam, dark grayish brown (10YR 4/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and common medium and coarse roots; few fine irregular pores; 5 percent gravel; slightly acid; clear wavy boundary.

2Bw1—14 to 31 inches; brown (10YR 5/3) gravelly sandy loam, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium and coarse roots; few fine pores; 15 percent gravel and 3 percent cobbles; slightly acid; gradual wavy boundary.

2Bw2—31 to 37 inches; light brownish gray (10YR 6/2) very gravelly sandy loam, grayish brown (10YR 5/2) moist; many fine and medium distinct yellowish brown (10YR 5/6) redoximorphic concentrations; massive; slightly hard, friable, slightly sticky and nonplastic; few very fine roots; 25 percent gravel and 10 percent cobbles; slightly acid; gradual wavy boundary.

2Cd—37 to 60 inches; light gray (10YR 7/2) very gravelly sandy loam, grayish brown (10YR 5/2) moist; many fine and medium distinct yellowish brown (10YR 5/4) redoximorphic concentrations; massive; very hard, friable, slightly sticky and nonplastic; 30 percent gravel and 10 percent cobbles; slightly acid.

Range in Characteristics

Thickness of the mixed volcanic ash: 7 to 11 inches

Depth to the densic material: 20 to 60 inches

Depth to redoximorphic features: 20 to 30 inches

High water table: Present in spring

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A horizon:

Value—4 or 5 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

AB horizon:

Hue—2.5Y or 10YR

Value—4 or 5 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Texture—ashy sandy loam, ashy fine sandy loam, or gravelly ashy sandy loam

Content of gravel—5 to 25 percent

2Bw horizon:

Hue—2.5Y or 10YR

Value—5 to 7 dry, 4 or 5 moist

Chroma—1 to 3 dry or moist

Texture—gravelly or very gravelly sandy loam

Content of gravel—15 to 40 percent

Content of cobbles—0 to 20 percent

2Cd horizon:

Hue—2.5Y or 10YR

Value—6 or 7 dry, 4 or 5 moist

Chroma—1 or 2 dry or moist

Texture—gravelly, very gravelly, or very cobbly sandy loam

Content of gravel—15 to 40 percent

Content of cobbles—5 to 25 percent

Aquandic Endoaquolls

Depth class: Very deep

Drainage class: Very poorly drained

Landform: Along drainageways, and valley and basin floors on mountains

Parent material: Volcanic ash (7 to 14 inches thick) over alluvium or glacial till

Slope range: 0 to 10 percent

Elevation: 1,500 to 4,400 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 39 to 44 degrees F

Frost-free period: 80 to 100 days

Taxonomic classification: Aquandic Endoaquolls

Reference Pedon

Aquandic Endoaquolls; Okanogan National Forest Area, Washington; about 2 miles southeast of Wauconda; 2,100 feet west and 2,000 feet south of the northeast corner of section 34, T. 36 N., R. 29 E.; latitude 48 degrees, 34 minutes, 40 seconds north and longitude 119 degrees, 10 minutes, 53 seconds west; NAD 83.

Oe—0 to 4 inches; very dark gray (10YR 3/1) mucky peat, black (10YR 2/1) moist; about 40 percent fibers, 20 percent rubbed; soft, very friable, nonsticky and nonplastic; many very fine, fine, and medium roots; slightly acid; abrupt smooth boundary.

A1—4 to 11 inches; dark gray (10YR 4/1) ashy silt loam, black (10YR 2/1) moist; moderate fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic, moderately smeary; many very fine and fine and common medium roots; common fine tubular pores; slightly acid; clear wavy boundary.

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- 2A2—11 to 18 inches; dark gray (10YR 4/1) silt loam, black (10YR 2/1) moist; few fine distinct redoximorphic concentrations that are yellowish brown (10YR 5/6) moist; moderate fine and medium subangular blocky structure parting to moderate fine granular; soft, very friable, nonsticky and nonplastic; weakly smeary; common very fine, fine, and medium roots; common fine tubular pores; slightly acid; clear wavy boundary.
- 2A3—18 to 23 inches; dark gray (10YR 4/1) silt loam, black (10YR 2/1) moist; common fine distinct redoximorphic concentrations that are yellowish brown (10YR 5/6) moist; moderate fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; common very fine, fine, and medium roots; common very fine and fine tubular pores; slightly acid; clear smooth boundary.
- 2Cg1—23 to 39 inches; light brownish gray (10YR 6/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; common fine and medium distinct redoximorphic concentrations that are yellowish brown (10YR 5/6) moist and are in the upper part; massive; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; 5 percent gravel; slightly acid; clear wavy boundary.
- 3Cg2—39 to 60 inches; light gray (10YR 7/1) very gravelly sandy loam, light brownish gray (10YR 6/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; 35 percent gravel and 5 percent cobbles; slightly acid.

Range in Characteristics

Thickness of the volcanic ash: 7 to 14 inches

Thickness of the mollic epipedon: 10 to 20 inches

Depth to the very gravelly substratum (3Cg horizon): 20 to 50 inches

Depth to redoximorphic features: 0 to 10 inches

High water table: Present year round

Ponding: Present in spring and summer

Flooding: Present in spring and summer

Oe horizon:

Value—2 or 3 dry

Chroma—1 or 2 dry or moist

A horizon:

Value—3 or 4 dry, 2 or 3 moist

Chroma—1 or 2 dry or moist

2A horizon:

Value—3 or 4 dry, 2 or 3 moist

Chroma—1 or 2 dry or moist

Texture—silt loam or loam

2Cg horizon:

Value—5 to 7 dry, 3 to 5 moist

Chroma—1 or 2 dry or moist

Texture—fine sandy loam, gravelly fine sandy loam, or very gravelly silt loam

Content of gravel—5 to 40 percent

3Cg horizon:

Value—5 to 7 dry, 3 to 6 moist

Chroma—1 or 2 dry or moist

Texture—very gravelly sandy loam, very gravelly coarse sand, or very gravelly loamy sand

Content of gravel—25 to 40 percent

Content of cobbles—5 to 10 percent

Aquandic Xerofluvents

Depth class: Very deep

Drainage class: Somewhat poorly drained

Landform: Flood plains and low stream terraces of mountains

Parent material: Volcanic ash (7 to 14 inches thick) over alluvium

Slope range: 0 to 5 percent

Elevation: 700 to 4,100 feet

Mean annual precipitation: 10 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 130 days

Taxonomic classification: Aquandic Xerofluvents

Reference Pedon

Aquandic Xerofluvents; Okanogan National Forest Area, Washington; about 14 miles north of Winthrop; about 1,300 feet west and 1,100 feet north of the southeast corner of section 19, T. 37 N., R. 22 E.; latitude 48 degrees 41 minutes 12 seconds north and longitude 120 degrees 7 minutes 12 seconds west; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of needles, leaves, twigs, and grass; abrupt smooth boundary.

A—1 to 5 inches; grayish brown (10YR 5/2) ashy sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine, common medium and coarse, and few very coarse roots; neutral; clear smooth boundary.

C—5 to 9 inches; pale brown (10YR 6/3) ashy sandy loam, dark brown (10YR 3/3) moist; massive; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine, common medium and coarse, and few very coarse roots; neutral; clear smooth boundary.

Ab—9 to 14 inches; grayish brown (10YR 5/2) ashy sandy loam, very dark brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium roots; neutral; clear smooth boundary.

2C1—14 to 25 inches; pale brown (10YR 6/2) gravelly loamy sand, dark grayish brown (10YR 4/2) moist; single grain; loose, nonsticky and nonplastic; common very fine and fine roots; 15 percent gravel; neutral; clear smooth boundary.

2C2—25 to 45 inches; light brownish gray (10YR 6/2) sandy loam, dark grayish brown (10YR 4/2) moist; common fine and medium distinct yellowish brown (10YR 5/6) redoximorphic concentrations; massive; weak coarse subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; 10 percent gravel; neutral; clear wavy boundary.

2C3—45 to 51 inches; light gray (10YR 7/2) very gravelly loamy sand, grayish brown (10YR 5/2) moist; many medium distinct yellowish brown (10YR 5/6) redoximorphic concentrations; single grain; loose, nonsticky and nonplastic; 35 percent gravel; neutral; clear wavy boundary.

2C4—51 to 60 inches; light brownish gray (10YR 6/2) very gravelly loamy sand, grayish brown (10YR 5/2) moist; many medium distinct yellowish brown (10YR 5/6) redoximorphic concentrations; single grain; loose, nonsticky and nonplastic; 45 percent gravel; neutral.

Range in Characteristics

Thickness of the volcanic ash: 7 to 14 inches

Depth to the very gravelly substratum (2C3 horizon): 40 to 60 inches

Depth to redoximorphic features: 20 to 30 inches

High water table: Present year round

Flooding: Present in spring

A, C, and Ab horizons:

Value—4 to 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Content of gravel—0 to 5 percent

2C horizon:

Hue—10YR or multicolored

Value—5 to 7 dry, 4 to 6 moist

Chroma—1 to 3 dry, 1 or 2 moist

Content of gravel—0 to 55 percent

Content of cobbles—0 to 5 percent

Baldknob Series

Depth class: Shallow

Drainage class: Well drained

Landform: Mountains

Parent material: Mixed volcanic ash (2 to 7 inches thick) over colluvium and residuum derived from volcanic rock

Slope range: 15 to 65 percent

Elevation: 2,500 to 5,500 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, frigid Lithic Ultic Haploxerolls

Typical Pedon

Baldknob gravelly ashy loam; Okanogan National Forest Area, Washington; Wauconda Summit U.S. Geological Survey quadrangle; about 880 feet north of State Highway 20; about 1,870 feet east and 1,030 feet south of the northwest corner of section 27, T. 37 N., R. 31 E.; latitude 48 degrees 40 minutes 47 seconds north and longitude 118 degrees 53 minutes 47 seconds west; NAD 83.

A1—0 to 3 inches; grayish brown (10YR 5/2) gravelly ashy loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; soft, very friable, nonsticky and slightly plastic; common very fine and fine and few medium roots; common medium irregular pores; 15 percent gravel and 5 percent cobbles; neutral; clear smooth boundary.

A2—3 to 12 inches; grayish brown (10YR 5/2) very flaggy loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and slightly plastic; many very fine and fine and few medium roots; common medium irregular pores; 15 percent channers and 40 percent flagstones; neutral; clear wavy boundary.

R—12 inches; rhyolite.

Range in Characteristics

Thickness of the mixed volcanic ash: 2 to 7 inches

Thickness of the mollic epipedon: 7 to 12 inches

Depth to bedrock: 10 to 20 inches

A1 horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Content of gravel—10 to 30 percent

Content of cobbles—0 to 10 percent

A2 horizon:

Texture—very flaggy loam, very flaggy sandy loam, or very channery loam

Content of channers—0 to 20 percent

Content of flagstones—10 to 50 percent

Bearspring Series

Depth class: Very deep

Drainage class: Well drained

Landform: Mountains

Parent material: Mixed volcanic ash (10 to 15 inches thick) over colluvium derived from granitic rock

Slope range: 35 to 65 percent

Elevation: 2,800 to 4,300 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Loamy-skeletal, isotic, frigid Vitrandic Haploxerolls

Typical Pedon

Bearspring gravelly ashy sandy loam; Okanogan National Forest Area, Washington; about 5 miles north of Conconully; about 2,400 feet west and 300 feet north of the southeast corner of section 14, T. 36 N., R. 24 E.; latitude 48 degrees 36 minutes 44 seconds north and longitude 119 degrees 47 minutes 9 seconds west; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of twigs, needles, and leaves; abrupt smooth boundary.

A1—1 to 8 inches; dark grayish brown (10YR 4/2) gravelly ashy sandy loam, very dark brown (10YR 2/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium and coarse roots; common very fine and fine tubular pores; 15 percent gravel; neutral; clear smooth boundary.

A2—8 to 13 inches; dark grayish brown (10YR 4/2) gravelly ashy sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium and coarse roots; common very fine and fine tubular pores; 15 percent gravel; neutral; clear wavy boundary.

2Bw—13 to 20 inches; brown (10YR 5/3) gravelly sandy loam, dark brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium roots; few fine irregular pores; 15 percent gravel and 5 percent cobbles; neutral; clear wavy boundary.

2C1—20 to 37 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine roots; 35 percent gravel and 5 percent cobbles; neutral; clear wavy boundary.

2C2—37 to 60 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; 45 percent gravel and 5 percent cobbles; neutral.

Range in Characteristics

Thickness of the mixed volcanic ash: 10 to 15 inches

Thickness of the mollic epipedon: 10 to 15 inches

A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 moist or dry

Content of gravel—15 to 25 percent

Content of cobbles—0 to 5 percent

2Bw horizon:

Value—5 to 6 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Texture—gravelly, very gravelly, or very cobbly sandy loam

Content of gravel—15 to 30 percent

Content of cobbles—0 to 20 percent

2C horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Texture—very gravelly or very cobbly sandy loam

Content of gravel—35 to 50 percent

Content of cobbles—5 to 20 percent

Content of stones—0 to 5 percent

Bluebuck Series

Depth class: Deep

Drainage class: Well drained

Landform: Mountains

Parent material: Mixed volcanic ash (7 to 14 inches thick) over glacial till derived from granitic rock

Slope range: 35 to 65 percent

Elevation: 4,600 to 5,900 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 37 to 41 degrees F

Frost-free period: 70 to 90 days

Taxonomic classification: Sandy-skeletal, isotic Vitrixerandic Haplocryepts

Typical Pedon

Bluebuck stony ashy sandy loam; Okanogan National Forest Area, Washington; about 7 miles east of Winthrop; about 700 feet east and 500 feet south of the northwest corner of section 36, T. 35 N., R. 22 E.; latitude 48 degrees 29 minutes 55 seconds north and longitude 120 degrees 57 minutes 1 second west; NAD 83.

Oi—0 to 1 inch; slightly decomposed mat of needles and twigs; abrupt smooth boundary.

C—1 to 2 inches; light gray (10YR 7/2) ashy fine sandy loam, grayish brown (10YR 5/2) moist; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium and coarse roots; few fine pores; slightly acid; irregular broken boundary.

2A—2 to 4 inches; pale brown (10YR 6/3) stony ashy sandy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure parting to weak fine granular; soft, very friable, nonsticky and nonplastic; weakly smeary; common very fine and fine and few medium and coarse roots; common fine tubular pores; 10 percent gravel and 5 percent stones; slightly acid; clear wavy boundary.

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- 2Bw—4 to 12 inches; light yellowish brown (10YR 6/4) gravelly ashy sandy loam, dark yellowish brown (10YR 4/4) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; common very fine and few coarse roots; common fine irregular pores; 15 percent gravel, 3 percent cobbles, and 2 percent stones; slightly acid; clear wavy boundary.
- 3CB—12 to 25 inches; light yellowish brown (10YR 6/4) very gravelly loamy sand, yellowish brown (10YR 5/4) moist; many medium and coarse stains that are yellowish brown (10YR 5/6) moist; single grain; loose, nonsticky and nonplastic; common very fine and fine and few medium and coarse roots; 35 percent gravel, 5 percent cobbles, and 2 percent stones; slightly acid; clear wavy boundary.
- 4C1—25 to 36 inches; multicolored extremely gravelly coarse sand; single grain; loose, nonsticky and nonplastic; common very fine and fine roots; 65 percent gravel and 5 percent cobbles; slightly acid; clear wavy boundary.
- 5C2—36 to 55 inches; very pale brown (10YR 7/4) very gravelly loamy sand, light yellowish brown (10YR 6/4) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; 40 percent gravel, 5 percent cobbles, and 2 percent stones; slightly acid; gradual wavy boundary.
- 5Cd—55 to 60 inches; very pale brown (10YR 7/3) very gravelly loamy sand, pale brown (10YR 6/3) moist; massive; hard, friable, nonsticky and nonplastic; few very fine roots; 35 percent gravel and 5 percent cobbles; slightly acid.

Range in Characteristics

Thickness of the mixed volcanic ash: 7 to 14 inches

Depth to glacial till and glacial outwash (3CB horizon): 7 to 14 inches

Depth to the densic material: 40 to 60 inches

The C horizon is not present in all pedons.

2A horizon:

Value—3 or 4 moist

Content of gravel—5 to 10 percent

Content of cobbles—0 to 5 percent

Content of stones—5 to 10 percent

2Bw horizon:

Chroma—3 or 4 dry or moist

Texture—gravelly ashy sandy loam or ashy sandy loam

Content of gravel—5 to 15 percent

Content of cobbles—0 to 5 percent

Content of stones—0 to 5 percent

3CB horizon:

Hue—10YR or 2.5Y

Value—4 or 5 moist

Chroma—3 or 4 dry or moist

Texture—very gravelly loamy sand, extremely gravelly coarse sand, or very cobbly loamy coarse sand

Content of gravel—35 to 55 percent

Content of cobbles—5 to 25 percent

Content of stones—0 to 10 percent

4C horizon:

Hue—multicolored

Texture—extremely gravelly coarse sand or extremely gravelly loamy coarse sand

Content of gravel—55 to 65 percent

Content of cobbles—5 to 15 percent

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5C2 horizon:

Hue—10YR or 2.5Y

Value—6 or 7 dry, 5 or 6 moist

Chroma—3 to 6 dry, 3 or 4 moist

Texture—very gravelly loamy sand, extremely cobbly coarse sand, or very stony loamy coarse sand

Content of gravel—35 to 55 percent

Content of cobbles—5 to 30 percent

Content of stones—0 to 25 percent

5Cd horizon:

Hue—10YR or 2.5Y

Value—6 or 7 dry, 5 or 6 moist

Chroma—3 to 6 dry, 3 or 4 moist

Texture—very gravelly, extremely gravelly, or very cobbly loamy sand

Content of gravel—30 to 50 percent

Content of cobbles—5 to 20 percent

Content of stones—0 to 5 percent

Boesel Series

Depth class: Very deep

Drainage class: Moderately well drained

Landform: Low stream terraces and flood plains

Parent material: Alluvium

Slope range: 0 to 5 percent

Elevation: 1,500 to 3,200 feet

Mean annual precipitation: 14 to 18 inches

Mean annual air temperature: 43 to 45 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, frigid Cumulic Haploxerolls

Typical Pedon

Boesel fine sandy loam, 0 to 3 percent slopes; about 200 feet west and 200 feet north of the southeast $\frac{1}{16}$ corner of the southwest $\frac{1}{4}$ southwest $\frac{1}{4}$ of section 26, T. 35 N., R. 21 E.; latitude 48 degrees 29 minutes 56 seconds north and longitude 120 degrees 10 minutes 46 seconds west; NAD 83.

A—0 to 8 inches; grayish brown (10YR 5/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium and fine granular structure; soft, very friable, nonsticky and slightly plastic; many roots; neutral (pH 7.0); abrupt smooth boundary.

AC—8 to 27 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 3/3) moist; massive; slightly hard, very friable, nonsticky and slightly plastic; common roots; common medium and coarse pores; neutral (pH 7.2); clear wavy boundary.

2C1—27 to 37 inches; light yellowish brown (10YR 6/4) loamy sand, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, nonsticky and nonplastic; few roots; few fine pores; 5 percent gravel; neutral (pH 7.2); abrupt wavy boundary.

2C2—37 to 60 inches; light yellowish brown (10YR 6/4) extremely gravelly coarse sand, yellowish brown (10YR 5/4) moist; single grain; loose, nonsticky and nonplastic; 55 percent gravel and 5 percent cobbles; neutral (pH 7.3).

Range in Characteristics

High water table: Present late in winter and in spring

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Flooding: Present in spring

Thickness of the mollic epipedon: 20 to 33 inches

Depth to the sandy or sandy-skeletal substratum (2C horizon): 20 to 33 inches

A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

AC horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Texture—fine sandy loam or sandy loam

2C horizon:

Hue—10YR or multicolored

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—loamy sand, sand, coarse sand, or gravelly loamy sand in the upper part and extremely gravelly sand, extremely gravelly coarse sand, very gravelly sand, or very gravelly loamy sand in the lower part

Content of gravel—0 to 65 percent

Content of cobbles—0 to 10 percent

Bong Series

Depth class: Very deep

Drainage class: Somewhat excessively drained

Landform: Outwash terraces

Parent material: Mixed volcanic ash (7 to 16 inches thick) over glacial outwash

Slope range: 3 to 65 percent

Elevation: 2,500 to 4,000 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 43 to 47 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Sandy, mixed, mesic Vitrandic Haploxerolls

Typical Pedon

Bong ashy sandy loam; Okanogan National Forest Area, Washington; about 300 feet east and 1,300 feet south of the northwest corner of section 5, T. 32 N., R. 23 E.; latitude 48 degrees 18 minutes 17 seconds north and longitude 119 degrees 59 minutes 28 seconds west; NAD 83.

A1—0 to 6 inches; brown (10YR 5/3) ashy sandy loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium and coarse roots; common fine tubular pores; 5 percent gravel; neutral; clear smooth boundary.

A2—6 to 10 inches; brown (10YR 5/3) ashy sandy loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium and coarse roots; common fine tubular pores; 10 percent gravel; neutral; clear smooth boundary.

Bw—10 to 16 inches; brown (10YR 5/3) gravelly ashy sandy loam, dark brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium roots; common fine irregular pores; 15 percent gravel; neutral; clear wavy boundary.

2C1—16 to 26 inches; light gray (10YR 7/2) gravelly loamy coarse sand, light brownish gray (10YR 6/2) moist; single grain; loose, nonsticky and nonplastic; few

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very fine and fine roots in the upper part; 15 percent gravel; neutral; gradual wavy boundary.
2C2—26 to 60 inches; multicolored gravelly coarse sand; single grain; loose; 15 percent gravel; neutral.

Range in Characteristics

Thickness of the mixed volcanic ash: 7 to 16 inches
Thickness of the mollic epipedon: 8 to 15 inches
Depth to the glacial outwash (2C horizon): 15 to 30 inches

A horizon:

Value—3 to 5 dry
Chroma—2 or 3 dry or moist
Content of gravel—0 to 10 percent

Bw horizon:

Value—4 or 5 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—gravelly ashy sandy loam, ashy coarse sandy loam, or ashy sandy loam
Content of gravel—5 to 20 percent

2C horizon:

Value—6 or 7 dry, 5 or 6 moist
Chroma—2 or 3 dry or moist, or multicolored
Texture—gravelly loamy coarse sand, coarse sand, or gravelly coarse sand
Content of gravel—5 to 30 percent

Borgeau Series

Depth class: Very deep
Drainage class: Well drained
Landform: South-facing slopes of mountains
Parent material: Mixed volcanic ash (7 to 14 inches thick) over glacial till and colluvium derived from volcanic rock
Slope range: 15 to 65 percent
Elevation: 2,500 to 4,500 feet
Mean annual precipitation: 15 to 20 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 110 to 140 days
Taxonomic classification: Loamy-skeletal, isotic, mesic Vitrandic Haploxerolls

Typical Pedon

Borgeau ashy loam; Okanogan National Forest Area, Washington; Bodie Mountain NW U.S. Geological Survey topographic quadrangle; about 5 miles north of the community of Bodie; about 1,800 feet south and 2,200 feet east of the northwest corner of section 3, T. 39 N., R. 31 E.; latitude 48 degrees 54 minutes 40 seconds north and longitude 118 degrees 54 minutes 10 seconds west; NAD 83.

A1—0 to 5 inches; very dark grayish brown (10YR 5/2) ashy loam, grayish brown (10YR 3/2) moist; weak fine and medium subangular blocky structure; soft, friable, nonsticky and slightly plastic; common very fine and fine roots; 10 percent gravel; neutral; clear smooth boundary.
A2—5 to 14 inches; dark brown (10YR 5/3) gravelly ashy loam, brown (10YR 3/3) moist; weak very fine subangular blocky structure; soft, very friable, nonsticky and slightly plastic; common fine and few medium roots; 25 percent gravel and 2 percent cobbles; neutral; gradual wavy boundary.

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2Bw—14 to 27 inches; brown (10YR 5/4) very gravelly loam, yellowish brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and few medium roots; 40 percent gravel and 2 percent cobbles; neutral; gradual wavy boundary.

2BC—27 to 41 inches; dark brown (10YR 5/3) very gravelly loam, brown (10YR 3/3) moist; weak fine subangular blocky structure; slightly hard, friable, nonsticky and slightly plastic; few fine and medium roots; 50 percent gravel and 3 percent cobbles; slightly alkaline; gradual wavy boundary.

2C—41 to 60 inches; dark grayish brown (10YR 6/2) very gravelly sandy loam, light brownish gray (10YR 4/2) moist; massive; soft, very friable, nonsticky and slightly plastic; few fine roots; 45 percent gravel and 3 percent cobbles; slightly alkaline.

Range in Characteristics

Thickness of the mixed volcanic ash: 7 to 14 inches

Thickness of the mollic epipedon: 12 to 17 inches

A1 horizon:

Chroma—2 or 3 moist or dry

Content of gravel—5 to 15 percent

Content of cobbles—0 to 5 percent

A2 horizon:

Texture—ashy loam or gravelly ashy loam

Content of gravel—5 to 25 percent

Content of cobbles—0 to 5 percent

2Bw horizon:

Hue—10YR or 2.5Y

Value—5 or 6 dry, 4 or 5 moist

Chroma—3 or 4 moist or dry

Texture—gravelly or very gravelly loam

Content of gravel—20 to 45 percent

Content of cobbles—0 to 5 percent

2BC horizon:

Hue—10YR or 2.5Y

Value—4 or 5 dry, 3 or 4 moist

Chroma—3 or 4 moist or dry

Texture—very gravelly loam, very cobbly loam, or very gravelly sandy loam

Content of gravel—35 to 50 percent

Content of cobbles—0 to 20 percent

Content of stones—0 to 5 percent

2C horizon:

Hue—10YR or 2.5Y

Value—5 or 6 dry, 4 or 5 moist

Chroma—3 or 4 moist or dry

Texture—very gravelly or very cobbly sandy loam

Content of gravel—35 to 50 percent

Content of cobbles—0 to 20 percent

Content of stones—0 to 5 percent

Brevco Series

Depth class: Moderately deep

Drainage class: Well drained

Landform: Mountains

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Parent material: Mixed volcanic ash (10 to 14 inches thick) over colluvium and residuum derived from granitic rock

Slope range: 15 to 65 percent

Elevation: 3,000 to 5,500 feet

Mean annual precipitation: 18 to 24 inches

Mean annual air temperature: 39 to 45 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Loamy-skeletal, isotic, frigid Vitrandic Haploxerepts

Typical Pedon

Brevco stony ashy coarse sandy loam; Okanogan National Forest Area, Washington; Lewis Butte U.S. Geological Survey topographic quadrangle; about 7 miles north of Winthrop and 1 mile northeast of Ramsey Peak; latitude 48 degrees 34 minutes 5 seconds north and longitude 120 degrees 7 minutes 37 seconds west; NAD 83.

Oi—0 to 1 inch; slightly decomposed mat of organic matter consisting of needles and grasses; abrupt smooth boundary.

A—1 to 4 inches; very pale brown (10YR 7/3) stony ashy coarse sandy loam, brown (10YR 4/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many fine and very fine and common medium and coarse roots; common fine irregular pores; 5 percent stones and 10 percent gravel; neutral; clear smooth boundary.

Bw—4 to 12 inches; very pale brown (10YR 7/4) gravelly ashy coarse sandy loam, dark yellowish brown (10YR 4/4) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many fine and very fine and common medium and coarse roots; common fine irregular pores; 25 percent gravel; slightly acid; clear wavy boundary.

2C1—12 to 26 inches; very pale brown (10YR 8/3) very gravelly sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; many fine and common medium and coarse roots; 30 percent gravel and 15 percent cobbles; moderately acid; gradual wavy boundary.

2C2—26 to 39 inches; very pale brown (10YR 7/4) very cobbly coarse sandy loam, light yellowish brown (10YR 6/4) moist; massive; soft, very friable, nonsticky and nonplastic; common fine and medium roots; 25 percent gravel and 30 percent cobbles; moderately acid; abrupt irregular boundary.

2R—39 inches; granite.

Range in Characteristics

Thickness of the mixed volcanic ash: 10 to 14 inches

Depth to bedrock: 20 to 40 inches

A horizon:

Value—6 or 7 dry

Chroma—2 or 3 moist or dry

Content of gravel—10 to 20 percent

Content of cobbles—0 to 5 percent

Content of stones—5 to 10 percent

Bw horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 4 dry or moist

Texture—gravelly ashy coarse sandy loam or gravelly ashy sandy loam

Content of gravel—15 to 25 percent

Content of cobbles—0 to 10 percent

Content of stones—0 to 5 percent

2C horizon:

Value—7 or 8 dry, 5 or 6 moist

Chroma—2 to 4 dry or moist

Texture—very gravelly sandy loam, very gravelly coarse sandy loam, or very cobbly coarse sandy loam

Content of gravel—25 to 50 percent

Content of cobbles—5 to 30 percent

Content of stones—0 to 5 percent

Burget Series

Depth class: Shallow

Drainage class: Well drained

Landform: South-facing slopes of mountains

Parent material: Mixed volcanic ash (7 to 11 inches thick) over residuum and colluvium derived from granitic rock

Slope range: 15 to 65 percent

Elevation: 5,200 to 7,000 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 37 to 41 degrees F

Frost-free period: 70 to 90 days

Taxonomic classification: Loamy, mixed, superactive, shallow Vitrixerandic Humicryepts

Typical Pedon

Burget stony ashy coarse sandy loam; Okanogan National Forest Area, Washington; about 14 miles southwest of the town of Loomis; about 100 feet south and 2,400 feet east of the northwest corner of section 35, T. 38 N., R. 23 E.; latitude 48 degrees 45 minutes 20 seconds north and longitude 119 degrees 55 minutes 3 seconds west; NAD 83.

A—0 to 8 inches; grayish brown (10YR 5/2) stony ashy coarse sandy loam, very dark brown (10YR 2/2) moist; weak fine granular structure; soft, very friable, nonsticky and slightly plastic; common fine and medium roots; common fine irregular pores; 10 percent gravel, 10 percent cobbles, and 5 percent stones; slightly acid; clear wavy boundary.

2Bw—8 to 11 inches; pale brown (10YR 6/3) cobbly coarse sandy loam, dark yellowish brown (10YR 3/4) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and slightly plastic; few fine roots; common fine tubular pores; 10 percent gravel and 10 percent cobbles; moderately acid; abrupt wavy boundary.

2Cr—11 inches; weathered granite.

Range in Characteristics

Thickness of the mixed volcanic ash: 7 to 11 inches

Depth to bedrock: 10 to 20 inches

Thickness of the umbric epipedon: 7 to 11 inches

A horizon:

Value—4 or 5 dry, 1 to 3 moist

Chroma—1 to 3 dry or moist

Content of gravel—5 to 15 percent

Content of cobbles—5 to 15 percent

Content of stones—0 to 10 percent

2Bw horizon:

Value—5 or 6 dry, 4 or 5 moist

Chroma—3 or 4 dry or moist

Content of gravel—10 to 20 percent

Content of cobbles—10 to 25 percent

Burnscreek Series

Depth class: Very deep

Drainage class: Well drained

Landform: Fans and stream terraces

Parent material: Alluvium

Slope range: 3 to 30 percent

Elevation: 2,200 to 2,800 feet

Mean annual precipitation: 18 to 22 inches

Mean annual air temperature: 44 to 47 degrees F

Frost-free period: 110 to 140 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Pachic Ultic Haploxerolls

Typical Pedon

Burnscreek stony sandy loam; Chelan County Area, Washington; about 3 miles south of Brief; about 2,000 feet east and 2,450 feet north of the southwest corner of section 14, T. 27 N., R. 19 E.; latitude 47 degrees 50 minutes 29 seconds north and longitude 120 degrees 24 minutes 27 seconds west; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of forest litter; abrupt smooth boundary.

A—1 to 4 inches; grayish brown (10YR 5/2) stony sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots and few medium roots; few very fine and fine tubular pores; 10 percent gravel, 5 percent cobbles, and 10 percent stones; slightly acid; clear smooth boundary.

BA—4 to 14 inches; brown (10YR 5/3) very stony sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine, fine, and medium roots; few very fine and fine tubular pores; 10 percent gravel, 15 percent cobbles, and 10 percent stones; slightly acid; gradual wavy boundary.

Bw—14 to 33 inches; brown (10YR 5/3) extremely cobbly sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine, fine, and medium and few coarse roots; few very fine and fine tubular pores; 20 percent gravel, 25 percent cobbles, and 15 percent stones; neutral; diffuse wavy boundary.

C—33 to 60 inches; brown (10YR 5/3) extremely cobbly sandy loam, dark brown (10YR 3/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine, fine, and coarse and common medium roots; common very fine and fine tubular pores; 25 percent gravel, 30 percent cobbles, and 15 percent stones; neutral.

Range in Characteristics

Thickness of the mollic epipedon: 20 to 33 inches

A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Content of gravel—5 to 15 percent

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Content of cobbles—0 to 10 percent

Content of stones—5 to 15 percent

BA horizon:

Value—2 or 3 moist

Chroma—2 or 3 dry or moist

Texture—cobbly fine sandy loam, very cobbly sandy loam, or very stony sandy loam

Content of gravel—15 to 25 percent

Content of cobbles—10 to 30 percent

Content of stones—0 to 5 percent

Bw horizon:

Value—5 or 6 dry, 3 to 5 moist

Chroma—3 or 4 dry or moist

Texture—extremely cobbly sandy loam, very cobbly coarse sandy loam, or very gravelly fine sandy loam

Content of gravel—15 to 25 percent

Content of cobbles—10 to 30 percent

Content of stones—0 to 5 percent

C horizon:

Value—5 or 6 dry, 3 to 5 moist

Chroma—3 or 4 dry or moist

Texture—extremely cobbly sandy loam, very cobbly coarse sandy loam, or very gravelly fine sandy loam

Content of gravel—15 to 25 percent

Content of cobbles—10 to 30 percent

Content of stones—0 to 5 percent

Cashmere Series

Depth class: Very deep

Drainage class: Well drained

Landform: Outwash terraces

Parent material: Glaciofluvial deposits

Slope range: 0 to 25 percent

Elevation: 700 to 2,200 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 140 to 190 days

Taxonomic classification: Coarse-loamy, mixed, superactive, mesic Aridic Haploxerolls

Typical Pedon

Cashmere fine sandy loam, 8 to 15 percent slopes, about 140 feet west of Watson Draw Road; about 500 feet west and 140 feet north of the southeast corner of the northwest $\frac{1}{4}$ northwest $\frac{1}{4}$ of section 36, T. 30 N., R. 23 E.; latitude 48 degrees 3 minutes 32 seconds north and longitude 119 degrees 53 minutes 25 seconds west; NAD 83.

A1—0 to 2 inches; grayish brown (10YR 5/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many very fine and fine tubular pores; 2 percent gravel; neutral; clear smooth boundary.

A2—2 to 8 inches; grayish brown (10YR 5/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak coarse granular structure; soft, very friable, nonsticky and

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- nonplastic; many very fine and fine roots; many very fine and fine tubular pores; 2 percent gravel; neutral; clear wavy boundary.
- Bw—8 to 25 inches; brown (10YR 5/3) fine sandy loam, brown (10YR 4/3) moist; weak coarse subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; few very fine and fine tubular pores; 5 percent gravel and 2 percent cobbles; neutral; gradual wavy boundary.
- C1—25 to 44 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; few very fine, fine, and medium tubular pores; 5 percent gravel and 2 percent cobbles; slightly alkaline; gradual wavy boundary.
- C2—44 to 60 inches; pale brown (10YR 6/3) loamy fine sand, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; few very fine and fine tubular pores; 5 percent gravel and 2 percent cobbles; slightly alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 7 to 14 inches

Bw horizon:

Texture—fine sandy loam, sandy loam, or coarse sandy loam

Content of gravel—0 to 10 percent

Content of cobbles—0 to 3 percent

C horizon:

Texture—fine sandy loam, sandy loam, or coarse sandy loam in the upper part and loamy fine sand or loamy coarse sand in the lower part

Content of gravel—0 to 10 percent

Content of cobbles—0 to 3 percent

Cashmont Series

Depth class: Very deep

Drainage class: Well drained

Landform: Outwash terraces

Parent material: Glaciofluvial deposits

Slope range: 0 to 45 percent

Elevation: 700 to 3,000 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 140 to 190 days

Taxonomic classification: Coarse-loamy, mixed, superactive, mesic Aridic Haploxerolls

Typical Pedon

Cashmont sandy loam, 3 to 8 percent slopes; about 200 feet south and 970 feet west of the center of section 31, T. 31 N., R. 23 E.; latitude 48 degrees 8 minutes 18 seconds north and longitude 120 degrees 1 minute 15 seconds west; NAD 83.

A1—0 to 3 inches; grayish brown (10YR 5/2) sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; few very fine and fine tubular pores; 5 percent gravel; neutral; abrupt smooth boundary.

A2—3 to 8 inches; grayish brown (10YR 5/2) sandy loam, very dark grayish brown (10YR 3/2) moist; weak coarse granular structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; few very fine and fine tubular pores; 5 percent gravel; neutral; clear smooth boundary.

- Bw—8 to 23 inches; brown (10YR 5/3) gravelly sandy loam, dark brown (10YR 3/3) moist; weak coarse subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine and fine tubular pores; 20 percent gravel; neutral; gradual smooth boundary.
- C—23 to 60 inches; yellowish brown (10YR 5/4) gravelly sandy loam, dark yellowish brown (10YR 3/4) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; common very fine and fine roots on top of horizon; few very fine and fine tubular pores; 25 percent gravel and 3 percent cobbles; neutral.

Range in Characteristics

Thickness of the mollic epipedon: 7 to 14 inches

A2 horizon:

Texture—fine sandy loam or sandy loam

Content of gravel—0 to 10 percent

Bw horizon:

Texture—gravelly coarse sandy loam, gravelly fine sandy loam, or gravelly sandy loam

Content of gravel—15 to 25 percent

C horizon:

Texture—gravelly sandy loam, gravelly fine sandy loam, or gravelly coarse sandy loam

Content of gravel—15 to 30 percent

Content of cobbles—0 to 5 percent

Cassal Series

Depth class: Very deep

Drainage class: Moderately well drained

Landform: Mountains

Parent material: Mixed volcanic ash (12 to 18 inches thick) over glacial till

Slope range: 5 to 25 percent

Elevation: 2,100 to 3,900 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Loamy-skeletal, isotic, frigid Vitrandic Haploxerolls

Typical Pedon

Cassal ashy loam; Okanogan National Forest Area, Washington; about 4 miles southeast of Mazama; about 2,100 feet south and 250 feet west of the northeast corner of section 3, T. 35 N., R. 20 E.; latitude 48 degrees 33 minutes 54 seconds north and longitude 120 degrees 19 minutes 32 seconds west; NAD 83.

Oe—0 to 2 inches; moderately decomposed mat of needles and twigs; abrupt smooth boundary.

A1—2 to 6 inches; very dark grayish brown (10YR 3/2) ashy loam, black (10YR 2/1) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and common medium and coarse roots; common very fine and fine pores; 3 percent gravel; neutral; clear smooth boundary.

A2—6 to 15 inches; very dark grayish brown (10YR 3/2) ashy loam, very dark brown (10YR 2/2) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium and coarse roots; common very fine and fine pores; 3 percent gravel; neutral; clear wavy boundary.

- AB—15 to 20 inches; dark brown (10YR 4/3) ashy sandy loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium and coarse roots; common very fine and fine pores; 5 percent gravel; slightly acid; clear wavy boundary.
- 2C1—20 to 37 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium roots; few fine pores; few fine faint yellowish brown (10YR 5/6) redoximorphic concentrations in the lower part; 30 percent gravel and 10 percent cobbles; neutral; clear wavy boundary.
- 2C2—37 to 48 inches; light brownish gray (10YR 6/2) very gravelly sandy loam, gray (10YR 5/1) moist; massive; soft, friable, slightly sticky and nonplastic; few very fine, fine, and medium roots; few very fine pores; common fine and medium distinct yellowish brown (10YR 5/6) redoximorphic concentrations; 30 percent gravel and 10 percent cobbles; neutral; gradual wavy boundary.
- 3Cd—48 to 60 inches; light gray (10YR 7/2) very gravelly sandy loam, light brownish gray (10YR 6/2) moist; massive; hard, friable, slightly sticky and nonplastic; few very fine roots; many fine and medium distinct yellowish brown (10YR 5/6) redoximorphic concentrations; 40 percent gravel and 10 percent cobbles; slightly acid.

Range in Characteristics

Thickness of the mixed volcanic ash: 12 to 18 inches

Thickness of the mollic epipedon: 10 to 18 inches

Depth to the densic material: 40 to 60 inches

Depth to distinct redoximorphic features: 30 to 45 inches

High water table: Present in spring

A horizon:

Chroma—1 or 2 moist

Content of gravel—0 to 10 percent

AB horizon:

Value—3 or 4 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Texture—ashy sandy loam or ashy loam

Content of gravel—5 to 10 percent

2C horizon:

Value—5 or 6 dry, 4 or 5 moist

Chroma—2 or 3 dry, 1 to 3 moist

Texture—very gravelly sandy loam or very cobbly sandy loam

Content of gravel—25 to 35 percent

Content of cobbles—10 to 20 percent

3Cd horizon:

Value—6 or 7 dry, 5 or 6 moist

Chroma—2 or 3 dry, 1 or 2 moist

Texture—very gravelly sandy loam or very cobbly sandy loam

Content of gravel—30 to 40 percent

Content of cobbles—10 to 20 percent

Chesaw Series

Depth class: Deep and very deep

Drainage class: Somewhat excessively drained

Soil Survey of Okanogan County Area, Washington

Landform: Outwash terraces
Parent material: Glacial outwash
Slope range: 3 to 65 percent
Elevation: 2,500 to 4,000 feet
Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 41 to 47 degrees F
Frost-free period: 90 to 120 days

Taxonomic classification: Sandy-skeletal, mixed, frigid Entic Haploxerolls

Typical Pedon

Chesaw gravelly sandy loam, 15 to 45 percent slopes; about 1,800 feet south and 400 feet west of the northeast corner of section 30, T. 40 N., R. 30 E.; latitude 48 degrees 56 minutes 10 seconds north and longitude 119 degrees 5 minutes 5 seconds west; NAD 83.

A—0 to 5 inches; grayish brown (10YR 4/1) gravelly sandy loam, black (10YR 2/1) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many very fine and fine tubular and interstitial pores; 25 percent gravel and 3 percent cobbles; neutral; clear smooth boundary.
AC—5 to 17 inches; grayish brown (10YR 4/2) very gravelly loamy sand, very dark brown (10YR 2/2) moist; massive; loose, very friable, nonsticky and nonplastic; common very fine and fine roots; many very fine and fine tubular and interstitial pores; 35 percent gravel and 3 percent cobbles; neutral; clear smooth boundary.
C—17 to 60 inches; grayish brown (10YR 5/2) very gravelly sand, very dark grayish brown (10YR 3/2) moist; massive; single grain; loose, nonsticky and nonplastic; few very fine and fine roots; many very fine and fine and common medium interstitial pores; 40 percent gravel and 3 percent cobbles; neutral.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 20 inches

AC horizon:

Chroma—1 or 2 dry or moist
Texture—very gravelly sandy loam or very gravelly loamy sand
Content of gravel—25 to 40 percent
Content of cobbles—0 to 4 percent

C horizon:

Texture—very gravelly sand, very gravelly loamy sand, or very gravelly coarse sandy loam
Content of gravel—35 to 45 percent
Content of cobbles—0 to 4 percent

Chewack Series

Depth class: Very deep
Drainage class: Well drained
Landform: Mountains
Parent material: Volcanic ash (20 to 35 inches thick) over glacial till
Slope range: 35 to 65 percent
Elevation: 6,000 to 6,400 feet
Mean annual precipitation: 25 to 35 inches
Mean annual air temperature: 35 to 39 degrees F
Frost-free period: 60 to 90 days

Soil Survey of Okanogan County Area, Washington

Taxonomic classification: Ashy-skeletal over loamy-skeletal, glassy over isotic Xeric Vitricryands

Typical Pedon

Chewack very stony ashy sandy loam; Okanogan National Forest Area, Washington; about 14 miles north-northeast of Winthrop; about 400 feet west and 700 feet south of the northwest corner of section 9, T. 37 N., R. 22 E.; latitude 48 degrees 43 minutes 28 seconds north and longitude 120 degrees 4 minutes 47 seconds west; NAD 83.

Oe—0 to 2 inches; moderately decomposed mat of needles, leaves, and twigs; abrupt smooth boundary.

A—2 to 5 inches; light brownish gray (10YR 6/2) very stony ashy sandy loam, dark grayish brown (10YR 4/2) moist; weak fine and medium granular structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine and few medium and coarse roots; common fine irregular pores; 15 percent gravel, 10 percent cobbles, and 10 percent stones; slightly acid; clear wavy boundary.

Bw—5 to 25 inches; pale brown (10YR 6/3) very cobbly ashy sandy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; common very fine and fine roots and few medium roots; common fine irregular pores; NaF pH 10.5; 20 percent gravel, 20 percent cobbles, and 5 percent stones; slightly acid; gradual wavy boundary.

2C—25 to 60 inches; light gray (2.5Y 7/2) very cobbly coarse sandy loam, grayish brown (2.5Y 5/2) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine roots in the upper part; few irregular pores; 25 percent gravel, 25 percent cobbles, and 5 percent stones; slightly acid.

Range in Characteristics

Thickness of the volcanic ash: 20 to 35 inches

A horizon:

Value—5 or 6 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Content of gravel—15 to 25 percent

Content of cobbles—10 to 20 percent

Content of stones—10 to 20 percent

Bw horizon:

Chroma—3 or 4 dry or moist

Texture—very cobbly ashy sandy loam or very gravelly ashy sandy loam

Content of gravel—20 to 30 percent

Content of cobbles—10 to 20 percent

Content of stones—0 to 10 percent

2C horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Texture—very cobbly or very gravelly coarse sandy loam

Content of gravel—25 to 35 percent

Content of cobbles—10 to 25 percent

Content of stones—0 to 10 percent

Chumstick Series

Depth class: Shallow

Drainage class: Well drained

Soil Survey of Okanogan County Area, Washington

Landform: Mountains

Parent material: Mixed volcanic ash (10 to 20 inches thick) over bedrock

Slope range: 15 to 65 percent

Elevation: 2,500 to 4,900 feet

Mean annual precipitation: 18 to 24 inches

Mean annual air temperature: 42 to 46 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Loamy-skeletal, isotic, frigid Lithic Ultic Haploxerolls

Typical Pedon

Chumstick very stony ashy sandy loam; Okanogan National Forest Area, Washington; about 3.5 miles south of Havillah; about 2,500 feet north and 2,000 feet east of the southwest corner of section 19, T. 38 N, R. 29 E.; latitude 48 degrees 20 minutes 13 seconds north and longitude 119 degrees 13 minutes 20 seconds west; NAD 83.

A—0 to 5 inches; dark grayish brown (10YR 4/2) very stony ashy sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, slightly sticky and nonplastic; many very fine and fine and few medium roots; few fine pores; 15 percent gravel, 10 percent cobbles, and 15 percent stones; neutral; clear smooth boundary.

Bw—5 to 15 inches; brown (10YR 5/3) very stony ashy sandy loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and nonplastic; common very fine and fine and few medium roots; few fine pores; 15 percent gravel, 10 percent cobbles, and 25 percent stones; neutral; clear wavy boundary.

2R—15 inches; schist.

Range in Characteristics

Thickness of the mixed volcanic ash: 10 to 20 inches

Depth to bedrock: 10 to 20 inches

Thickness of the mollic epipedon: 7 to 15 inches

A horizon:

Value—4 or 5 dry

Chroma—2 or 3 moist or dry

Content of gravel—10 to 20 percent

Content of cobbles—5 to 20 percent

Content of stones—15 to 25 percent

Bw horizon:

Chroma—2 to 4 moist or dry

Texture—very cobbly, extremely stony, or very stony sandy loam

Content of gravel—10 to 30 percent

Content of cobbles—10 to 20 percent

Content of stones—10 to 30 percent

Colville Series

Depth class: Very deep

Drainage class: Poorly drained or somewhat poorly drained

Landform: Low stream terraces and flood plains

Parent material: Alluvium

Slope range: 0 to 3 percent

Elevation: 1,400 to 4,000 feet

Soil Survey of Okanogan County Area, Washington

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 45 to 47 degrees F

Frost-free period: 100 to 140 days

Taxonomic classification: Fine-silty, mixed, superactive, calcareous, mesic
Fluvaquentic Endoaquolls

Typical Pedon

Colville silt loam, 0 to 3 percent slopes; about 2,200 feet south and 1,600 feet east of the northwest corner of section 35, T. 40 N., R. 25 E.; latitude 48 degrees 21 minutes 55 seconds north and longitude 119 degrees 39 minutes 42 seconds west; NAD 83.

Ap1—0 to 4 inches; dark gray (10YR 4/1) silt loam, black (10YR 2/1) moist; moderate fine granular structure; hard, friable, moderately sticky and slightly plastic; common very fine and fine roots; common very fine and fine tubular pores; slightly effervescent; strongly alkaline; abrupt smooth boundary.

Ap2—4 to 9 inches; dark gray (10YR 4/1) silt loam, black (10YR 2/1) moist; moderate medium subangular blocky structure and moderate medium prismatic; hard, friable, moderately sticky and slightly plastic; common very fine and fine roots; common very fine and fine tubular pores; slightly effervescent; strongly alkaline; abrupt smooth boundary.

A—9 to 17 inches; dark gray (10YR 4/1) silty clay loam, black (10YR 2/1) moist; moderate medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; common very fine and fine roots; many very fine and fine tubular pores; slightly effervescent; strongly alkaline; clear wavy boundary.

2Bw—17 to 21 inches; gray (10YR 6/1) silt loam, dark gray (10YR 4/1) moist; moderate medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; few very fine, fine, and medium roots; many very fine and fine and few medium tubular pores; violently effervescent; strongly alkaline; clear wavy boundary.

2Bg1—21 to 33 inches; light gray (10YR 7/1) silty clay loam, gray (5YR 5/1) moist; 2 percent fine distinct brown (7.5YR 4/4) redoximorphic concentrations; moderate medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; few very fine, fine, and medium roots; common very fine and fine tubular pores; violently effervescent; strongly alkaline; abrupt smooth boundary.

2Bg2—33 to 43 inches; light gray (2.5Y 7/2) silty clay loam, olive gray (5Y 5/2) moist; 2 percent fine distinct brown (7.5YR 4/4) redoximorphic concentrations; massive; very hard, firm, moderately sticky and moderately plastic; few very fine and fine roots; many very fine and fine and common medium tubular pores; violently effervescent; moderately alkaline; abrupt smooth boundary.

2Bg3—43 to 60 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 4/3) moist; 10 percent fine faint dark yellowish brown (10YR 4/4) redoximorphic concentrations; massive; hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; many very fine and fine and few medium tubular pores; violently effervescent; slightly alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 20 inches

Effervescence: Effervescent throughout

Content of calcium: Increases with depth

High water table: Present year round

Flooding: Present in spring

Ap and A horizons:

Texture—silty clay loam or silt loam

2Bg1 horizon:

Texture—silty clay loam or clay loam

2Bg2 and 2Bg3 horizons:

Texture—silt loam or silty clay loam

Conconully Series

Depth class: Moderately deep

Drainage class: Well drained

Landform: Hills

Parent material: Mixed volcanic ash (10 to 14 inches thick) over glacial till

Slope range: 0 to 65 percent

Elevation: 1,200 to 4,000 feet

Mean annual precipitation: 11 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 110 to 140 days

Taxonomic classification: Coarse-loamy, mixed, superactive, mesic Vitrandic
Haploxerolls

Typical Pedon

Conconully gravelly ashy loam, 0 to 25 percent slopes, extremely stony; 340 feet east and 300 feet south of the northwest corner of the southwest $\frac{1}{4}$ southwest $\frac{1}{4}$ of section 23, T. 31 N., R. 22 E.; latitude 48 degrees 10 minutes 3 seconds north and longitude 120 degrees 3 minutes 18 seconds west; NAD 83.

A1—0 to 2 inches; dark grayish brown (10YR 4/2) gravelly ashy loam, very dark brown (10YR 2/2) moist; weak thick platy structure parting to weak fine granular; soft, very friable, nonsticky and nonplastic; many roots; 20 percent gravel and 5 percent cobbles; neutral; abrupt smooth boundary.

A2—2 to 13 inches; dark grayish brown (10YR 4/2) gravelly ashy loam, very dark brown (10YR 2/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many roots; 20 percent gravel and 5 percent cobbles; neutral; clear smooth boundary.

2Bw1—13 to 21 inches; brown (10YR 5/3) gravelly fine sandy loam, dark brown (10YR 3/3) moist; weak medium prismatic structure; soft, very friable, nonsticky and nonplastic; common roots; few fine tubular pores; 15 percent gravel and 5 percent cobbles; neutral; clear smooth boundary.

2Bw2—21 to 33 inches; pale brown (10YR 6/3) gravelly sandy loam, dark brown (10YR 4/3) moist; weak medium prismatic structure; slightly hard, very friable, nonsticky and nonplastic; common roots; few fine tubular pores; 15 percent gravel and 5 percent cobbles; neutral; clear smooth boundary.

2Cd—33 to 60 inches; light brownish gray (10YR 6/2) dense glacial till that crushes to gravelly sandy loam, dark grayish brown (10YR 4/2) moist; massive; hard, very friable, nonsticky and nonplastic; 20 percent gravel and 10 percent cobbles; neutral.

Range in Characteristics

Thickness of the mixed volcanic ash: 10 to 14 inches

Thickness of the mollic epipedon: 10 to 14 inches

Depth to the densic material: 26 to 40 inches

Soil Survey of Okanogan County Area, Washington

A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Texture—gravelly ashy loam, ashy loam, or ashy fine sandy loam

Content of gravel—5 to 25 percent

Content of cobbles—0 to 10 percent

Content of stones—0 to 5 percent

Bw horizon:

Value—5 or 6 dry, 3 to 5 moist

Chroma—3 or 4 dry or moist

Texture—gravelly fine sandy loam, gravelly sandy loam, or fine sandy loam

Content of gravel—10 to 20 percent

Content of cobbles—0 to 10 percent

2Cd horizon:

Hue—10YR or 2.5Y

Value—5 to 7 dry, 3 to 6 moist

Chroma—1 to 4 dry or moist

Texture—gravelly sandy loam, gravelly coarse sandy loam, or gravelly fine sandy loam

Content of gravel—15 to 25 percent

Content of cobbles—5 to 15 percent

Coxit Series

Depth class: Very deep

Drainage class: Well drained

Landform: Mountains

Parent material: Mixed volcanic ash (14 to 35 inches thick) over colluvium and residuum derived from metasedimentary rock

Slope range: 15 to 65 percent

Elevation: 4,200 to 5,300 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Loamy-skeletal, isotic, frigid Vitrandic Haploxerepts

Typical Pedon

Coxit gravelly ashy sandy loam; Okanogan National Forest Area, Washington; Conconully West U.S. Geological Survey topographic quadrangle; about 0.75 mile east of Muckamuck Mountain and 5.5 miles northwest of Conconully; latitude 48 degrees 36 minutes 34 seconds north and longitude 119 degrees 50 minutes 15 seconds west; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of needles, grass, and twigs; abrupt smooth boundary.

A1—1 to 2 inches; light brownish gray (10YR 6/2) gravelly ashy sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine, fine, and medium and common coarse roots; many fine and medium tubular pores; 15 percent gravel and 5 percent cobbles; neutral; clear smooth boundary.

A2—2 to 8 inches; brown (10YR 5/3) gravelly ashy sandy loam, dark brown (10YR 3/3) moist; weak fine and medium granular structure; soft, friable, nonsticky and nonplastic; many very fine, fine, and medium and common coarse roots; common fine and medium tubular pores; 20 percent gravel and 5 percent cobbles; slightly acid; gradual wavy boundary.

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Bw1—8 to 24 inches; brown (10YR 5/3) very cobbly ashy sandy loam, dark yellowish brown (10YR 3/4) moist; weak fine subangular blocky structure; soft, friable, nonsticky and nonplastic; many fine and medium and common coarse roots; common fine tubular pores; 25 percent gravel, 20 percent cobbles, and 5 percent stones; moderately acid; gradual wavy boundary.

Bw2—24 to 35 inches; yellowish brown (10YR 5/6) very cobbly ashy sandy loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; many fine and medium and common coarse roots; common fine tubular pores; 25 percent gravel, 20 percent cobbles, and 5 percent stones; moderately acid; clear wavy boundary.

2C1—35 to 49 inches; light yellowish brown (2.5Y 6/4) very cobbly sandy loam, olive brown (2.5Y 4/4) moist; massive; slightly hard, friable, slightly sticky and nonplastic; common fine and medium and few coarse roots; few fine irregular pores; 20 percent gravel, 20 percent cobbles, and 5 percent stones; moderately acid; gradual wavy boundary.

2C2—49 to 60 inches; light yellowish brown (2.5Y 6/4) extremely cobbly sandy loam, olive brown (2.5Y 4/4) moist; massive; hard, friable, slightly sticky and nonplastic; few fine, medium, and coarse roots; few fine irregular pores; 30 percent gravel, 25 percent cobbles, and 5 percent stones; moderately acid.

Range in Characteristics

Thickness of the mixed volcanic ash: 14 to 35 inches

A horizon:

Value—5 or 6 dry

Chroma—2 or 3 dry or moist

Content of gravel—15 to 25 percent

Content of cobbles—0 to 5 percent

Bw horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 to 6 dry or moist

Texture—very gravelly ashy sandy loam or very cobbly ashy sandy loam

Content of gravel—20 to 30 percent

Content of cobbles—5 to 20 percent

Content of stones—0 to 5 percent

2C horizon:

Hue—10YR or 2.5Y

Texture—very gravelly, very cobbly, or extremely cobbly sandy loam

Content of gravel—20 to 40 percent

Content of cobbles—5 to 25 percent

Content of stones—0 to 5 percent

Crocamp Series

Depth class: Deep

Drainage class: Well drained

Landform: South-facing slopes of mountains

Parent material: Mixed volcanic ash (10 to 20 inches thick) over colluvium derived from granitic rock

Slope range: 15 to 65 percent

Elevation: 5,200 to 7,800 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 37 to 41 degrees F

Frost-free season: 70 to 90 days

Taxonomic classification: Loamy-skeletal, mixed, superactive Vitrixerandic Humicryepts

Typical Pedon

Crocamp very stony ashy sandy loam; Okanogan National Forest Area, Washington; about 15 miles southwest of Loomis; about 2,200 feet east of the northeast corner of section 35, T. 38 N., R. 23 E.; latitude 48 degrees 45 minutes 20 seconds north and longitude 119 degrees 55 minutes 12 seconds west; NAD 83.

- A—0 to 10 inches; dark grayish brown (10YR 4/2) very stony ashy sandy loam, black (10YR 2/1) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and slightly plastic; many very fine and fine roots and common medium roots; common fine irregular pores; 15 percent gravel, 5 percent cobbles, and 20 percent stones; slightly acid; gradual wavy boundary.
- AB—10 to 17 inches; brown (10YR 5/3) very cobbly ashy sandy loam, dark grayish brown (10YR 4/2) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and slightly plastic; many very fine and fine roots and few medium roots; common fine irregular pores; 15 percent gravel, 20 percent cobbles, and 5 percent stones; slightly acid; clear wavy boundary.
- 2Bw—17 to 30 inches; light yellowish brown (10YR 6/4) extremely cobbly coarse sandy loam, dark yellowish brown (10YR 4/6) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; few fine irregular pores; 20 percent gravel, 30 percent cobbles, and 5 percent stones; moderately acid; clear wavy boundary.
- 2C—30 to 42 inches; pale brown (10YR 6/3) extremely cobbly coarse sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; 25 percent gravel, 30 percent cobbles, and 5 percent stones; moderately acid; abrupt wavy boundary.
- 2R—42 inches; granite.

Range in Characteristics

Thickness of the mixed volcanic ash: 10 to 20 inches

Thickness of the umbric epipedon: 10 to 20 inches

Depth to bedrock: 40 to 60 inches

A horizon:

Value—3 to 5 dry, 1 to 3 moist

Chroma—1 to 3 dry or moist

Content of gravel—15 to 30 percent

Content of cobbles—5 to 20 percent

Content of stones—10 to 30 percent

AB horizon:

Value—3 to 6 dry, 2 to 4 moist

Chroma—2 to 4 dry or moist

Texture—very cobbly ashy sandy loam or very cobbly ashy coarse sandy loam

Content of gravel—15 to 50 percent

Content of cobbles—15 to 30 percent

Content of stones—0 to 10 percent

2Bw horizon:

Hue—7.5YR or 10YR

Value—4 to 6 dry, 3 to 6 moist

Chroma—3 to 6 dry or moist

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Texture—very cobbly coarse sandy loam, extremely gravelly coarse sandy loam, extremely cobbly coarse sandy loam, or very stony sandy loam
Content of gravel—25 to 55 percent
Content of cobbles—10 to 30 percent
Content of stones—0 to 15 percent

2C horizon:

Value—5 or 6 dry, 4 or 5 moist
Chroma—3 or 4 dry or moist
Texture—very cobbly coarse sandy loam, extremely gravelly coarse sandy loam, extremely cobbly coarse sandy loam, or extremely stony sandy loam
Content of gravel—25 to 55 percent
Content of cobbles—10 to 30 percent
Content of stones—0 to 20 percent

Cryaquolls

Depth class: Very deep
Drainage class: Poorly drained and somewhat poorly drained
Landform: Drainageways and depressions of mountains
Parent material: Mixed alluvium over glacial till and glacial outwash
Slope range: 0 to 5 percent
Elevation: 3,600 to 4,500 feet
Mean annual precipitation: 25 to 35 inches
Mean annual air temperature: 37 to 42 degrees F
Frost-free period: 70 to 90 days
Taxonomic classification: Cryaquolls

Reference Pedon

Cryaquolls; Okanogan National Forest Area, Washington; about 5 miles northwest of Wauconda and 5 miles southwest of Bonaparte Lake; about 1,300 feet west and 1,500 feet north of the southeast corner of section 35, T. 38 N., R. 29 E.; latitude 48 degrees 44 minutes 41 seconds north and longitude 119 degrees 7 minutes 33 seconds west; NAD 83.

- Oe—0 to 2 inches; moderately decomposed mat of needles, twigs, and grass; clear smooth boundary.
- A1—2 to 9 inches; brown (10YR 5/3) loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine and common medium and coarse roots; common very fine and fine pores; neutral; clear wavy boundary.
- A2—9 to 17 inches; grayish brown (10YR 5/2) loam, black (10YR 2/1) moist; moderate medium subangular blocky structure parting to moderate fine and medium granular; slightly hard, firm, moderately sticky and moderately plastic; many very fine and fine and common medium and coarse roots; common very fine and fine pores; neutral; gradual wavy boundary.
- Bg—17 to 21 inches; light brownish gray (10YR 6/2) silt loam, dark grayish brown (10YR 5/2) moist; few fine distinct yellowish brown (10YR 5/6) redoximorphic concentrations; moderate medium subangular blocky structure; soft, friable, slightly sticky and nonplastic; many very fine and fine and few medium roots; few fine pores; neutral; clear wavy boundary.
- 2Cg1—21 to 31 inches; light gray (2.5Y 7/2) sandy loam, grayish brown (2.5Y 5/2) moist; common fine and medium distinct yellowish brown (10YR 5/6)

redoximorphic concentrations; massive; slightly hard, friable, nonsticky and nonplastic; few very fine roots; 5 percent gravel; slightly acid; clear wavy boundary.
2Cg2—31 to 40 inches; light yellowish brown (10YR 6/4) gravelly loamy coarse sand, yellowish brown (10YR 5/6) moist; many fine and medium prominent grayish brown (10YR 5/2) redoximorphic depletions; single grain; loose, nonsticky and nonplastic; 15 percent gravel; neutral; clear wavy boundary.
2Cg3—40 to 60 inches; pale yellow (2.5Y 7/3) gravelly fine sandy loam, grayish brown (2.5Y 5/2) moist; many medium prominent yellowish brown (10YR 5/6) redoximorphic concentrations; massive; slightly hard, friable, slightly sticky and nonplastic; 15 percent gravel and 5 percent cobbles; slightly acid.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 20 inches

Depth to the glacial till or glacial outwash (2Cg horizon): 20 to 40 inches

High water table: Present late in winter and in spring and summer

Depth to redoximorphic features: 10 to 20 inches

Flooding: Present in spring

A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 to 3 dry or moist

Content of gravel—0 to 15 percent

Bg horizon:

Hue—2.5Y or 10YR

Value—5 to 7 dry, 5 or 6 moist

Texture—silt loam, gravelly loam, or gravelly fine sandy loam

Content of gravel—0 to 30 percent

Content of cobbles—0 to 5 percent

2Cg horizon:

Hue—2.5Y or 10YR

Value—6 or 7 dry or moist

Chroma—2 to 6 dry or moist

Texture—sandy loam, gravelly fine sandy loam, or gravelly loamy coarse sand

Content of gravel—5 to 25 percent

Content of cobbles—0 to 5 percent

Cryohemists

Depth class: Very deep

Drainage class: Very poorly drained

Landform: Depressions of mountains

Parent material: Organic material over alluvium and glacial till

Slope range: 0 to 5 percent

Elevation: 5,000 to 6,800 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 35 to 42 degrees F

Frost-free period: 60 to 80 days

Taxonomic classification: Cryohemists

Reference Pedon

Cryohemists; Okanogan National Forest Area, Washington; about 2 miles north of Tiffany Mountain; about 500 feet east and 100 feet south of the northwest corner of

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section 10, T. 37 N., R. 23 E.; latitude 48 degrees 43 minutes 36 seconds north and longitude 119 degrees 56 minutes 47 seconds west; NAD 83.

Oe—0 to 14 inches; very dark gray (10YR 3/1) mucky peat, black (10YR 2/1) moist; about 50 percent fibers, 25 percent rubbed; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine, fine, and medium roots; slightly acid; clear smooth boundary.

Oa—14 to 19 inches; very dark gray (10YR 3/1) muck, black (10YR 2/1) moist; 45 percent fibers, 15 percent rubbed; massive; soft, very friable, nonsticky and nonplastic; many very fine, fine, and medium roots; slightly acid; abrupt smooth boundary.

2Cg1—19 to 26 inches; light brownish gray (10YR 6/2) fine sandy loam, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; slightly acid; abrupt smooth boundary.

2Cg2—26 to 33 inches; gray (5Y 6/1) gravelly sandy loam, gray (5Y 5/1) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; 15 percent gravel; slightly acid; abrupt smooth boundary.

3Cg3—33 to 60 inches; gray (10YR 6/1) very gravelly loamy sand, gray (10YR 5/1) moist; single grain; loose, nonsticky and nonplastic; 40 percent gravel; slightly acid.

Range in Characteristics

Depth to the mineral soil material: 16 to 40 inches

High water table: Present year round

Ponding: Present year round

Flooding: Present in spring and early in summer

Oe horizon:

Value—2 or 3 dry

Chroma—1 or 2 dry or moist

Oa horizon:

Value—2 to 4 dry, 2 or 3 moist

Chroma—1 or 2 dry or moist

2Cg horizon:

Hue—10YR or 5Y

Value—5 to 7 dry, 3 to 5 moist

Chroma—1 or 2 dry or moist

Texture—gravelly or very gravelly sandy loam or fine sandy loam

Content of gravel—0 to 40 percent

3Cg horizon:

Hue—10YR or 5Y

Value—5 to 7 dry, 3 to 5 moist

Chroma—1 or 2 dry or moist

Texture—very gravelly loamy sand, gravelly loamy sand, or very gravelly sandy loam

Content of gravel—15 to 40 percent

Cubhill Series

Depth class: Very deep

Drainage class: Well drained

Landform: South-facing slopes of hills

Parent material: Mixed volcanic ash (12 to 18 inches thick) over glacial till derived from sedimentary and volcanic rock

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Slope range: 15 to 35 percent

Elevation: 2,900 to 4,000 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 47 to 50 degrees F

Frost-free period: 110 to 140 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Vitrandic
Argixerolls

Typical Pedon

Cubhill gravelly ashy loam; Okanogan National Forest Area, Washington; about 6.5 miles north of Winthrop; about 980 feet east and 2,650 feet south of the northwest corner of section 29, T. 36 N., R. 21 E.; latitude 48 degrees 35 minutes 30 seconds north and longitude 120 degrees 14 minutes 44 seconds west; NAD 83.

A1—0 to 9 inches; dark grayish brown (10YR 4/2) gravelly ashy loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium subangular blocky structure parting to weak fine granular; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium and coarse roots; common medium irregular pores; 20 percent gravel; neutral; gradual wavy boundary.

A2—9 to 18 inches; dark grayish brown (10YR 4/2) gravelly ashy loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium roots; common medium irregular pores; 20 percent gravel; neutral; clear wavy boundary.

2AB—18 to 25 inches; grayish brown (10YR 5/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium roots; common fine irregular pores; 25 percent gravel and 10 percent cobbles; neutral; clear wavy boundary.

2Bt1—25 to 36 inches; brown (10YR 5/3) very gravelly clay loam, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; few fine irregular pores; few discontinuous faint clay films on faces of peds and in pores; 30 percent gravel and 10 percent cobbles; neutral; clear wavy boundary.

2Bt2—36 to 60 inches; pale brown (10YR 6/3) very gravelly clay loam, brown (10YR 5/3) moist; massive; very hard, friable, sticky and slightly plastic; few very fine roots; few fine irregular pores; few discontinuous faint clay films on faces of peds and in pores; 35 percent gravel and 10 percent cobbles; neutral.

Range in Characteristics

Thickness of the mixed volcanic ash: 12 to 18 inches

Thickness of the mollic epipedon: 15 to 25 inches

A horizon:

Value—3 or 4 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Content of gravel—15 to 20 percent

Content of cobbles—0 to 5 percent

2AB horizon:

Value—4 or 5 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Texture—very gravelly or gravelly loam

Content of gravel—20 to 30 percent

Content of cobbles—5 to 10 percent

2Bt horizon:

Value—5 or 6 dry, 4 or 5 moist

Chroma—3 or 4 dry or moist

Texture—very gravelly clay loam, very gravelly loam, or very gravelly sandy clay loam

Content of gravel—30 to 40 percent

Content of cobbles—5 to 10 percent

Devore Series

Depth class: Moderately deep

Drainage class: Well drained

Landform: Mountains

Parent material: Volcanic ash (7 to 14 inches thick) over colluvium and residuum derived from granitic rock

Slope range: 15 to 65 percent

Elevation: 4,000 to 7,500 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 35 to 43 degrees F

Frost-free period: 60 to 90 days

Taxonomic classification: Loamy-skeletal, isotic Haploxerandic Haplocrypts

Typical Pedon

Devore stony ashy sandy loam; Okanogan National Forest Area, Washington; about 13 miles northwest of Conconully; about 1,600 feet west and 1,000 feet south of the northeast corner of section 16, T. 37 N., R. 23 E.; latitude 48 degrees 42 minutes 36 seconds north and longitude 119 degrees 57 minutes 24 seconds west; NAD 83.

Oe—0 to 3 inches; moderately decomposed mat of needles, leaves, and twigs; abrupt smooth boundary.

C—3 to 4 inches, light gray (10YR 7/2) stony ashy sandy loam, grayish brown (10YR 5/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots and few medium and coarse roots; common fine irregular pores; 5 percent gravel, 5 percent cobbles, and 10 percent stones; slightly acid; clear wavy boundary.

2A—4 to 7 inches; brown (10YR 5/3) very stony ashy fine sandy loam, dark brown (10YR 3/3) moist; weak fine and medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots and few medium and coarse roots; common fine irregular pores; NaF pH 11.0; 15 percent gravel, 5 percent cobbles, and 15 percent stones; slightly acid; clear wavy boundary.

2Bw—7 to 14 inches; light yellowish brown (10YR 6/4) very stony ashy fine sandy loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine roots and few medium roots; common very fine and fine irregular pores; NaF pH 11.0; 10 percent gravel, 20 percent cobbles, and 20 percent stones; moderately acid; gradual wavy boundary.

3C1—14 to 26 inches; pale brown (10YR 6/3) extremely stony coarse sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine roots and few medium and coarse roots; common fine irregular pores; 20 percent gravel, 25 percent cobbles, and 20 percent stones; moderately acid; gradual wavy boundary.

3C2—26 to 35 inches; very pale brown (10YR 7/3) extremely stony coarse sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; few fine and medium roots; few fine irregular pores; 25 percent gravel,

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20 percent cobbles, and 25 percent stones; moderately acid; gradual wavy boundary.
3R—35 inches; granite.

Range in Characteristics

Thickness of the volcanic ash: 7 to 14 inches

Depth to bedrock: 20 to 40 inches

C horizon:

Content of gravel—0 to 5 percent

Content of cobbles—0 to 5 percent

Content of stones—5 to 15 percent

2A horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Texture—very stony ashy sandy loam or very stony ashy fine sandy loam

Content of gravel—10 to 15 percent

Content of cobbles—5 to 15 percent

Content of stones—15 to 25 percent

2Bw horizon:

Value—3 or 4 moist

Chroma—2 to 4 dry or moist

Texture—very stony ashy sandy loam or very stony ashy fine sandy loam

Content of gravel—10 to 15 percent

Content of cobbles—10 to 25 percent

Content of stones—15 to 25 percent

3C horizon:

Value—5 to 7 dry, 4 or 5 moist

Chroma—2 to 4 dry or moist

Texture—extremely stony coarse sandy loam, very stony sandy loam, or very cobbly sandy loam

Content of gravel—15 to 30 percent

Content of cobbles—20 to 35 percent

Content of stones—15 to 30 percent

Disautel Series

Depth class: Moderately deep

Drainage class: Well drained

Landform: Hills

Parent material: Mixed volcanic ash over glacial till

Slope range: 0 to 65 percent

Elevation: 1,500 to 3,000 feet

Mean annual precipitation: 11 to 15 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 110 to 140 days

Taxonomic classification: Coarse-loamy, mixed, superactive, mesic Calcic Haploxerolls

Typical Pedon

Disautel silt loam, 0 to 8 percent slopes; about 175 feet south and 1,000 feet west of the northeast corner of section 25, T. 35 N., R. 28 E.; latitude 48 degrees 30 minutes 36 seconds north and longitude 119 degrees 15 minutes 57 seconds west; NAD 83.

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A1—0 to 9 inches; dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; moderate medium granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine and fine tubular pores; 5 percent gravel; neutral; clear smooth boundary.

A2—9 to 16 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium prismatic structure parting to moderate medium granular; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine and fine tubular pores; 5 percent gravel; slightly alkaline; clear wavy boundary.

Bw—16 to 24 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; moderate medium prismatic structure parting to moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine and fine tubular pores; 10 percent gravel; slightly alkaline; abrupt smooth boundary.

2Bk—24 to 31 inches; light gray (10YR 7/2) gravelly loam, grayish brown (10YR 5/2) moist; massive; hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; many very fine and fine dendritic tubular pores; common medium soft masses of calcium carbonate; 20 percent gravel and 5 percent cobbles; strongly effervescent; moderately alkaline; abrupt smooth boundary.

2Cd—31 to 60 inches; light gray (2.5Y 7/2) gravelly loam, grayish brown (2.5Y 5/2) moist; massive; hard, firm, slightly sticky and slightly plastic; few very fine and fine roots; many very fine and fine dendritic tubular pores; 25 percent gravel and 5 percent cobbles; strongly effervescent; strongly alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 18 inches

Depth to the densic material: 20 to 40 inches

Depth to the calcium carbonate accumulation: 21 to 32 inches

A1 horizon:

Texture—silt loam or cobbly silt loam

Content of gravel—0 to 10 percent

Content of cobbles—0 to 20 percent

A2 horizon:

Texture—loam, very fine sandy loam, or silt loam

Content of gravel—0 to 10 percent

Bw horizon:

Texture—very fine sandy loam, silt loam, or loam

Content of gravel—0 to 15 percent

2Bk horizon:

Texture—cobbly very fine sandy loam, gravelly loam, or very gravelly fine sandy loam

Content of gravel—15 to 40 percent

Content of cobbles—0 to 10 percent

2Cd horizon:

Texture—gravelly loam, very gravelly fine sandy loam, or cobbly very fine sandy loam

Content of gravel—20 to 40 percent

Content of cobbles—0 to 10 percent

Donavan Series

Depth class: Moderately deep

Drainage class: Well drained

Landform: Hills and mountains

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Parent material: Mixed volcanic ash (12 to 18 inches thick) over glacial till

Slope range: 0 to 65 percent

Elevation: 1,500 to 4,500 feet

Mean annual precipitation: 11 to 18 inches

Mean annual air temperature: 42 to 50 degrees F

Frost-free period: 110 to 140 days

Taxonomic classification: Coarse-loamy, isotic, mesic Vitrandic Haploxerolls

Typical Pedon

Donavan stony ashy loam; Okanogan National Forest Area, Washington; about 8 miles west-southwest of Wauconda; about 2,000 feet east and 2,000 feet south of the northwest corner of section 16, T. 37 N., R. 29 E.; latitude 48 degrees 12 minutes 24 seconds north and longitude 119 degrees 48 minutes 10 seconds west; NAD 83.

Oi—0 to 1 inch; slightly decomposed mat of needles, twigs, and grass; abrupt smooth boundary.

A—1 to 7 inches; very dark grayish brown (10YR 3/2) stony ashy loam, black (10YR 2/1) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots and few medium and coarse roots; common fine and very fine tubular pores; 10 percent gravel and 10 percent stones; neutral; clear smooth boundary.

Bw1—7 to 11 inches; dark grayish brown (10YR 4/2) gravelly ashy loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots and few medium roots; common very fine and fine tubular pores; 15 percent gravel and 5 percent cobbles; neutral; clear smooth boundary.

Bw2—11 to 16 inches; brown (10YR 5/3) gravelly ashy sandy loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots and few medium roots; common very fine and fine irregular pores; 20 percent gravel; neutral; clear smooth boundary.

2BC—16 to 27 inches; pale brown (10YR 6/3) gravelly sandy loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few fine and medium roots; few fine irregular pores; many fine and medium distinct stains that are dark yellowish brown (10YR 4/4) moist; 20 percent gravel; neutral; gradual wavy boundary.

2Cd1—27 to 34 inches; light brownish gray (2.5Y 6/2) gravelly sandy loam, grayish brown (10YR 5/2) moist; massive; hard, friable, nonsticky and nonplastic; few very fine roots; few fine and medium distinct stains that are brown (10YR 4/3) moist; 15 percent gravel and 5 percent cobbles; neutral; gradual wavy boundary.

2Cd2—34 to 60 inches; light brownish gray (2.5Y 6/2) gravelly sandy loam, grayish brown (2.5Y 5/2) moist; massive; hard, friable, nonsticky and nonplastic; 15 percent gravel and 5 percent cobbles; neutral.

Range in Characteristics

Thickness of the mixed volcanic ash: 12 to 18 inches

Thickness of the mollic epipedon: 12 to 18 inches

Depth to the densic material: 20 to 40 inches

A horizon:

Value—3 to 5 dry, 2 or 3 moist

Chroma—1 to 3 dry or moist

Texture—ashy loam or stony ashy loam

Content of gravel—0 to 10 percent

Content of cobbles—0 to 5 percent

Content of stones—0 to 15 percent

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Bw horizon:

Value—4 or 5 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Texture—ashy loam, gravelly ashy loam, or gravelly ashy sandy loam

Content of gravel—5 to 20 percent

Content of cobbles—0 to 5 percent

2BC horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Content of gravel—10 to 20 percent

Content of cobbles—0 to 5 percent

2Cd horizon:

Hue—10YR or 2.5Y

Value—6 or 7 dry, 5 or 6 moist

Chroma—2 or 3 dry or moist

Content of gravel—15 to 20 percent

Content of cobbles—0 to 5 percent

Entiat Series

Depth class: Shallow

Drainage class: Well drained

Landform: Mountains

Parent material: Colluvium and residuum derived from granodiorite

Slope range: 25 to 65 percent

Elevation: 870 to 3,000 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 140 to 190 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic, shallow Aridic Haploxerolls

Typical Pedon

Entiat sandy loam; Chelan County Area, Washington; about 1,115 feet south and 2,000 feet west of the northeast corner of section 9, T. 26 N., R. 21 E.; latitude 47 degrees 46 minutes 24 seconds north and longitude 120 degrees 12 minutes 13 seconds west; NAD 83.

A—0 to 3 inches; grayish brown (10YR 5/2) sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; few very fine and fine tubular pores; 5 percent gravel; slightly alkaline; clear smooth boundary.

AB—3 to 8 inches; brown (10YR 5/3) very gravelly sandy loam, dark brown (10YR 3/3) moist; weak fine prismatic structure parting to weak fine subangular blocky; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; few very fine and fine tubular pores; 45 percent gravel and 2 percent cobbles; slightly alkaline; clear wavy boundary.

Bw—8 to 18 inches; brown (10YR 5/3) very gravelly sandy loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; few very fine and fine tubular pores; 55 percent gravel and 2 percent cobbles; slightly alkaline; clear wavy boundary.

Cr—18 inches; weathered granodiorite.

Range in Characteristics

Thickness of the mollic epipedon: 7 to 10 inches

Depth to bedrock: 10 to 20 inches

A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 moist

Content of gravel—0 to 15 percent

Content of cobbles—0 to 5 percent

AB horizon:

Value—4 or 5 dry

Chroma—2 or 3 dry or moist

Texture—very gravelly loam, very gravelly sandy loam, or gravelly fine sandy loam

Content of gravel—30 to 50 percent

Content of cobbles—0 to 5 percent

Bw horizon:

Value—4 to 6 dry, 3 or 4 moist

Chroma—3 or 4 moist

Texture—very gravelly sandy loam, very gravelly loam, or very gravelly fine sandy loam

Content of gravel—40 to 60 percent

Content of cobbles—0 to 7 percent

Ewall Series

Depth class: Very deep

Drainage class: Excessively drained

Landform: Outwash terraces

Parent material: Glacial outwash and eolian sand

Slope range: 0 to 45 percent

Elevation: 700 to 3,000 feet

Mean annual precipitation: 11 to 15 inches

Mean annual air temperature: 46 to 52 degrees F

Frost-free period: 110 to 140 days

Taxonomic classification: Mixed, mesic Typic Xeropsamments

Typical Pedon

Ewall loamy fine sand, 0 to 15 percent slopes; about 750 feet north and 800 feet west of the southeast corner of the southeast $\frac{1}{4}$ northeast $\frac{1}{4}$ of section 3, T. 32 N., R. 25 E.; latitude 48 degrees 18 minutes 6 seconds north and longitude 119 degrees 40 minutes 12 seconds west; NAD 83.

A1—0 to 2 inches; grayish brown (10YR 5/2) loamy fine sand, very dark grayish brown (10YR 3/2) moist; weak thick platy structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many very fine and fine irregular pores; neutral; abrupt smooth boundary.

A2—2 to 7 inches; grayish brown (10YR 5/2) loamy fine sand, very dark grayish brown (10YR 3/2) moist; weak coarse granular structure; soft, very friable, nonsticky and nonplastic; many very fine, fine, and medium roots; many very fine and fine irregular pores; neutral; clear smooth boundary.

AC—7 to 15 inches; brown (10YR 5/3) loamy fine sand, dark brown (10YR 3/3) moist; massive; soft, very friable, nonsticky and nonplastic; many very fine, fine, and

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medium roots; many very fine and fine irregular pores; neutral; clear smooth boundary.

C1—15 to 26 inches; yellowish brown (10YR 5/4) sand, dark yellowish brown (10YR 3/4) moist; single grain; loose, nonsticky and nonplastic; few very fine and fine roots and few medium roots; many very fine and fine irregular pores; 5 percent gravel; neutral; clear smooth boundary.

C2—26 to 60 inches; pale brown (10YR 6/3) sand, brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; few very fine and fine roots and few medium roots; many very fine and fine irregular pores; 5 percent gravel; neutral.

Range in Characteristics

C horizon:

Texture—loamy fine sand, fine sand, or sand

Content of gravel—0 to 25 percent

Content of cobbles—0 to 5 percent

Farway Series

Depth class: Very deep

Drainage class: Well drained

Landform: Mountains

Parent material: Volcanic ash (14 to 30 inches thick) over colluvium derived from sedimentary and volcanic rock

Slope range: 15 to 65 percent

Elevation: 2,400 to 3,700 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Ashy over loamy-skeletal, glassy over isotic, frigid Typic Vitrixerands

Typical Pedon

Farway gravelly ashy sandy loam; Okanogan National Forest Area, Washington; about 7 miles west-northwest of Winthrop; about 2,200 feet west and 300 feet south of the northeast corner of section 27, T. 35 N., R. 20 E.; latitude 48 degrees 30 minutes 43 seconds north and longitude 120 degrees 19 minutes 28 seconds west; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of needles and twigs; abrupt smooth boundary.

A—1 to 5 inches; pale brown (10YR 6/3) gravelly ashy sandy loam, brown (10YR 4/3) moist; weak fine and medium granular structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine roots; common fine and very fine irregular pores; 15 percent gravel; neutral; clear wavy boundary.

Bw1—5 to 10 inches; pale brown (10YR 6/3) gravelly ashy sandy loam, brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine and few medium roots; common fine and very fine irregular pores; 15 percent gravel; neutral; gradual wavy boundary.

Bw2—10 to 21 inches; pale brown (10YR 6/3) gravelly ashy sandy loam, dark yellowish brown (10YR 4/4) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; common very fine and fine and few medium roots; common fine and very fine irregular pores; 15 percent gravel and 2 percent cobbles; neutral; gradual wavy boundary.

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2C—21 to 60 inches; light brownish gray (10YR 6/2) very gravelly sandy loam, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine roots in the upper part; common very fine and fine irregular pores; 40 percent gravel and 10 percent cobbles; neutral.

Range in Characteristics

Thickness of the volcanic ash: 14 to 30 inches

A horizon:

Value—4 to 6 dry, 2 to 4 moist

Chroma—3 or 4 dry or moist

Content of gravel—15 to 20 percent

Bw horizon:

Chroma—3 or 4 moist

Texture—gravelly ashy sandy loam or ashy sandy loam

Content of gravel—10 to 20 percent

Content of cobbles—0 to 5 percent

2C horizon:

Value—5 or 6 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Texture—very gravelly sandy loam or very cobbly sandy loam

Content of gravel—30 to 45 percent

Content of cobbles—5 to 20 percent

Finney Series

Depth class: Deep

Drainage class: Well drained

Landform: Mountains

Parent material: Volcanic ash (7 to 14 inches thick) over colluvium and residuum derived from metasedimentary rock

Slope range: 15 to 65 percent

Elevation: 4,400 to 5,900 feet

Mean annual precipitation: 30 to 35 inches

Mean annual air temperature: 35 to 40 degrees F

Average Frost-free period: 60 to 90 days

Taxonomic classification: Loamy-skeletal, isotic Haploxerandic Haplocryepts

Typical Pedon

Finney gravelly ashy sandy loam; Okanogan National Forest Area, Washington; Coxit Mountain U.S. Geological Survey topographic quadrangle; about 6 miles northwest of Conconully and 2 miles south of Salmon Meadows; latitude 48 degrees 37 minutes 36 seconds north and longitude 119 degrees 50 minutes 39 seconds west; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of organic matter consisting of needles and twigs; abrupt smooth boundary.

A—1 to 3 inches; pale brown (10YR 6/3) gravelly ashy sandy loam, dark yellowish brown (10YR 3/4) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; weakly smeary; common fine and very fine and few medium and coarse roots; many fine tubular pores; 20 percent gravel; neutral; clear wavy boundary.

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Bw—3 to 11 inches; pale brown (10YR 6/3) gravelly ashy sandy loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many fine and medium and common coarse roots; many fine tubular pores; 20 percent gravel; neutral; clear wavy boundary.

2C1—11 to 21 inches; pale yellow (2.5Y 7/3) very gravelly sandy loam, light olive brown (2.5Y 5/3) moist; massive; slightly hard, friable, slightly sticky and nonplastic; common fine and medium roots; common fine irregular pores; 40 percent gravel and 3 percent cobbles; slightly acid; gradual wavy boundary.

2C2—21 to 33 inches; pale yellow (2.5Y 7/3) very gravelly sandy loam, light olive brown (2.5Y 5/4) moist; massive; slightly hard, friable, slightly sticky and nonplastic; few fine, medium, and coarse roots; common fine irregular pores; 50 percent gravel and 3 percent cobbles; neutral; gradual wavy boundary.

3C3—33 to 44 inches; light yellowish brown (2.5Y 6/4) very gravelly sandy loam, light olive brown (2.5Y 5/4) moist; massive; slightly hard, friable, slightly sticky and nonplastic; few medium roots; common fine irregular pores; 50 percent gravel and 3 percent cobbles; neutral; abrupt irregular boundary.

3R—44 inches; metasedimentary rock.

Range in Characteristics

Thickness of the volcanic ash: 7 to 14 inches

Depth to bedrock: 40 to 60 inches

A horizon:

Value—6 or 7 dry, 3 to 5 moist

Chroma—3 or 4 dry or moist

Content of gravel—15 to 25 percent

Bw horizon:

Value—6 or 7 dry, 3 to 5 moist

Chroma—3 or 4 dry or moist

Content of gravel—15 to 30 percent

Content of cobbles—0 to 5 percent

2C and 3C horizons:

Value—6 or 7 dry, 4 or 5 moist

Chroma—3 or 4 dry or moist

Texture—very gravelly sandy loam or very cobbly sandy loam

Content of gravel—25 to 50 percent

Content of cobbles—0 to 20 percent

Foggydew Series

Depth class: Deep

Drainage class: Well drained

Landform: Mountains

Parent material: Mixed volcanic ash (20 to 30 inches thick) over colluvium, residuum, and glacial till derived from sedimentary and volcanic rock

Slope range: 35 to 75 percent

Elevation: 2,600 to 4,000 feet

Mean annual precipitation: 15 to 20 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 110 to 140 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Vitrandic Haploxerolls

Typical Pedon

Foggydew gravelly ashy sandy loam; Okanogan National Forest Area, Washington; about 8 miles southwest of Carlton; about 2,300 feet east and 2,100 feet north of the southwest corner of section 9, T. 31 N., R. 21 E.; latitude 48 degrees 11 minutes 58 seconds north and longitude 120 degrees 13 minutes 3 seconds west; NAD 83.

- A1—0 to 7 inches; brown (10YR 5/3) gravelly ashy sandy loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common fine irregular pores; 30 percent gravel; slightly acid; gradual wavy boundary.
- A2—7 to 12 inches; brown (10YR 5/3) very gravelly ashy sandy loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium roots; common fine irregular pores; 40 percent gravel; slightly acid; clear wavy boundary.
- A3—12 to 20 inches; brown (10YR 5/3) very gravelly ashy sandy loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium and coarse roots; common fine irregular pores; 40 percent gravel; slightly acid; clear wavy boundary.
- 2Bw1—20 to 27 inches; yellowish brown (10YR 5/4) extremely gravelly sandy loam, dark grayish brown (10YR 4/2) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium and coarse roots; common fine irregular pores; 60 percent gravel and 10 percent cobbles; slightly acid; gradual wavy boundary.
- 2Bw2—27 to 42 inches; yellowish brown (10YR 5/4) extremely gravelly sandy loam, dark grayish brown (10YR 4/2) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium roots; common fine irregular pores; 65 percent gravel and 20 percent cobbles; slightly acid; gradual wavy boundary.
- 2Bw3—42 to 53 inches; yellowish brown (10YR 5/4) extremely gravelly sandy loam, dark grayish brown (10YR 4/2) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few fine and very fine roots; common fine irregular pores; 70 percent gravel and 5 percent cobbles; slightly acid; clear wavy boundary.
- 2R—53 inches; andesite.

Range in Characteristics

Thickness of the mixed volcanic ash: 20 to 30 inches

Thickness of the mollic epipedon: 20 to 30 inches

Depth to bedrock: 40 to 60 inches

A1 horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 to 3 dry or moist

Content of gravel—15 to 35 percent

A2 horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 to 3 dry or moist

Texture—gravelly or very gravelly ashy sandy loam

Content of gravel—15 to 50 percent

A3 horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 to 3 dry or moist

Texture—gravelly, very gravelly, or extremely gravelly ashy sandy loam

Content of gravel—25 to 65 percent

Content of cobbles—0 to 10 percent

2Bw horizon:

Value—4 to 6 dry, 3 or 4 moist

Chroma—2 to 4 dry or moist

Texture—very gravelly, extremely gravelly, or extremely cobbly sandy loam

Content of gravel—40 to 80 percent

Content of cobbles—0 to 30 percent

Goddard Series

Depth class: Very deep

Drainage class: Well drained

Landform: Outwash terraces

Parent material: Volcanic ash (7 to 14 inches thick) over glacial outwash

Slope range: 0 to 35 percent

Elevation: 2,800 to 4,500 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Sandy-skeletal, isotic, frigid Andic Haploxerepts

Typical Pedon

Goddard ashy fine sandy loam; Okanogan National Forest Area, Washington; about 5 miles west of Wauconda; about 2,000 feet west and 600 feet north of the southeast corner of section 3, T. 37 N., R. 29 E.; latitude 48 degrees 4 minutes 42 seconds north and longitude 119 degrees 10 minutes 3 seconds west; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of needles, twigs, and grass; abrupt smooth boundary.

A—1 to 7 inches; light brownish gray (10YR 6/2) ashy fine sandy loam, dark yellowish brown (10YR 4/4) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine and common medium roots; few fine pores; 5 percent gravel; neutral; clear smooth boundary.

Bw—7 to 13 inches; pale brown (10YR 6/3) gravelly ashy sandy loam, dark brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine and common medium roots; few fine pores; 15 percent gravel; slightly acid; clear wavy boundary.

2C1—13 to 26 inches; light gray (10YR 7/2) very gravelly loamy sand, light brownish gray (10YR 6/2) moist; single grain; loose, nonsticky and nonplastic; common very fine and fine and few medium roots; common fine irregular pores; 45 percent gravel and 10 percent cobbles; slightly acid; gradual wavy boundary.

2C2—26 to 60 inches; multicolored extremely gravelly loamy coarse sand; single grain; loose, nonsticky and nonplastic; common very fine and fine roots in upper 10 inches; common fine irregular pores; 55 percent gravel and 10 percent cobbles; neutral.

Range in Characteristics

Thickness of the volcanic ash: 7 to 14 inches

Depth to glacial outwash (2C horizon): 7 to 14 inches

A horizon:

Value—3 or 4 moist

Chroma—2 to 4 dry or moist

Content of gravel—0 to 15 percent

Content of cobbles—0 to 5 percent

Bw horizon:

Value—4 or 5 moist

Chroma—3 or 4 dry or moist

Texture—ashy fine sandy loam or gravelly ashy sandy loam

Content of gravel—5 to 25 percent

Content of cobbles—0 to 5 percent

2C horizon:

Value—6 or 7 dry, 5 or 6 moist

Chroma—2 or 3 dry or moist, or multicolored

Texture—very gravelly loamy sand, extremely gravelly loamy sand, extremely gravelly coarse sand, extremely gravelly loamy coarse sand, or extremely gravelly sand

Content of gravel—40 to 60 percent

Content of cobbles—5 to 15 percent

Goshawk Series

Depth class: Moderately deep

Drainage class: Well drained

Landform: Mountains

Parent material: Volcanic ash (7 to 14 inches thick) over colluvium and residuum derived from sedimentary and volcanic rock

Slope range: 35 to 65 percent

Elevation: 3,500 to 3,600 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Loamy-skeletal, isotic, frigid Andic Haploxeralfs

Typical Pedon

Goshawk gravelly ashy sandy loam; Okanogan National Forest Area, Washington; 9 miles north of Winthrop; about 600 feet east and 1,600 feet south of the northwest corner of section 21, T. 36 N., R. 21 E.; latitude 48 degrees 36 minutes 33 seconds north and longitude 120 degrees 13 minutes 39 seconds west; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of needles and twigs; abrupt smooth boundary.

A—1 to 10 inches; brown (10YR 5/3) gravelly ashy sandy loam, dark yellowish brown (10YR 3/4) moist; moderate fine and medium subangular blocky structure parting to moderate fine and medium granular; slightly hard, very friable, slightly sticky and slightly plastic; weakly smeary; common very fine, fine, and coarse roots; many very fine irregular pores; 15 percent gravel; slightly acid; clear smooth boundary.

Bw—10 to 15 inches; yellowish brown (7.5YR 5/4) gravelly ashy sandy loam, dark yellowish brown (7.5YR 3/4) moist; weak fine and medium subangular blocky

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structure; soft, very friable, nonsticky and nonplastic; weakly smeary; common very fine, fine, and coarse roots; many very fine irregular pores; 15 percent gravel; moderately acid; gradual smooth boundary.

2Bt1—15 to 21 inches; brown (10YR 5/3) extremely gravelly loam, dark brown (10YR 4/3) moist; strong fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and coarse roots; many very fine irregular and common very fine vesicular and tubular pores; common discontinuous faint clay films on faces of peds and in pores; 70 percent gravel and 10 percent cobbles; moderately acid; clear smooth boundary.

2Bt2—21 to 28 inches; brown (10YR 5/3) extremely gravelly loam, dark brown (10YR 4/3) moist; strong fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and coarse roots; many very fine irregular and common very fine vesicular and tubular pores; few discontinuous faint clay films on faces of peds and in pores; 70 percent gravel and 10 percent cobbles; moderately acid; clear smooth boundary.

2R—28 inches; andesite.

Range in Characteristics

Thickness of the volcanic ash: 7 to 14 inches

Depth to bedrock: 20 to 40 inches

A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Content of gravel—15 to 25 percent

Content of cobbles—0 to 5 percent

Bw horizon:

Hue—7.5YR or 10YR

Value—4 to 6 dry, 3 to 5 moist

Chroma—3 or 4 dry or moist

Texture—gravelly ashy loam or gravelly ashy sandy loam

Content of gravel—15 to 25 percent

Content of cobbles—0 to 5 percent

2Bt horizon:

Value—4 to 6 dry, 3 to 5 moist

Chroma—3 or 4 dry or moist

Texture—extremely gravelly loam, very gravelly loam, or very gravelly sandy loam

Content of gravel—30 to 80 percent

Content of cobbles—5 to 30 percent

Granflat Series

Depth class: Very deep

Drainage class: Well drained

Landform: Outwash terraces

Parent material: Mixed volcanic ash (10 to 16 inches thick) over glacial outwash

Slope range: 0 to 10 percent

Elevation: 2,600 to 3,200 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees

Frost-free period: 90 to 120 days

Taxonomic classification: Sandy-skeletal, isotic, frigid Vitrandic Haploxerolls

Typical Pedon

Granflat gravelly ashy sandy loam; Okanogan National Forest Area, Washington; about 15 miles north-northeast of Winthrop; about 2,100 feet south and 1,700 feet west of the northeast corner of section 5, T. 36 N., R. 21 E.; latitude 48 degrees 1 minute 38 seconds north and longitude 120 degrees 14 minutes 16 seconds west; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of needles and twigs; abrupt smooth boundary.

A—1 to 7 inches; very dark grayish brown (10YR 3/2) gravelly ashy sandy loam, black (10YR 2/1) moist; weak very fine and fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium and coarse roots; many very fine and fine interstitial pores; 15 percent gravel and 5 percent cobbles; slightly acid; clear smooth boundary.

AB—7 to 10 inches; dark brown (10YR 3/3) very cobbly ashy sandy loam, black (10YR 2/1) moist; weak very fine and fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and common medium and coarse roots; many very fine and fine interstitial pores; 20 percent gravel and 15 percent cobbles; slightly acid; clear wavy boundary.

Bw—10 to 16 inches; brown (10YR 4/3) very cobbly ashy sandy loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium and coarse roots; many very fine and fine interstitial pores; 25 percent gravel and 20 percent cobbles; neutral; clear wavy boundary.

2C1—16 to 26 inches; multicolored extremely cobbly sand; single grain; loose, nonsticky and nonplastic; few very fine roots; many very fine and fine interstitial pores; 50 percent gravel and 30 percent cobbles; neutral; clear wavy boundary.

2C2—26 to 60 inches; multicolored extremely gravelly sand; single grain; loose, nonsticky and nonplastic; few very fine roots; many very fine and fine interstitial pores; 55 percent gravel and 20 percent cobbles; neutral.

Range in Characteristics

Thickness of the mixed volcanic ash: 10 to 16 inches

Thickness of the mollic epipedon: 10 to 16 inches

Depth to glacial outwash (2C horizon): 10 to 16 inches

A horizon:

Value—3 to 5 dry, 2 to 4 moist

Chroma—1 to 3 dry or moist

Content of gravel—10 to 20 percent

Content of cobbles—0 to 5 percent

Content of stones—0 to 5 percent

AB horizon:

Value—3 to 5 dry, 2 to 4 moist

Chroma—1 to 3 dry or moist

Texture—gravelly, very gravelly, or very cobbly ashy sandy loam

Content of gravel—5 to 30 percent

Content of cobbles—5 to 20 percent

Bw horizon:

Value—4 to 6 dry, 3 to 4 moist

Chroma—3 or 4 dry or moist

Texture—very cobbly or very gravelly ashy sandy loam

Content of gravel—15 to 35 percent

Content of cobbles—10 to 30 percent

2C horizon:

Texture—extremely cobbly or extremely gravelly sand

Content of gravel—40 to 65 percent

Content of cobbles—10 to 30 percent

Haley Series

Depth class: Very deep

Drainage class: Well drained

Landform: Outwash terraces

Parent material: Mixed volcanic ash (20 to 30 inches thick) over glacial outwash

Slope range: 0 to 65 percent

Elevation: 1,400 to 3,800 feet

Mean annual precipitation: 11 to 15 inches

Mean annual air temperature: 47 to 50 degrees F

Frost-free period: 110 to 140 days

Taxonomic classification: Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Vitrandic Haploxerolls

Typical Pedon

Haley ashy fine sandy loam, 0 to 8 percent slopes; about 1,000 feet south and 300 feet east of the northwest corner of section 32, T. 37 N., R. 28 E; latitude 48 degrees 39 minutes 57 seconds north and longitude 119 degrees 20 minutes 23 seconds west; NAD 83.

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) ashy fine sandy loam, very dark brown (10YR 2/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many very fine and fine irregular pores; neutral; clear smooth boundary.

A—8 to 12 inches; grayish brown (10YR 5/2) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak coarse granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many very fine and fine irregular pores; neutral; clear smooth boundary.

Bw—12 to 25 inches; pale brown (10YR 6/3) ashy fine sandy loam, dark yellowish brown (10YR 3/4) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine and fine irregular pores; neutral; clear smooth boundary.

2C—25 to 60 inches; light brownish gray (10YR 6/2) sand, dark grayish brown (10YR 4/2) moist; single grain; loose, nonsticky and nonplastic; few very fine and fine roots; many very fine and fine interstitial pores; 5 percent gravel; neutral.

Range in Characteristics

Thickness of the mixed volcanic ash: 20 to 30 inches

Thickness of the mollic epipedon: 10 to 16 inches

Depth to glacial outwash (2C horizon): 20 to 30 inches

Ap and A horizons:

Value—5 or 6 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Content of gravel—0 to 5 percent

Bw horizon:

Value—4 to 6 dry, 3 to 5 moist

Chroma—3 or 4 dry or moist

Texture—ashy fine sandy loam or ashy sandy loam
Content of gravel—0 to 5 percent

2C horizon:

Value—5 to 7 dry, 3 to 5 moist
Chroma—2 to 4 dry or moist
Texture—coarse sand, sand, or loamy sand
Content of gravel—0 to 5 percent

Haplosaprists

Depth class: Very deep
Drainage class: Very poorly drained
Landform: Depressions of mountains
Parent material: Organic material over alluvium or glaciolacustrine deposits
Slope range: 0 to 5 percent
Elevation: 2,100 to 4,400 feet
Mean annual precipitation: 18 to 25 inches
Mean annual air temperature: 39 to 44 degrees F
Frost-free period: 80 to 100 days
Taxonomic classification: Haplosaprists

Reference Pedon

Haplosaprists; Okanogan National Forest Area, Washington; about 21 miles north of Nespelem; about 1,700 feet north and 1,000 feet west of the southeast corner of section 11, T. 34 N., R. 31 E.; latitude 48 degrees 33 minutes 12 seconds north and longitude 118 degrees 52 minutes and 12 seconds west; NAD 83.

- Oe—0 to 8 inches; grayish brown (10YR 5/2) mucky peat, very dark grayish brown (10YR 3/2) moist; massive; soft, very friable, nonsticky and nonplastic; 75 percent fiber, 40 percent rubbed; many very fine, fine, and medium roots; slightly acid; clear smooth boundary.
- Oa—8 to 18 inches; very dark gray (10YR 3/1) muck, black (10YR 2/1) moist; moderate fine subangular blocky structure; soft, very friable, slightly sticky and nonplastic; 45 percent fiber, 15 percent rubbed; many very fine, fine, and medium roots; slightly acid; abrupt smooth boundary.
- A—18 to 34 inches; dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; common fine irregular pores; neutral; abrupt smooth boundary.
- Cg1—34 to 44 inches; light brownish gray (10YR 6/2) silt loam, very dark grayish brown (10YR 3/2) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; few fine irregular pores; neutral; abrupt smooth boundary.
- Cg2—44 to 55 inches; light gray (10YR 7/2) fine sandy loam, grayish brown (10YR 5/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; few fine irregular pores; neutral; abrupt smooth boundary.
- O'a—55 to 60 inches; black (10YR 2/1) muck, black (10YR 2/1) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; 30 percent fiber, 10 percent rubbed; few very fine roots; neutral.

Range in Characteristics

Depth to mineral soil: 16 to 60 inches
High water table: Present throughout the year
Ponding: Present throughout the year
Flooding: Present in spring

Oa horizon:

Value—2 or 3 dry

Chroma—1 or 2 dry or moist

A horizon:

Value—3 or 4 dry, 2 or 3 moist

Chroma—1 or 2 dry or moist

Cg horizon:

Value—5 to 7 dry, 3 to 5 moist

Chroma—1 or 2 dry or moist

Texture—silt loam, very fine sandy loam, fine sandy loam, or gravelly fine sandy loam

Content of gravel—0 to 20 percent

Haploxerandic Haplocryepts

Depth class: Moderately deep to very deep

Drainage class: Well drained

Landform: Mountains

Parent material: Volcanic ash (7 to 14 inches thick) over glacial till, colluvium, and residuum

Slope range: 5 to 35 percent

Elevation: 3,600 to 4,500 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 37 to 41 degrees F

Frost-free period: 70 to 90 days

Taxonomic classification: Haploxerandic Haplocryepts

Reference Pedon

Haploxerandic Haplocryepts; Okanogan National Forest Area, Washington; about 5 miles west of Wauconda; about 2,200 feet east and 2,000 feet south of the northwest corner of section 1, T. 37 N., R. 29 E.; latitude 48 degrees 44 minutes 6 seconds north and longitude 119 degrees 6 minutes 42 seconds west; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of needles, moss, twigs, and grass; abrupt smooth boundary.

C—1 to 2 inches; light gray (10YR 7/2) ashy silt loam (recent volcanic ash), light brownish gray (10YR 6/2) moist; weak fine granular structure, soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine and common medium roots; few fine pores; moderately acid; abrupt smooth boundary.

2A—2 to 5 inches; pale brown (10YR 6/3) ashy fine sandy loam, dark brown (10YR 4/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine and common medium and coarse roots; common fine pores; moderately acid; clear wavy boundary.

2Bw—5 to 11 inches; light yellowish brown (10YR 6/4) ashy fine sandy loam, dark brown (10YR 4/3) moist; weak fine subangular blocky structure, soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine and common medium and coarse roots; few fine pores; 5 percent gravel; moderately acid; clear wavy boundary.

3C1—11 to 22 inches; grayish brown (10YR 5/2) cobbly sandy loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, friable, nonsticky and nonplastic; common very fine and fine and few medium roots; few fine pores; 10 percent gravel and 15 percent cobbles; slightly acid; gradual wavy boundary.

3C2—22 to 60 inches; light brownish gray (10YR 6/2) gravelly loamy sand, grayish brown (10YR 5/2) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few fine pores; 20 percent gravel and 5 percent cobbles; slightly acid.

Range in Characteristics

Thickness of the volcanic ash: 7 to 14 inches

Depth to the densic material: 20 to 60 inches or more

The C horizon is not present in all pedons.

C horizon:

Content of gravel—0 to 15 percent

Content of cobbles—0 to 5 percent

2A horizon:

Hue—7.5YR or 10YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 to 6 dry or moist

Texture—ashy fine sandy loam, very cobbly ashy fine sandy loam, or very gravelly ashy fine sandy loam

Content of gravel—0 to 20 percent

Content of cobbles—0 to 25 percent

2Bw horizon:

Hue—7.5YR or 10YR

Value—4 to 6 dry, 3 to 5 moist

Chroma—2 to 6 dry or moist

Texture—ashy fine sandy loam, very cobbly ashy fine sandy loam, very gravelly ashy sandy loam, or stony ashy sandy loam

Content of gravel—5 to 25 percent

Content of cobbles—0 to 30 percent

Content of stones—0 to 15 percent

3C horizon:

Hue—2.5Y or 10YR

Value—5 or 6 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Texture—cobbly, very cobbly, or very gravelly sandy loam; very cobbly coarse sandy loam; or gravelly loamy sand

Content of gravel—10 to 30 percent

Content of cobbles—5 to 30 percent

Content of stones—0 to 5 percent

Havillah Series

Depth class: Moderately deep

Drainage class: Well drained

Landform: Mountains

Parent material: Volcanic ash (14 to 20 inches thick) over glacial till

Slope range: 0 to 45 percent

Elevation: 2,300 to 4,500 feet

Mean annual precipitation: 14 to 18 inches

Mean annual air temperature: 42 to 44 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Ashy over loamy, glassy over isotic, frigid Humic Vitrixerands

Typical Pedon

Havillah ashy silt loam, 0 to 8 percent slopes; about 660 feet west and 920 feet south of the northeast corner of section 15, T. 39 N., R. 29 E.; latitude 48 degrees 52 minutes 59 seconds north and longitude 119 degrees 8 minutes 44 seconds west; NAD 83.

Ap—0 to 12 inches; dark gray (10YR 4/1) ashy silt loam, black (10YR 2/1) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; moderately smeary; many very fine and fine roots; common very fine and fine tubular pores; neutral; abrupt smooth boundary.

A—12 to 19 inches; dark grayish brown (10YR 4/2) ashy silt loam, very dark brown (10YR 2/2) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; moderately smeary; common very fine and fine roots; common very fine and fine tubular pores; neutral; clear wavy boundary.

2Bw1—19 to 24 inches; grayish brown (10YR 5/2) gravelly silt loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots and common medium roots; common very fine and fine tubular pores; 20 percent gravel; neutral; clear wavy boundary.

2Bw2—24 to 27 inches; brown (10YR 5/3) gravelly silt loam, dark brown (10YR 3/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots and few medium roots; few very fine and fine tubular pores; 20 percent gravel and 5 percent cobbles; slightly effervescent; moderately alkaline; abrupt wavy boundary.

2Cd—27 to 60 inches; pale olive (5Y 6/3) gravelly loam, olive (5Y 5/3) moist; massive; hard, firm, slightly sticky and slightly plastic; few very fine and fine roots; 30 percent gravel; strongly effervescent; strongly alkaline.

Range in Characteristics

Thickness of the volcanic ash: 14 to 20 inches

Thickness of the mollic epipedon: 14 to 27 inches

Depth to the densic material: 20 to 40 inches

Depth to the calcium carbonate accumulation: 20 to 30 inches

Ap or A horizon:

Texture—ashy loam or ashy silt loam

2Bw horizon:

Texture—loam, silt loam, or gravelly silt loam

Content of gravel—0 to 25 percent

Content of cobbles—0 to 10 percent

2Cd horizon:

Texture—gravelly loam, gravelly clay loam, or gravelly silt loam

Content of gravel—15 to 35 percent

Content of cobbles—0 to 5 percent

Histic Cryaquepts

Depth class: Very deep

Drainage class: Very poorly drained

Landform: Drainageways and depressions of mountains

Parent material: Organic soil material over alluvium and glacial till

Slope range: 0 to 10 percent

Elevation: 5,000 to 6,800 feet

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Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 35 to 42 degrees F

Frost-free period: 60 to 80 days

Taxonomic classification: Histic Cryaquepts

Reference Pedon

Histic Cryaquepts; Okanogan National Forest Area, Washington; about 2 miles north of Tiffany Mountain; about 1,400 feet east and 3,000 feet south of the northwest corner of section 21, T. 37 N., R. 23 E.; latitude 48 degrees 41 minutes 24 seconds north and longitude 119 degrees 57 minutes 52 seconds west; NAD 83.

Oe—0 to 8 inches; very dark gray (10YR 3/1) mucky peat, black (10YR 2/1) moist; about 35 percent fibers, 20 percent rubbed; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many fine and medium and few coarse roots; slightly acid; clear smooth boundary.

2A—8 to 10 inches; very dark gray (10YR 3/1) silt loam, black (10YR 2/1) moist; moderate fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium roots; common very fine and fine pores; slightly acid; clear wavy boundary.

3Bw—10 to 15 inches; brownish yellow (10YR 6/6) ashy fine sandy loam, dark yellowish brown (10YR 4/6) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; moderately smeary; many very fine and fine roots; common fine pores; slightly acid; clear wavy boundary.

4Cg1—15 to 21 inches; grayish brown (10YR 5/2) very gravelly sandy loam, dark grayish brown (10YR 4/2) moist; many fine and medium distinct dark yellowish brown (10YR 4/6) redoximorphic concentrations; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; 35 percent gravel and 3 percent cobbles; neutral; clear wavy boundary.

4Cg2—21 to 34 inches; gray (5Y 6/1) gravelly sandy loam, greenish gray (5GY 4/1) moist; few fine prominent dark yellowish brown (10YR 4/6) redoximorphic concentrations; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; 15 percent gravel and 3 percent cobbles; slightly acid; gradual wavy boundary.

4Cg3—34 to 60 inches; gray (5Y 5/1) very gravelly loamy sand, dark gray (5Y 5/1) moist; single grain; soft, very friable, nonsticky and nonplastic; 40 percent gravel and 3 percent cobbles; slightly acid.

Range in Characteristics

Depth to mineral soil: 8 to 16 inches

High water table: Present throughout the year

Ponding: Present in spring and summer

Oe horizon:

Value—3 or 4 dry, 2 or 3 moist

Chroma—1 or 2 dry or moist

2A horizon:

Value—3 or 4 dry, 2 or 3 moist

Chroma—1 or 2 dry or moist

3Bw horizon:

Value—5 or 6 dry, 4 or 5 moist

Chroma—3 to 6 dry or moist

Texture—ashy sandy loam or ashy fine sandy loam

4Cg horizon:

Hue—10YR, 5Y, or 5GY

Value—5 or 6 dry, 4 or 5 moist

Texture—gravelly sandy loam, very gravelly sandy loam, or very gravelly coarse sandy loam in the upper part and very gravelly loamy sand, gravelly coarse sand, or very gravelly coarse sand in the lower part

Content of gravel—15 to 50 percent

Content of cobbles—0 to 5 percent

Histosols

Depth class: Very deep

Drainage class: Very poorly drained

Landform: Depressions of mountains and backswamps of flood plains

Parent material: Organic soil material over alluvium that commonly has a high content of volcanic ash

Slope range: 0 to 1 percent

Elevation: 1,500 to 4,000 feet

Mean annual precipitation: 12 to 30 inches

Mean annual air temperature: 44 to 46 degrees F

Frost-free period: 100 to 140 days

Taxonomic classification: Histosols

Reference Pedon

Histosols; Colville Indian Reservation, Washington, Parts of Ferry and Okanogan Counties; about 6 miles northeast of Nespelem; 800 feet north and 800 feet west of the southeast corner of section 2, T. 31 N.; R. 31 E.; latitude 48 degrees 12 minutes 56 seconds north and longitude 118 degrees 52 minutes 40 seconds west; NAD 83.

Oe—0 to 4 inches; very dark gray (10YR 3/1) mucky peat, black (10YR 2/1) moist; about 35 percent fibers, 20 percent rubbed; moderate fine granular structure; slightly hard, very friable, nonsticky and nonplastic; many very fine and fine and few medium roots; common fine vesicular and irregular pores; slightly acid; clear smooth boundary.

Oa—4 to 20 inches; very dark gray (10YR 3/1) muck, black (10YR 2/1) moist; about 20 percent fibers, 5 percent rubbed; moderate medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; many very fine and fine and few medium roots; common fine irregular pores; slightly acid; gradual smooth boundary.

2C—20 to 32 inches; very dark grayish brown (10YR 3/2) silt loam, very dark brown (10YR 2/2) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; neutral; clear smooth boundary.

2Cg—32 to 60 inches; light gray (10YR 7/1) silt loam, gray (10YR 6/1) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; neutral.

Range in Characteristics

Depth to mineral soil: 16 to 60 inches

High water table: Present throughout the year

Ponding: Present throughout most of the year

2C and 2Cg horizons:

Hue—10YR, 5Y, or 2.5Y

Value—3 to 5 dry, 2 to 5 moist

Texture—silt loam, clay loam, or loam in the upper part and silt loam, fine sandy loam, or very gravelly sand in the lower part
Content of gravel—0 to 40 percent
Content of cobbles—0 to 5 percent

Hodgson Taxadjunct

Depth class: Very deep

Drainage class: Moderately well drained

Landform: Glacial lake terraces of mountains and hills

Parent material: Mixed volcanic ash (7 to 14 inches thick) over glacial lake sediment

Slope range: 3 to 15 percent

Elevation: 1,300 to 3,800 feet

Mean annual precipitation: 15 to 22 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 110 to 140 days

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Vitrandic Palexeralfs

Typical Pedon

Hodgson ashy silt loam, 3 to 15 percent slopes; about 2 miles south-southeast of Synarep; about 660 feet west and 100 feet south of the northeast corner of section 34, T. 35 N., R. 28 E.; latitude 49 degrees 18 minutes 25 seconds north and longitude 119 degrees 18 minutes 25 seconds west; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of needles and twigs

A—1 to 7 inches; grayish brown (10YR 5/2) ashy silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium granular structure; soft, very friable, slightly sticky and slightly plastic; many roots; many fine and very fine pores; slightly acid; clear smooth boundary.

Bw—7 to 10 inches; brown (10YR 5/3) ashy silt loam, dark brown (10YR 3/3) moist; moderate coarse granular structure; soft, very friable, slightly sticky and slightly plastic; many roots; common fine and very fine pores; slightly acid; clear smooth boundary.

2Bt—10 to 16 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; moderate medium prismatic structure; slightly hard, friable, slightly sticky and slightly plastic; many roots; common fine and very fine pores; thin patchy clay films; slightly acid; abrupt smooth boundary.

2C—16 to 26 inches; light gray (2.5Y 7/2) silt loam, grayish brown (2.5Y 5/2) moist; massive; hard, friable, moderately sticky and slightly plastic; common roots; many very fine and fine pores; slightly alkaline; abrupt smooth boundary.

2Ck1—26 to 41 inches; light gray (5Y 7/2) silty clay loam, grayish brown (2.5Y 5/2) moist; strong thin platy rocklike structure; very hard, firm, moderately sticky and moderately plastic; few roots; common fine and very fine pores; many distinct olive (5Y 5/6) redoximorphic concentrations in root channels; slightly effervescent between laminations; strongly alkaline; gradual smooth boundary.

2Ck2—41 to 60 inches; light gray (5Y 7/2) silty clay loam, grayish brown (2.5Y 5/2) moist; strong thin platy rocklike structure; very hard, firm, moderately sticky and moderately plastic; few roots; few fine and very fine pores; common distinct olive (5Y 5/6) redoximorphic concentrations in root channels; slightly effervescent between laminations; moderately alkaline.

Range in Characteristics

Thickness of the mixed volcanic ash: 7 to 14 inches

Depth to the calcium carbonate accumulation: 20 to 30 inches

High water table: Present late in winter and in spring

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A horizon:

Hue—10YR or 2.5Y

Value—5 or 6 dry, 2 to 4 moist

Chroma—2 or 3 dry or moist

Bw horizon:

Value—5 to 7 dry, 3 to 5 moist

Chroma—2 or 3 dry or moist

2Bt horizon:

Hue—10YR, 2.5Y, or 5Y

Value—6 to 8 dry, 3 to 6 moist

Chroma—2 to 4 dry or moist

Texture—silt loam or silty clay loam

2C horizon:

Hue—10YR, 2.5Y, or 5Y

Value—6 to 8 dry, 3 to 6 moist

Chroma—2 to 4 dry or moist

Texture—silt loam or silty clay loam

2Ck horizon:

Hue—2.5Y or 5Y

Value—6 to 8 dry, 5 or 6 moist

Chroma—2 or 3 dry or moist

Texture—silty clay loam or silty clay

The Hodgson soils as mapped in this survey area are a taxadjunct to the Hodgson series. The Hodgson series is classified in the fine family with 35 to 45 percent clay. The Hodgson soils in this survey area have 25 to 35 percent clay.

Humic Vitricryands

Depth class: Moderately deep and deep

Drainage class: Well drained

Landform: Mountains

Parent material: Volcanic ash (14 to 25 inches thick) over colluvium derived from granitic rock

Slope range: 15 to 35 percent

Elevation: 7,200 to 7,600 feet

Mean annual precipitation: 30 to 35 inches

Mean annual air temperature: 35 to 40 degrees F

Frost-free period: 40 to 70 days

Taxonomic classification: Humic Vitricryands

Reference Pedon

Humic Vitricryands; Okanogan National Forest Area, Washington; Pasayten Wilderness Area, Bald Mountain, Boundary Trail; in the southwest $\frac{1}{4}$ northwest $\frac{1}{4}$ of section 13, T. 4 N., R. 20 E.; latitude 48 degrees 58 minutes 1 second north and longitude 120 degrees 17 minutes and 51 seconds west; NAD 83.

Oi—0 to 1 inch; slightly decomposed mat of moss and grass; abrupt smooth boundary.
A1—1 to 5 inches; dark gray (10YR 4/1) ashy silt loam, black (10YR 2/1) moist; weak fine subangular blocky structure parting to moderate fine granular; soft, loose, slightly sticky and slightly plastic; moderately smeary; many very fine and fine roots; few fine dendritic tubular and common very fine irregular pores; clear wavy boundary.

- A2—5 to 16 inches; dark gray (10YR 4/1) ashy silt loam, black (10YR 2/1) moist; moderate fine and medium subangular blocky structure; soft, loose, slightly sticky and slightly plastic; moderately smeary; many very fine and fine roots; few fine dendritic tubular and common very fine irregular pores; 10 percent gravel and 5 percent cobbles; abrupt wavy boundary.
- 2Bw1—16 to 27 inches; light yellowish brown (10YR 6/4) gravelly fine sandy loam, brown (10YR 4/4) moist; weak fine and medium subangular blocky structure; loose, nonsticky and nonplastic; few very fine roots; few fine dendritic tubular and common very fine irregular pores; 20 percent gravel and 10 percent cobbles; clear wavy boundary.
- 2Bw2—27 to 33 inches; very pale brown (10YR 7/4) very gravelly sandy loam, brown (10YR 5/3) moist; weak fine subangular blocky structure; loose, nonsticky and nonplastic; few very fine roots; common fine irregular pores; 30 percent gravel and 10 percent cobbles; clear wavy boundary.
- 3Cr—33 to 41 inches; weathered bedrock; clear irregular boundary.
- 3R—41 inches; bedrock.

Range in Characteristics

Thickness of the volcanic ash: 14 to 25 inches

Thickness of the umbric epipedon: 14 to 25 inches

Depth to bedrock: 20 to 50 inches

2Bw horizon:

Texture—gravelly fine sandy loam or very gravelly fine sandy loam

Content of gravel—15 to 35 percent

Content of cobbles—0 to 15 percent

Hunters Series

Depth class: Very deep

Drainage class: Well drained

Landform: Glacial lake terraces

Parent material: Mixed volcanic ash (18 to 30 inches thick) over glacial lake sediment

Slope range: 0 to 25 percent

Elevation: 2,000 to 4,100 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 42 to 45 degrees F

Frost-free period: 110 to 140 days

Taxonomic classification: Fine-silty, mixed, superactive, mesic Vitrandic Haploxerolls

Typical Pedon

Hunters ashy silt loam, 0 to 8 percent slopes; about 100 feet west and 40 feet north of the northeast corner of the southeast $\frac{1}{4}$ southwest $\frac{1}{4}$ of section 2, T. 38 N., R. 28 E.; latitude 48 degrees 49 minutes 6 seconds north and longitude 119 degrees, 15 minutes 57 seconds west; NAD 83.

A1—0 to 3 inches; dark gray (10YR 4/1) ashy silt loam, black (10YR 2/1) moist; moderate medium platy structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine and fine tubular pores; neutral; abrupt smooth boundary.

A2—3 to 15 inches; gray (10YR 5/1) ashy silt loam, very dark gray (10YR 3/1) moist; moderate coarse granular structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine and fine tubular pores; neutral; clear smooth boundary.

- Bw—15 to 24 inches; grayish brown (10YR 5/2) ashy silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine and fine tubular pores; neutral; clear smooth boundary.
- 2C—24 to 30 inches; light brownish gray (10YR 6/2) stratified very fine sandy loam to silty clay, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine and fine tubular pores; neutral; abrupt wavy boundary.
- 2Ck—30 to 60 inches; light gray (2.5Y 7/2) stratified very fine sandy loam to silty clay, grayish brown (2.5Y 5/2) moist; massive; hard, firm, slightly sticky and slightly plastic; few very fine and fine roots; common very fine and fine tubular and few medium tubular pores; strongly effervescent; slightly alkaline.

Range in Characteristics

Thickness of the mixed volcanic ash: 18 to 30 inches

Thickness of the mollic epipedon: 10 to 20 inches

Depth to the calcium carbonate accumulation: 20 to 34 inches

2C and 2Ck horizons:

Texture—stratified very fine sandy loam to silty clay

Content of clay—20 to 40 percent

Jantill Series

Depth class: Very deep

Drainage class: Somewhat excessively drained

Landform: North-facing slopes of mountains

Parent material: Volcanic ash (7 to 14 inches thick) over glacial till

Slope range: 35 to 65 percent

Elevation: 5,400 to 6,500 feet

Mean annual precipitation: 30 to 35 inches

Mean annual air temperature: 35 to 40 degrees F

Frost-free period: 60 to 80 days

Taxonomic classification: Sandy-skeletal, isotic Andic Dystricrypts

Typical Pedon

Jantill stony ashy sandy loam; Okanogan National Forest Area, Washington; about 1 mile north of Mount Bonaparte; about 600 feet east and 300 feet south of the northwest corner of section 13, T. 38 N., R. 29 E., latitude 48 degrees 47 minutes 52 seconds north and longitude 119 degrees 7 minutes 6 seconds west; NAD 83.

Oe—0 to 2 inches; moderately decomposed mat of needles, twigs, and leaves; abrupt smooth boundary.

C—2 to 4 inches; light gray (10YR 7/1) stony ashy silt loam, grayish brown (10YR 5/2) moist; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; moderately smeary; many very fine and fine and few coarse roots; common very fine and fine tubular pores; 10 percent gravel, 5 percent cobbles, and 5 percent stones; moderately acid; clear wavy boundary.

2A—4 to 6 inches; light yellowish brown (10YR 6/4) stony ashy sandy loam, dark brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine and common medium and coarse roots; common very fine and fine irregular pores; 10 percent gravel, 5 percent cobbles, and 5 percent stones; NaF pH 10.5; moderately acid; clear smooth boundary.

- 2Bw—6 to 13 inches; light yellowish brown (10YR 6/4) stony ashy sandy loam, dark brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine, common medium, and few coarse roots; common very fine and fine irregular pores; 10 percent gravel, 5 percent cobbles, and 5 percent stones; NaF pH 10.5; moderately acid; clear smooth boundary.
- 3C1—13 to 29 inches; light brownish gray (2.5Y 6/2) very stony loamy sand, grayish brown (2.5Y 5/2) moist; common fine and medium distinct stains that are yellowish brown (10YR 5/6) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; 25 percent gravel, 15 percent cobbles, and 15 percent stones; slightly acid; gradual wavy boundary.
- 3C2—29 to 60 inches; light gray (2.5Y 7/2) very stony loamy sand, grayish brown (2.5Y 5/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; 30 percent gravel, 10 percent cobbles, and 15 percent stones; slightly acid.

Range in Characteristics

Thickness of the volcanic ash: 7 to 14 inches

The C horizon is not present in all pedons.

C horizon:

Value—7 or 8 dry, 5 or 6 moist

Chroma—1 or 2 dry

Content of gravel—0 to 10 percent

Content of cobbles—5 to 10 percent

Content of stones—5 to 10 percent

2A horizon:

Chroma—3 or 4 dry or moist

Content of gravel—5 to 15 percent

Content of cobbles—5 to 10 percent

Content of stones—5 to 10 percent

2Bw horizon:

Chroma—3 to 6 dry, 3 or 4 moist

Texture—stony ashy sandy loam or gravelly ashy sandy loam

Content of gravel—10 to 30 percent

Content of cobbles—0 to 5 percent

Content of stones—0 to 15 percent

3C horizon:

Hue—10YR or 2.5Y

Value—6 or 7 dry, 5 or 6 moist

Chroma—2 or 3 dry or moist

Texture—very stony, very cobbly, or very gravelly loamy sand

Content of gravel—20 to 60 percent

Content of cobbles—5 to 20 percent

Content of stones—0 to 20 percent

Jimbluff Series

Depth class: Very deep

Drainage class: Well drained

Landform: Footslopes and alluvial fans of mountains

Parent material: Mixed volcanic ash (10 to 20 inches thick) over alluvium and glacial till

Slope range: 5 to 35 percent

Soil Survey of Okanogan County Area, Washington

Elevation: 2,200 to 3,000 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Loamy-skeletal, isotic, frigid Vitrandic Haploxerepts

Typical Pedon

Jimbluff gravelly ashy sandy loam; Okanogan National Forest Area, Washington; about 6 miles southeast of Mazama; about 2,300 feet west and 800 feet south of the northeast corner of section 22, T. 35 N., R. 20 E.; latitude 48 degrees 31 minutes 32 seconds north and longitude 120 degrees 19 minutes 31 seconds west; NAD 83.

Oe—0 to 2 inches; moderately decomposed mat of needles and twigs; abrupt smooth boundary.

A—2 to 6 inches; dark grayish brown (10YR 4/2) gravelly ashy sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium and coarse roots; common very fine and fine irregular pores; 20 percent gravel and 5 percent cobbles; neutral; clear smooth boundary.

Bw1—6 to 11 inches; pale brown (10YR 6/3) gravelly ashy sandy loam, brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium and coarse roots; common very fine and fine irregular pores; 25 percent gravel and 5 percent cobbles; slightly acid; clear wavy boundary.

Bw2—11 to 19 inches; pale brown (10YR 6/3) very cobbly ashy sandy loam, brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium roots; common very fine and fine irregular pores; 25 percent gravel and 15 percent cobbles; slightly acid; clear wavy boundary.

2C1—19 to 26 inches; light yellowish brown (2.5Y 6/3) very cobbly sandy loam, light olive brown (2.5Y 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; few very fine and fine irregular pores; 30 percent gravel, 20 percent cobbles, and 5 percent stones; slightly acid; gradual wavy boundary.

2C2—26 to 37 inches; light yellowish brown (2.5Y 6/3) extremely cobbly coarse sandy loam, light olive brown (2.5Y 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; few very fine irregular pores; 40 percent gravel, 20 percent cobbles, and 5 percent stones; slightly acid; gradual wavy boundary.

3C3—37 to 60 inches; light brownish gray (2.5Y 6/2) extremely gravelly loamy sand, grayish brown (2.5Y 5/2) moist; single grain; loose, nonsticky and nonplastic; 50 percent gravel, 20 percent cobbles, and 5 percent stones; slightly acid.

Range in Characteristics

Thickness of the mixed volcanic ash: 10 to 20 inches

A horizon:

Value—4 or 5 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Texture—ashy sandy loam or gravelly ashy sandy loam

Content of gravel—10 to 20 percent

Content of cobbles—0 to 5 percent

Bw horizon:

Chroma—3 or 4 dry or moist

Texture—gravelly, very gravelly, or very cobbly ashy sandy loam

Soil Survey of Okanogan County Area, Washington

Content of gravel—25 to 30 percent
Content of cobbles—0 to 15 percent

2C horizon:

Hue—10YR or 2.5Y
Value—4 or 5 moist
Chroma—2 or 3 dry or moist
Texture—very gravelly sandy loam, very cobbly sandy loam, or extremely cobbly coarse sandy loam
Content of gravel—30 to 40 percent
Content of cobbles—10 to 30 percent
Content of stones—5 to 10 percent

3C horizon:

Hue—10YR or 2.5Y
Value—5 or 6 dry, 4 or 5 moist
Chroma—2 or 3 dry or moist
Texture—extremely gravelly or extremely cobbly loamy sand
Content of gravel—45 to 55 percent
Content of cobbles—20 to 30 percent
Content of stones—0 to 5 percent

Johntom Series

Depth class: Shallow

Drainage class: Well drained

Landform: Mountains

Parent material: Colluvium and residuum derived from mixed sedimentary and volcanic rock

Slope range: 15 to 75 percent

Elevation: 1,800 to 4,500 feet

Mean annual precipitation: 15 to 24 inches

Mean annual air temperature: 40 to 50 degrees F

Frost-free period: 90 to 140 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Lithic Haploxerolls

Typical Pedon

Johntom gravelly loam; Okanogan National Forest Area, Washington; about 5 miles north of Brodie; about 700 feet east and 2,300 feet south of the northeast corner of section 3, T. 39 N., R. 31 E., latitude 48 degrees 51 minutes 56 seconds north and longitude 118 degrees 54 seconds 37 minutes west; NAD 83.

A1—0 to 3 inches; grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; soft, very friable, nonsticky and slightly plastic; common very fine and fine roots; 15 percent gravel; neutral (pH 6.8); clear smooth boundary.

A2—3 to 12 inches; grayish brown (10YR 5/2) very flaggy loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and slightly plastic; many very fine and fine and few medium roots; common medium irregular pores; 15 percent channers and 35 percent flagstones; neutral (pH 6.8); clear wavy boundary.

R—12 inches; rhyolite.

Range in Characteristics

Thickness of the mollic epipedon: 7 to 12 inches

Depth to bedrock: 10 to 20 inches

A1 horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Content of gravel—15 to 25 percent

A2 horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Texture—very flaggy loam or very flaggy sandy loam

Content of channers—10 to 20 percent

Content of flagstones—25 to 45 percent

Karamin Series

Depth class: Very deep

Drainage class: Well drained

Landform: Outwash terraces of mountains

Parent material: Mixed volcanic ash (12 to 23 inches thick) over glacial outwash

Slope range: 0 to 20 percent

Elevation: 3,000 to 3,800 feet

Mean annual precipitation: 18 to 22 inches

Mean annual air temperature: 40 to 45 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Sandy, isotic, frigid Vitrandic Dystoxerepts

Typical Pedon

Karamin ashy fine sandy loam; Colville Indian Reservation, Washington, Parts of Ferry and Okanogan Counties; about 5 miles southeast of Disautel; about 600 feet west and 400 feet north of the southeast corner of section 24, T. 33 N., R. 29 E.; latitude 48 degrees 20 minutes 23 seconds north and longitude 119 degrees 27 minutes 6 seconds west; NAD 83.

Oi—0 to 1 inch; slightly decomposed mat of needles and twigs; abrupt smooth boundary.

A—1 to 6 inches; pale brown (10YR 6/3) ashy fine sandy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine, fine, and medium roots; common fine irregular pores; slightly acid; clear wavy boundary.

Bw—6 to 18 inches; light yellowish brown (10YR 6/4) ashy fine sandy loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine, fine, and medium roots; common fine tubular pores; slightly acid; clear wavy boundary.

2C1—18 to 28 inches; light gray (10YR 7/2) loamy fine sand, grayish brown (10YR 5/2) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine, fine, and medium roots; common fine tubular pores; slightly acid; gradual smooth boundary.

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2C2—28 to 43 inches; light gray (10YR 7/2) sand, grayish brown (10YR 5/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine, fine, and medium roots; common fine tubular pores; neutral; gradual smooth boundary.

2C3—43 to 60 inches; light gray (2.5YR 7/2) sand, grayish brown (2.5Y 5/2) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; few tubular pores; neutral.

Range in Characteristics

Thickness of the mixed volcanic ash: 12 to 23 inches

Depth to the glacial outwash (2C horizon): 12 to 23 inches

A horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Content of gravel—0 to 10 percent

Bw horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Texture—ashy fine sandy loam, ashy sandy loam, or ashy loam

Content of gravel—0 to 10 percent

2C horizon:

Hue—10YR or 2.5Y

Value—6 to 8 dry, 4 or 5 moist

Chroma—2 to 4 dry or moist

Texture—loamy fine sand, loamy sand, fine sand, or sand

Content of gravel—0 to 10 percent

Content of cobbles—0 to 5 percent

Kartar Series

Depth class: Very deep

Drainage class: Well drained

Landform: Outwash terraces of mountains and hills

Parent material: Mixed volcanic ash (20 to 30 inches thick) over glacial till and glacial outwash

Slope range: 0 to 90 percent

Elevation: 1,000 to 4,000 feet

Mean annual precipitation: 14 to 20 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 100 to 140 days

Taxonomic classification: Coarse-loamy, isotic, mesic Vitrandic Haploxerepts

Typical Pedon

Kartar cobbly ashy sandy loam, 0 to 25 percent slopes, extremely stony; about 470 feet north and 560 feet east of the southwest corner of section 9, T. 31 N., R. 23 E.; latitude 48 degrees 11 minutes 37 seconds north and longitude 119 degrees 58 minutes 9 seconds west; NAD 83.

A—0 to 6 inches; light brownish gray (10YR 6/2) cobbly ashy sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many very fine pores; 10 percent gravel and 5 percent cobbles; neutral; clear wavy boundary.

Bw1—6 to 16 inches; pale brown (10YR 6/3) cobbly ashy sandy loam, brown (10YR 4/3) moist; weak fine and medium prismatic structure; soft, very friable, nonsticky

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and nonplastic; common very fine and fine roots; many fine pores; 5 percent gravel and 10 percent cobbles; neutral; clear wavy boundary.

Bw2—16 to 28 inches; pale brown (10YR 6/3) gravelly ashy sandy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; many very fine and fine pores; common fine faint dark yellowish brown (10YR 4/4) redoximorphic features; 20 percent gravel; neutral; clear wavy boundary.

2C1—28 to 50 inches; very pale brown (10YR 7/3) very gravelly loamy sand, brown (10YR 5/3) moist; single grain; loose, nonsticky and nonplastic; few roots; many fine interstitial pores; 35 percent gravel; neutral; clear wavy boundary.

2C2—50 to 60 inches; multicolored very gravelly sand; single grain; loose, nonsticky and nonplastic; many fine and medium interstitial pores; 40 percent gravel; neutral.

Range in Characteristics

Thickness of the mixed volcanic ash: 20 to 30 inches

Depth to the glacial till or glacial outwash (2C horizon): 20 to 30 inches

A horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Texture—ashy fine sandy loam, ashy sandy loam, or cobbly ashy sandy loam

Content of gravel—0 to 5 percent

Content of cobbles—0 to 15 percent

Bw horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—ashy fine sandy loam, ashy sandy loam, cobbly ashy sandy loam, gravelly ashy fine sandy loam, or gravelly ashy sandy loam

Content of gravel—5 to 30 percent

Content of cobbles—0 to 10 percent

2C horizon:

Hue—10YR or 2.5Y, or multicolored

Value—6 or 7 dry, 4 to 6 moist

Chroma—2 or 3 dry or moist

Texture of the upper part—gravelly sand, cobbly loamy sand, or very gravelly loamy sand

Content of gravel in the upper part—15 to 35 percent

Content of cobbles in the upper part—0 to 15 percent

Texture of the lower part—very gravelly or extremely gravelly sand or coarse sand, or gravelly fine sand

Content of gravel in the lower part—15 to 70 percent

Content of cobbles in the lower part—0 to 15 percent

Karu Series

Depth class: Very deep

Drainage class: Well drained

Landform: South-facing slopes of mountains

Parent material: Mixed volcanic ash (7 to 20 inches thick) over colluvium and glacial till

Slope range: 35 to 65 percent

Elevation: 4,300 to 6,000 feet

Mean annual precipitation: 25 to 35 inches

Soil Survey of Okanogan County Area, Washington

Mean annual air temperature: 35 to 41 degrees F

Frost-free period: 60 to 90 days

Taxonomic classification: Loamy-skeletal, isotic Vitrandic Haplocrypts

Typical Pedon

Karu stony ashy sandy loam; Okanogan National Forest Area, Washington; about 1 mile south of Bobcat Mountain; about 2,200 feet east and 2,000 feet south of the northwest corner of section 13, T. 34 N., R. 23 E.; latitude 48 degrees 26 minutes 50 seconds north and longitude 119 degrees 53 minutes 46 seconds west ; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of needles, leaves, and twigs; abrupt smooth boundary.

A—1 to 5 inches; light brownish gray (10YR 6/2) stony ashy sandy loam, dark grayish brown (10YR 4/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium and coarse roots; common fine irregular pores; 10 percent gravel, 5 percent cobbles, and 10 percent stones; slightly acid; clear smooth boundary.

Bw—5 to 17 inches; pale brown (10YR 6/3) cobbly ashy sandy loam, dark brown (10YR 4/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium and coarse roots; common fine irregular pores; 10 percent gravel and 10 percent cobbles; slightly acid; clear wavy boundary.

2C1—17 to 23 inches; light brownish gray (10YR 6/2) very cobbly sandy loam, grayish brown (10YR 5/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine, fine, and medium roots; common very fine and fine irregular pores; 20 percent gravel, 20 percent cobbles, and 2 percent stones; slightly acid; clear smooth boundary.

2C2—23 to 34 inches; light brownish gray (10YR 6/2) very cobbly sandy loam, grayish brown (10YR 5/2) moist; massive; slightly hard, friable, nonsticky and nonplastic; few very fine roots; common very fine and fine irregular pores; 20 percent gravel, 25 percent cobbles, and 2 percent stones; slightly acid; clear wavy boundary.

3C3—34 to 60 inches; light gray (10YR 7/2) very gravelly loamy sand, light brownish gray (10YR 6/2) moist; massive; loose, nonsticky and nonplastic; few very fine roots; 45 percent gravel and 5 percent cobbles; slightly acid.

Range in Characteristics

Thickness of the mixed volcanic ash: 7 to 20 inches

A horizon:

Value—5 or 6 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Texture—stony or gravelly ashy sandy loam

Content of gravel—5 to 25 percent

Content of cobbles—0 to 10 percent

Content of stones—0 to 15 percent

Bw horizon:

Chroma—3 or 4 dry

Texture—cobbly or gravelly ashy sandy loam

Content of gravel—10 to 25 percent

Content of cobbles—0 to 10 percent

Content of stones—0 to 5 percent

2C horizon:

Value—5 or 6 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Texture—very cobbly sandy loam or very gravelly sandy loam

Content of gravel—20 to 30 percent

Content of cobbles—10 to 25 percent

Content of stones—0 to 5 percent

3C3 horizon:

Hue—10YR or 2.5Y

Value—6 or 7 dry, 5 or 6 moist

Chroma—2 or 3 dry or moist

Texture—very gravelly loamy sand, very gravelly sandy loam, or very cobbly sandy loam

Content of gravel—25 to 45 percent

Content of cobbles—0 to 20 percent

Koepke Taxadjunct

Depth class: Deep

Drainage class: Moderately well drained and well drained

Landform: Mountains

Parent material: Mixed volcanic ash (20 to 30 inches thick) over glacial till

Slope range: 0 to 65 percent

Elevation: 2,000 to 5,000 feet

Mean annual precipitation: 14 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Coarse-loamy, isotic, frigid Vitrandic Haploxerolls

Typical Pedon

Koepke ashy silt loam; Okanogan National Forest Area, Washington; about 3 miles southwest of Havillah; about 400 feet south and 150 feet west of the northeast corner of section 25, T. 38 N., R. 28 E.; latitude 48 degrees 46 minutes 10 seconds north and longitude 119 degrees 13 minutes 51 seconds west.

Oe—0 to 1 inch; moderately decomposed mat of needles, twigs, and grass; abrupt smooth boundary.

A1—1 to 9 inches; very dark gray (10YR 3/1) ashy silt loam, black (10YR 2/1) moist; moderate fine and medium granular structure; soft, very friable, slightly sticky and nonplastic; weakly smeary; many very fine and fine and few medium and coarse roots; common very fine pores; 5 percent gravel; neutral; clear smooth boundary.

A2—9 to 22 inches; dark gray (10YR 4/1) ashy loam, black (10YR 2/1) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine and few medium and coarse roots; common very fine pores; 10 percent gravel; neutral; clear wavy boundary.

A3—22 to 24 inches; dark grayish brown (10YR 4/2) gravelly ashy loam, very dark brown (10YR 2/2) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine roots; common fine pores; 10 percent gravel and 5 percent cobbles; neutral; clear smooth boundary.

2Bw—24 to 34 inches; light brownish gray (10YR 6/2) gravelly sandy loam, brown (10YR 5/3) moist; weak medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common very fine and fine roots; few fine pores; 20 percent gravel and 10 percent cobbles; neutral; gradual wavy boundary.

2C—34 to 42 inches; light brownish gray (2.5Y 6/2) very gravelly sandy loam, grayish brown (2.5Y 5/2) moist; massive; slightly hard, friable, nonsticky and nonplastic;

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few very fine roots; few very fine and fine pores; 30 percent gravel and 5 percent cobbles; neutral; gradual wavy boundary.
2Cd—42 to 60 inches; light brownish gray (2.5Y 6/2) very gravelly sandy loam, grayish brown (2.5Y 5/2) moist; massive; hard, friable, slightly sticky and nonplastic; few very fine roots; 35 percent gravel and 5 percent cobbles; neutral.

Range in Characteristics

Thickness of the mixed volcanic ash: 20 to 30 inches

Thickness of the mollic epipedon: 20 to 30 inches

Depth to the densic material: 40 to 60 inches

High water table: Present in spring in moderately well drained areas

A1 horizon:

Value—3 or 4 dry, 2 or 3 moist

Chroma—1 or 2 dry or moist

Content of gravel—0 to 10 percent

Content of cobbles—0 to 5 percent

A2 and A3 horizons:

Value—3 or 4 dry, 2 or 3 moist

Chroma—1 or 2 dry or moist

Texture—ashy loam, ashy silt loam, or gravelly ashy loam

Content of gravel—0 to 20 percent

Content of cobbles—0 to 5 percent

2Bw horizon:

Hue—10YR or 2.5Y

Value—5 or 6 dry, 3 to 5 moist

Chroma—2 to 4 dry or moist

Texture—cobbley or gravelly sandy loam

Content of gravel—15 to 35 percent

Content of cobbles—0 to 10 percent

2Cd horizon:

Hue—2.5Y

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Texture—very gravelly or very cobbley sandy loam

Content of rock fragments—35 to 60 percent

Content of gravel—15 to 35 percent

Content of cobbles—0 to 20 percent

The Koepke soils as mapped in this survey area are a taxadjunct to the Koepke series. The Koepke series is classified as ashy over loamy, glassy over isotic, frigid Humic Vitrixerands. The Koepke soils in this survey area do not have andic soil properties.

Lani Series

Depth class: Very deep

Drainage class: Well drained

Landform: Mountains

Parent material: Mixed volcanic ash (7 to 15 inches thick) over colluvium and residuum derived from granite, gneiss, or schist

Slope range: 0 to 65 percent

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Elevation: 1,800 to 3,700 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 43 to 45 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Coarse-loamy, isotic, frigid Vitrandic Haploxerolls

Typical Pedon

Lani ashy sandy loam, 0 to 25 percent slopes, extremely stony; Chilwist Valley U.S. Geological Survey topographic quadrangle; in the southwest $\frac{1}{4}$ northwest $\frac{1}{4}$ southeast $\frac{1}{4}$ of section 15, T. 32 N., R. 24 E.; latitude 48 degrees 16 minutes 26 seconds north and longitude 119 degrees 48 minutes 22 seconds west; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of needles, twigs, and dry grass; abrupt smooth boundary.

A1—1 to 9 inches; grayish brown (10YR 5/2) ashy sandy loam, very dark grayish brown (10YR 3/2) moist; weak thin platy structure; soft, very friable, nonsticky and nonplastic; many roots; many very fine and fine pores; slightly acid; abrupt smooth boundary.

A2—9 to 15 inches; grayish brown (10YR 5/2) ashy sandy loam, very dark grayish (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common roots; many fine pores; slightly acid; clear wavy boundary.

2Bw—15 to 29 inches; pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few roots; common fine pores; neutral; clear wavy boundary.

2C—29 to 60 inches; pale brown (10YR 6/3) gravelly fine sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few roots; common fine pores; 20 percent gravel; neutral.

Range in Characteristics

Thickness of the mixed volcanic ash: 7 to 15 inches

Thickness of the mollic epipedon: 10 to 20 inches

A1 horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 to 3 dry or moist

Content of gravel—0 to 15 percent

A2 horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 to 3 dry or moist

Texture—ashy sandy loam, ashy loam, or ashy fine sandy loam

Content of gravel—0 to 15 percent

2Bw horizon:

Value—5 to 7 dry, 3 to 5 moist

Chroma—3 or 4 dry or moist

Texture—fine sandy loam, sandy loam, or loam

Content of gravel—0 to 15 percent

2C horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—3 or 4 dry or moist

Texture—gravelly sandy loam, gravelly fine sandy loam, or gravelly sandy clay loam

Content of gravel—15 to 35 percent

Leavenworth Series

Depth class: Very deep

Drainage class: Moderately well drained

Landform: Flood plains

Parent material: Alluvium

Slope range: 0 to 3 percent

Elevation: 1,500 to 4,200 feet

Mean annual precipitation: 15 to 20 inches

Mean annual air temperature: 43 to 48 degrees F

Frost-free period: 110 to 140 days

Taxonomic classification: Coarse-loamy, mixed, superactive, mesic Cumulic
Haploxerolls

Typical Pedon

Leavenworth silt loam, 0 to 3 percent slopes; about 50 feet south and 180 feet west of the northeast corner of the southeast $\frac{1}{4}$ northeast $\frac{1}{4}$ southeast $\frac{1}{4}$ of section 4, T. 32 N., R. 24 E.; latitude 48 degrees 18 minutes 1 second north and longitude 119 degrees 49 minutes 18 seconds west; NAD 83.

A1—0 to 3 inches; dark gray (10YR 4/1) silt loam, black (10YR 2/1) moist; moderate medium granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine and fine tubular pores; neutral; abrupt smooth boundary.

A2—3 to 21 inches; dark gray (10YR 4/1) silt loam, black (10YR 2/1) moist; moderate medium subangular blocky structure parting to moderate medium granular; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine and fine and common medium tubular pores; neutral; clear smooth boundary.

C—21 to 60 inches; light gray (10YR 7/2) stratified fine sandy loam to coarse sand, light yellowish brown (10YR 6/4) moist; massive; slightly hard, friable, slightly sticky and nonplastic; few very fine and fine roots; common very fine and fine and few medium tubular pores; neutral.

Range in Characteristics

Thickness of the mollic epipedon: 20 to 25 inches

High water table: Present in winter and spring

Flooding: Present late in winter and in spring

A horizon:

Texture—silt loam or very fine sandy loam

C horizon:

Texture—stratified fine sandy loam to coarse sand

Leftcreek Series

Depth class: Shallow

Drainage class: Well drained

Landform: Mountains

Parent material: Volcanic ash (10 to 20 inches thick) over bedrock

Slope range: 35 to 65 percent

Elevation: 800 to 3,500 feet

Mean annual precipitation: 12 to 18 inches

Mean annual air temperature: 47 to 52 degrees F

Frost-free period: 110 to 140 days

Taxonomic classification: Ashy-skeletal, glassy, mesic Lithic Vitrixerands

Typical Pedon

Leftcreek cobbly ashy sandy loam; Okanogan National Forest Area, Washington; about 4 miles south of Methow; about 1,200 feet south and 300 feet east of the northwest corner of section 36, T. 30 N., R. 22 E.; latitude 48 degrees 3 minutes 35 seconds north and longitude 120 degrees 0 minutes 2 seconds west; NAD 83.

A—0 to 5 inches; light brownish gray (10YR 6/2) cobbly ashy sandy loam, dark grayish brown (10YR 4/2) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; common fine and medium roots; common very fine and fine irregular pores; 15 percent gravel, 10 percent cobbles, and 5 percent stones; slightly acid; gradual wavy boundary.

Bw—5 to 14 inches; pale brown (10YR 6/3) very cobbly ashy sandy loam, dark grayish brown (10YR 4/2) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; common fine and medium roots; common very fine and fine irregular pores; 20 percent gravel, 15 percent cobbles, and 5 percent stones; slightly acid; abrupt wavy boundary.

2R—14 inches; granite.

Range in Characteristics

Thickness of the volcanic ash: 10 to 20 inches

Depth to bedrock: 10 to 20 inches

A horizon:

Value—4 to 6 dry, 2 to 4 moist

Chroma—1 to 3 dry or moist

Content of gravel—5 to 15 percent

Content of cobbles—10 to 15 percent

Content of stones—0 to 5 percent

Bw horizon:

Value—4 to 6 dry, 3 to 5 moist

Chroma—2 or 3 dry or moist

Texture—very gravelly or very cobbly ashy sandy loam or ashy coarse sandy loam

Content of gravel—20 to 50 percent

Content of cobbles—0 to 20 percent

Content of stones—0 to 5 percent

Leiko Series

Depth class: Very deep

Drainage class: Somewhat excessively drained

Landform: Outwash terraces

Parent material: Mixed volcanic ash (7 to 14 inches thick) over glacial outwash

Slope range: 0 to 65 percent

Elevation: 1,400 to 4,400 feet

Mean annual precipitation: 15 to 20 inches

Mean annual air temperature: 42 to 50 degrees F

Frost-free period: 110 to 140 days

Taxonomic classification: Sandy-skeletal, mixed, mesic Vitrandic Haploxerolls

Typical Pedon

Leiko ashy sandy loam, 0 to 3 percent slopes, about 650 feet south of a county road and 4,000 feet northwest of the junction with Children Ranch Road; in the northwest ¹/₄

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southwest $\frac{1}{4}$ northeast $\frac{1}{4}$ northwest $\frac{1}{4}$ of section 31, T. 35 N., R. 21 E.; latitude 48 degrees 29 minutes 45 seconds north and longitude 120 degrees 16 minutes 6 seconds west; NAD 83.

- Oi—0 to 1 inch; slightly decomposed mat of organic material composed of pine needles, leaves, twigs, and cones; strongly acid; abrupt smooth boundary.
- A1—1 to 2 inches; dark gray (10YR 4/1) ashy sandy loam, black (10YR 2/1) moist; weak thin platy structure; soft, very friable, nonsticky and nonplastic; many roots; many very fine pores; 5 percent gravel; neutral; abrupt smooth boundary.
- A2—2 to 9 inches; dark grayish brown (10YR 4/2) ashy sandy loam, very dark brown (10YR 2/2) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; many roots; many very fine pores; 5 percent gravel; neutral; abrupt smooth boundary.
- 2C1—9 to 30 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; common roots; common very fine pores; 35 percent gravel; neutral; clear wavy boundary.
- 2C2—30 to 60 inches; multicolored very gravelly sand; single grain; loose, nonsticky and nonplastic; 50 percent gravel; neutral.

Range in Characteristics

Thickness of the mixed volcanic ash: 7 to 14 inches

Thickness of the mollic epipedon: 7 to 14 inches

Depth to the coarse textured glacial outwash (2C2 horizon): 10 to 30 inches

A horizon:

Value—4 to 6 dry, 2 to 4 moist

Chroma—1 to 3 dry or moist

Texture—ashy sandy loam or cobbly ashy coarse sandy loam

Content of gravel—0 to 20 percent

Content of cobbles—0 to 15 percent

Bw horizon, where present:

Texture—gravelly or very gravelly ashy coarse sandy loam

Content of gravel—20 to 35 percent

Content of cobbles—0 to 10 percent

2C1 horizon:

Hue—10YR or 2.5Y

Value—5 to 8 dry, 3 to 6 moist

Chroma—2 to 4 dry or moist

Texture—very gravelly sandy loam, very gravelly loamy coarse sand, very cobbly loamy sand, extremely gravelly loamy sand, or very gravelly coarse sand

Content of gravel—20 to 50 percent

Content of cobbles—0 to 15 percent

2C2 horizon:

Hue—10YR or 2.5Y

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 4 dry or moist

Texture—very gravelly sand, very cobbly sand, extremely gravelly sand, extremely cobbly loamy coarse sand, very gravelly loamy coarse sand, very gravelly loamy sand, or very gravelly coarse sand

Content of gravel—25 to 50 percent

Content of cobbles—0 to 30 percent

Content of stones—0 to 5 percent

Lekrem Series

Depth class: Very deep

Drainage class: Well drained

Landform: Mountains

Parent material: Mixed volcanic ash (12 to 25 inches thick) over colluvium and glacial till derived from granitic rock

Slope range: 35 to 65 percent

Elevation: 2,700 to 3,700 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 42 to 46 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Loamy-skeletal, isotic, frigid Vitrandic Haploxerepts

Typical Pedon

Lekrem stony ashy sandy loam; Okanogan National Forest Area, Washington; about 14 miles north of Winthrop; about 1,800 feet east and 1,400 feet south of the northwest corner of section 29, T. 37 N., R. 21 E.; latitude 48 degrees 41 minutes 18 seconds north and longitude 120 degrees 14 minutes 37 seconds west; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of needles, leaves, and twigs; abrupt smooth boundary.

A—1 to 5 inches; dark grayish brown (10YR 4/2) stony ashy sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and common medium and coarse roots; common fine and very fine tubular pores; 10 percent gravel, 5 percent cobbles, and 10 percent stones; slightly acid; clear smooth boundary.

Bw—5 to 17 inches; pale brown (10YR 6/3) gravelly ashy sandy loam, dark brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and common medium and coarse roots; common fine tubular pores; 15 percent gravel and 5 percent cobbles; slightly acid; clear wavy boundary.

2BC—17 to 30 inches; light yellowish brown (10YR 6/4) very gravelly sandy loam, yellowish brown (10YR 5/4) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium and coarse roots; few fine irregular pores; 30 percent gravel and 5 percent cobbles; neutral; clear wavy boundary.

2C1—30 to 41 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine and fine and few medium roots; few very fine irregular pores; 40 percent gravel and 5 percent cobbles; neutral; clear wavy boundary.

2C2—41 to 60 inches; very pale brown (10YR 7/3) very gravelly loamy coarse sand, pale brown (10YR 6/3) moist; single grain; loose, nonsticky and nonplastic; few very fine and fine roots; 45 percent gravel and 10 percent cobbles; neutral.

Range in Characteristics

Thickness of the mixed volcanic ash: 12 to 25 inches

A horizon:

Value—4 to 6 dry, 3 to 5 moist

Chroma—2 or 3 dry or moist

Content of gravel—10 to 30 percent

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Content of cobbles—0 to 5 percent

Content of stones—5 to 15 percent

Bw horizon:

Chroma—3 or 4 dry or moist

Texture—gravelly ashy sandy loam or very gravelly ashy sandy loam

Content of gravel—15 to 30 percent

Content of cobbles—0 to 10 percent

Content of stones—0 to 5 percent

2BC horizon:

Value—5 to 7 dry, 4 to 6 moist

Chroma—2 to 4 dry or moist

Texture—very gravelly sandy loam or very cobbly sandy loam

Content of gravel—25 to 40 percent

Content of cobbles—5 to 20 percent

Content of stones—0 to 5 percent

2C horizon:

Value—5 to 7 dry, 4 to 6 moist

Chroma—2 or 3 dry, 2 to 6 moist

Texture—very gravelly sandy loam or very cobbly sandy loam in the upper part and
very gravelly loamy coarse sand or very gravelly loamy sand in the lower part

Content of gravel—30 to 45 percent

Content of cobbles—5 to 20 percent

Content of stones—0 to 5 percent

Lithic Haplocryepts

Depth class: Very shallow and shallow

Drainage class: Well drained

Landform: Mountains

Parent material: Volcanic ash or mixed volcanic ash (4 to 12 inches thick) over
colluvium and residuum

Slope range: 35 to 90 percent

Elevation: 1,100 to 7,800 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 37 to 40 degrees F

Frost-free period: 70 to 90 days

Taxonomic classification: Lithic Haplocryepts

Reference Pedon

Lithic Haplocryepts; classification was Lithic Eutrocryepts in the Okanogan National Forest Area, Washington, soil survey but was changed to Lithic Haplocryepts in this survey due to changes in Soil Taxonomy; about 2 miles northwest of Bonaparte Lake; 400 feet north and 700 feet east of the southwest corner of section 6, T. 38 N., R. 30 E.; latitude 48 degrees 48 minutes 50 seconds north and longitude 119 degrees 5 minutes 42 seconds west; NAD 83.

A—0 to 4 inches; brown (10YR 5/3) ashy fine sandy loam, dark yellowish brown (10YR 3/6) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; moderately smeary; common very fine and fine roots; common fine irregular pores; 5 percent gravel; slightly acid; clear smooth boundary.

2Bw—4 to 16 inches; light yellowish brown (10YR 6/4) very stony sandy loam, dark yellowish brown (10YR 4/6) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; common

very fine, fine, medium, and coarse roots; common fine irregular pores; 10 percent gravel, 10 percent cobbles, and 20 percent stones; moderately acid; gradual wavy boundary.

2R—16 inches; granite.

Range in Characteristics

Thickness of the volcanic ash or mixed volcanic ash: 4 to 12 inches

Depth to bedrock: 8 to 20 inches

Soil moisture regime: Xeric

A horizon:

Value—4 to 6 dry, 3 or 4 moist

Chroma—2 to 6 dry or moist

Content of gravel—5 to 15 percent

Content of cobbles—0 to 10 percent

Content of stones—0 to 5 percent

Bw horizon:

Value—4 to 7 dry, 3 to 5 moist

Chroma—3 to 6 dry or moist

Texture—very stony sandy loam or gravelly, very gravelly, or extremely cobbly fine sandy loam

Content of gravel—5 to 20 percent

Content of cobbles—10 to 15 percent

Content of stones—0 to 25 percent

Lithic Haploxerepts

Depth class: Very shallow and shallow

Drainage class: Well drained

Landform: Mountains and hills

Parent material: Volcanic ash or mixed volcanic ash (4 to 12 inches thick) over residuum and colluvium

Slope range: 15 to 90 percent

Elevation: 1,000 to 5,500 feet

Mean annual precipitation: 10 to 24 inches

Mean annual air temperature: 39 to 52 degrees F

Frost-free period: 90 to 180 days

Taxonomic classification: Lithic Haploxerepts

Reference Pedon

Lithic Haploxerepts; Okanogan National Forest Area, Washington; about 7 miles northwest of Havillah; about 1,700 feet east and 2,100 feet south of the northwest corner of section 17, T. 39 N., R. 28 E.; latitude 48 degrees 52 minutes 52 seconds north and longitude 119 degrees 20 minutes 2 seconds west; NAD 83.

Oi—0 to 1 inch; slightly decomposed mat of needles, twigs, and grass; abrupt smooth boundary.

A—1 to 4 inch; light gray (10YR 7/2) cobbly ashy sandy loam, pale brown (10YR 6/3) moist; weak very fine granular structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; few fine irregular pores; 5 percent gravel, 20 percent cobbles, and 5 percent stones; neutral; abrupt smooth boundary.

Bw—4 to 13 inches; pale brown (10YR 6/3) cobbly ashy sandy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and

nonplastic; common medium and few fine and very fine roots; few fine irregular pores; 10 percent gravel, 20 percent cobbles, and 3 percent stones; neutral; gradual wavy boundary.

2C—13 to 19 inches; pale yellow (2.5Y 7/3) very gravelly sandy loam, light yellowish brown (2.5Y 6/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; 45 percent gravel and 10 percent cobbles; slightly acid, clear wavy boundary.

2R—19 inches; granite.

Range in Characteristics

Thickness of the volcanic ash or mixed volcanic ash: 4 to 12 inches

Depth to bedrock: 8 to 20 inches

The O horizon is present only in forested areas.

A horizon:

Value—5 to 7 dry, 4 to 6 moist

Chroma—2 or 3 dry, 3 or 4 moist

Content of gravel—5 to 15 percent

Content of cobbles—10 to 25 percent

Content of stones—0 to 5 percent

Bw horizon:

Value—6 or 7 dry, 3 to 5 moist

Chroma—2 to 4 dry or moist

Texture—cobbly ashy sandy loam, very gravelly ashy sandy loam, or stony ashy loam

Content of gravel—10 to 30 percent

Content of cobbles—10 to 25 percent

Content of stones—0 to 10 percent

2C horizon:

Hue—10YR or 2.5Y

Value—6 or 7 dry, 5 or 6 moist

Chroma—2 or 3 dry or moist

Texture—gravelly, very gravelly, or very cobbly sandy loam

Content of gravel—10 to 45 percent

Content of cobbles—5 to 20 percent

Content of stones—0 to 5 percent

Lithic Humicryepts

Depth class: Very shallow and shallow

Drainage class: Well drained

Landform: Mountains

Parent material: Volcanic ash or mixed volcanic ash (4 to 12 inches thick) over residuum and colluvium

Slope range: 35 to 90 percent

Elevation: 5,200 to 7,800 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 35 to 41 degrees F

Frost-free period: 40 to 90 days

Taxonomic classification: Lithic Humicryepts

Reference Pedon

Lithic Humicryepts; classification was Lithic Dystrocryepts in the Okanogan National Forest Area, Washington, soil survey but was changed to Lithic Humicryepts in this

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survey due to changes in Soil Taxonomy; about 700 feet north and 500 feet west of the southeast corner of section 14, T.38 N., R. 29 E.; latitude 48 degrees 47 minutes 11 seconds north and longitude 119 degrees 7 minutes 21 seconds west; NAD 83.

Oi—0 to 1 inch; slightly decomposed mat of needles and twigs; abrupt smooth boundary.

A—1 to 5 inches; light brownish gray (10YR 6/2) very stony ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; slightly smeary; many fine and medium and common coarse roots; common fine and very fine pores; 10 percent gravel, 10 percent cobbles, and 15 percent stones; strongly acid; clear wavy boundary.

Bw—5 to 11 inches; yellow (10YR 7/6) very stony ashy fine sandy loam, dark yellowish brown (10YR 4/6) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; slightly smeary; many fine and medium and common coarse roots; common fine and very fine pores; 10 percent gravel, 10 percent cobbles, and 20 percent stones; moderately acid; clear irregular boundary.

2C—11 to 20 inches; very pale brown (10YR 7/3) extremely stony sandy loam, olive brown (2.5Y 4/4) moist; massive; soft, very friable, nonsticky and nonplastic; few fine and very fine roots; common fine pores; 30 percent gravel, 20 percent cobbles, and 20 percent stones; strongly acid; abrupt irregular boundary.

2R—20 inches; granite.

Range in Characteristics

Thickness of the volcanic ash or mixed volcanic ash: 4 to 12 inches

Depth to bedrock: 8 to 20 inches

Thickness of the umbric epipedon: 7 to 15 inches

The O horizon is present only in forested areas. Flat rock fragments, channers, and flagstones are associated with sandstone lithology. Subrounded and angular rock fragments are associated with granite and gneiss lithology.

A horizon:

Value—3 to 6 dry, 2 to 4 moist

Chroma—1 to 6 dry or moist

Content of gravel—5 to 20 percent

Content of cobbles—5 to 15 percent

Content of stones—10 to 25 percent

Bw horizon:

Value—6 or 7 dry

Chroma—4 to 6 dry or moist

Texture—ashy fine sandy loam, gravelly or extremely cobbly ashy fine sandy loam, or very stony ashy fine sandy loam

Content of gravel—5 to 20 percent

Content of cobbles—5 to 30 percent

Content of stones—0 to 25 percent

2C horizon:

Hue—2.5Y or 10YR

Value—5 to 7 dry, 4 or 5 moist

Chroma—3 or 4 dry or moist

Texture—gravelly, very cobbly, or extremely stony sandy loam

Content of gravel—20 to 35 percent

Content of cobbles—0 to 25 percent

Content of stones—0 to 30 percent

Lithic Ultic Haploxerolls

Depth class: Very shallow and shallow

Drainage class: Well drained

Landform: Mountains

Parent material: Residuum and colluvium derived from metasedimentary and sedimentary rock

Slope range: 35 to 90 percent

Elevation: 2,000 to 3,700 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 110 to 140 days

Taxonomic classification: Lithic Ultic Haploxerolls

Reference Pedon

Lithic Ultic Haploxerolls; Okanogan National Forest Area, Washington; about 3 miles northeast of Conconully; about 400 feet west and 2,100 feet north of the southeast corner of section 28, T. 36 N., R. 25 E.; latitude 48 degrees 35 minutes 22 seconds north and longitude 119 degrees 41 minutes 24 seconds north; NAD 83.

- A—0 to 10 inches; grayish brown (10YR 5/2) very stony sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine, common medium, and few coarse roots; common fine and very fine tubular pores; 20 percent gravel, 15 percent cobbles, and 15 percent stones; neutral; clear smooth boundary.
- C—10 to 15 inches; yellowish brown (10YR 5/4) very cobbly sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium roots; few very fine pores; 20 percent gravel and 30 percent cobbles; neutral; clear wavy boundary.
- R—15 inches; metasedimentary rock.

Range in Characteristics

Depth to bedrock: 8 to 20 inches

Thickness of the mollic epipedon: 7 to 12 inches

A horizon:

Value—4 or 5 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Content of gravel—10 to 20 percent

Content of cobbles—5 to 20 percent

Content of stones—15 to 25 percent

C horizon:

Value—5 or 6 dry, 4 or 5 moist

Chroma—3 or 4 dry, 2 to 4 moist

Texture—very cobbly, very stony, very gravelly, very channery, or very flaggy sandy loam

Content of gravel—20 to 40 percent

Content of cobbles—10 to 30 percent

Content of stones—0 to 25 percent

Content of channers—0 to 50 percent

Content of flagstones—0 to 15 percent

Longort Series

Depth class: Moderately deep

Drainage class: Well drained

Landform: Mountains

Parent material: Mixed volcanic ash (10 to 17 inches thick) over glacial till

Slope range: 15 to 65 percent

Elevation: 2,600 to 3,700 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Loamy-skeletal, isotic, frigid Vitrandic Haploxerepts

Typical Pedon

Longort gravelly ashy sandy loam; Okanogan National Forest Area, Washington; about 5 miles northeast of Mazama; about 300 feet west and 1,500 feet north of the southeast corner of section 4, T. 36 N., R. 20 E.; latitude 48 degrees 38 minutes 50 seconds north and longitude 120 degrees 20 minutes 21 seconds west; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of needles and twigs; abrupt smooth boundary.

A—1 to 6 inches; brown (10YR 4/3) gravelly ashy sandy loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium and coarse roots; common very fine and fine pores; 15 percent gravel and 5 percent cobbles; slightly acid; clear smooth boundary.

Bw—6 to 18 inches; pale brown (10YR 6/3) gravelly ashy sandy loam, dark brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium roots; common very fine and fine pores; 20 percent gravel and 5 percent cobbles; slightly acid; gradual wavy boundary.

2C—18 to 38 inches; light yellowish brown (2.5Y 6/3) very gravelly sandy loam, light olive brown (2.5Y 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium roots; few fine pores; 35 percent gravel and 5 percent cobbles; slightly acid; clear wavy boundary.

2Cd1—38 to 48 inches; light yellowish brown (2.5Y 6/3) very gravelly sandy loam, light olive brown (2.5Y 5/4) moist; massive; slightly hard, friable, nonsticky and nonplastic; few very fine roots; few very fine pores; common fine and medium distinct irregularly shaped stains that are dark yellowish brown (10YR 4/6) moist; 35 percent gravel and 5 percent cobbles; slightly acid; gradual wavy boundary.

3Cd2—48 to 60 inches; light yellowish brown (2.5Y 6/4) very cobbly sandy loam, light olive brown (2.5Y 5/4) moist; massive; hard, friable, nonsticky and slightly plastic; few very fine roots; many fine and medium distinct irregularly shaped stains that are dark yellowish brown (10YR 4/6) moist; 35 percent gravel and 20 percent cobbles; slightly acid.

Range in Characteristics

Thickness of the mixed volcanic ash: 10 to 17 inches

Depth to the densic material: 25 to 40 inches

A horizon:

Value—4 to 6 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

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Content of gravel—15 to 25 percent

Content of cobbles—0 to 5 percent

Bw horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Texture—gravelly ashy sandy loam or very gravelly ashy sandy loam

Content of gravel—15 to 25 percent

Content of cobbles—0 to 15 percent

2C horizon:

Hue—2.5Y or 10YR

Value—5 or 6 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Texture—very gravelly sandy loam or very cobbly sandy loam

Content of gravel—25 to 35 percent

Content of cobbles—5 to 20 percent

2Cd horizon:

Hue—2.5Y or 10YR

Value—5 or 6 dry, 4 or 5 moist

Chroma—3 or 4 dry, 2 to 4 moist

Texture—very gravelly sandy loam or very cobbly sandy loam

Content of gravel—30 to 45 percent

Content of cobbles—5 to 25 percent

Longswamp Series

Depth class: Very deep

Drainage class: Moderately well drained

Landform: Mountains

Parent material: Mixed volcanic ash (15 to 20 inches thick) over glacial till

Slope range: 15 to 35 percent

Elevation: 4,600 to 5,500 feet

Mean annual precipitation: 25 to 30 inches

Mean annual air temperature: 37 to 40 degrees F

Frost-free period: 70 to 90 days

Taxonomic classification: Fine-loamy, isotic Vitrandic Haplocryolls

Typical Pedon

Longswamp ashy loam; Okanogan National Forest Area, Washington; about 11 miles west of Loomis; about 2,400 feet north and 1,000 feet west of the southeast corner of section 20, T. 39 N., R. 24 E.; latitude 48 degrees 51 minutes 51 seconds north and longitude 119 degrees 50 minutes 48 seconds west; NAD 83.

A1—0 to 7 inches; very dark grayish brown (10YR 3/2) ashy loam, black (10YR 2/1) moist; moderate fine and medium subangular blocky structure parting to moderate fine granular; soft, very friable, nonsticky and nonplastic; common very fine, fine, and medium and few coarse roots; common very fine and fine pores; 5 percent gravel; neutral; clear smooth boundary.

A2—7 to 20 inches; very dark grayish brown (10YR 3/2) ashy loam, black (10YR 2/1) moist; moderate fine and medium subangular blocky structure parting to moderate fine granular; soft, very friable, nonsticky and nonplastic; common very fine and

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- fine and few medium and coarse roots; common very fine and fine pores;
5 percent gravel; neutral; clear wavy boundary.
- 2AC—20 to 25 inches; light brownish gray (10YR 5/2) gravelly sandy clay loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and medium and few coarse roots; common very fine and fine pores; 10 percent gravel, 5 percent cobbles, and 5 percent stones; neutral; clear wavy boundary.
- 2C—25 to 39 inches; grayish brown (2.5Y 5/2) gravelly sandy clay loam, dark grayish brown (2.5Y 4/2) moist; massive; hard, firm, slightly sticky and slightly plastic; common very fine and fine and few medium roots; few very fine and fine pores; common fine and medium prominent strong brown (7.5YR 5/6) redoximorphic concentrations; 20 percent gravel and 5 percent cobbles; neutral; clear wavy boundary.
- 3Cg—39 to 60 inches; light brownish gray (2.5Y 6/2) gravelly silt loam, grayish brown (2.5Y 5/2) moist; massive; slightly hard, firm, slightly sticky and slightly plastic; few fine and medium roots; few very fine pores; common medium and coarse prominent strong brown (7.5YR 5/6) redoximorphic concentrations; 20 percent gravel and 5 percent cobbles; neutral.

Range in Characteristics

Thickness of the mixed volcanic ash: 15 to 20 inches

Thickness of the mollic epipedon: 16 to 25 inches

Depth to redoximorphic features: 25 to 45 inches

High water table: Present late in winter and in spring and summer

A horizon:

Chroma—1 or 2 moist

Content of gravel—0 to 5 percent

2AC horizon:

Value—4 or 5 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Texture—cobbly sandy clay loam, gravelly loam, or gravelly sandy clay loam

Content of gravel—5 to 15 percent

Content of cobbles—0 to 10 percent

Content of stones—0 to 5 percent

2C horizon:

Hue—2.5Y or 10YR

Value—5 or 6 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Texture—gravelly sandy clay loam, gravelly loam, or clay loam

Content of gravel—15 to 25 percent

Content of cobbles—0 to 5 percent

Content of stones—0 to 5 percent

3Cg horizon:

Hue—2.5Y or 10YR

Value—5 or 6 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Texture—gravelly silt loam, gravelly clay loam, or gravelly sandy clay loam

Content of gravel—15 to 25 percent

Content of cobbles—0 to 5 percent

Content of stones—0 to 5 percent

Longswamp Taxadjunct

Depth class: Moderately deep

Drainage class: Moderately well drained

Landform: Mountains

Parent material: Mixed volcanic ash (12 to 20 inches thick) over glacial till

Slope range: 15 to 35 percent

Elevation: 2,700 to 5,300 feet

Mean annual precipitation: 20 to 30 inches

Mean annual air temperature: 40 to 43 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Coarse-loamy, isotic, frigid Vitrandic Haploxerolls

Typical Pedon

Longswamp ashy loam; Okanogan National Forest Area, Washington; about 2 miles north of Conconully; about 3,300 feet west and 1,200 feet south of the northwest corner of section 30, T. 35 N., R. 25 E.; latitude 48 degrees 35 minutes 40 seconds north and longitude 119 degrees 44 minutes 42 seconds west; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of needles, twigs, and leaves; clear smooth boundary.

A1—1 to 7 inches; very dark grayish brown (10YR 3/2) ashy loam, black (10YR 2/1) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium and coarse roots; common very fine and fine irregular pores; 5 percent gravel; neutral; clear wavy boundary.

A2—7 to 13 inches; dark grayish brown (10YR 4/2) ashy loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine and fine irregular pores; 10 percent gravel; neutral; clear smooth boundary.

Bw—13 to 16 inches; grayish brown (2.5Y 5/2) gravelly ashy sandy loam, dark grayish brown (2.5Y 4/2) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine and fine irregular pores; 15 percent gravel; neutral; clear smooth boundary.

2C—16 to 26 inches; grayish brown (2.5Y 5/2) very gravelly sandy loam, dark grayish brown (2.5Y 4/2) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; few very fine and fine irregular pores; 30 percent gravel, 5 percent cobbles, and 5 percent stones; neutral; clear wavy boundary.

2Cd1—26 to 37 inches; grayish brown (2.5YR 5/2) very gravelly sandy loam, dark grayish brown (2.5YR 4/2) moist; massive; hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; few very fine and fine irregular pores; 35 percent gravel and 5 percent cobbles; neutral; clear wavy boundary.

2Cd2—37 to 60 inches; grayish brown (2.5Y 5/2) gravelly loam, dark grayish brown (2.5Y 4/2) moist; common fine and medium distinct irregular dark yellowish brown (10YR 4/6) redoximorphic concentrations in matrix; massive; hard, friable, sticky and plastic; few very fine and fine roots; few very fine and fine irregular pores; 25 percent gravel; neutral.

Range in Characteristics

Thickness of the mixed volcanic ash: 12 to 20 inches

Thickness of the mollic epipedon: 10 to 20 inches

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Depth to the densic material: 25 to 40 inches
Depth to redoximorphic features: 30 to 45 inches
High water table: Present in spring

A horizon:

Value—3 or 4 dry, 2 or 3 moist
Chroma—1 or 2 dry or moist
Content of gravel—0 to 15 percent

Bw horizon:

Hue—2.5Y or 10YR
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—gravelly ashy sandy loam or gravelly ashy loam
Content of gravel—10 to 30 percent
Content of cobbles—0 to 10 percent
Content of stones—0 to 5 percent

2C horizon:

Hue—2.5Y or 10YR
Value—5 to 7 dry, 4 to 6 moist
Chroma—2 or 3 dry or moist
Texture—gravelly loam or very gravelly sandy loam
Content of gravel—20 to 40 percent
Content of cobbles—0 to 15 percent
Content of stones—0 to 10 percent

2Cd horizon:

Hue—2.5Y or 10YR
Value—5 to 7 dry, 4 to 6 moist
Chroma—2 or 3 dry or moist
Texture—very cobbly loam, very gravelly sandy loam, or gravelly clay loam
Content of gravel—20 to 50 percent
Content of cobbles—0 to 20 percent
Content of stones—0 to 10 percent

The Longswamp soil in detailed soil map unit 351 is a taxadjunct to the Longswamp series. The Longswamp series is classified as fine-loamy Haplocryolls. The Longswamp soil in map unit 351 is classified as coarse-loamy, frigid Haploxerolls.

Louploup Series

Depth class: Deep
Drainage class: Well drained
Landform: Mountains
Parent material: Volcanic ash (14 to 30 inches thick) over glacial till
Slope range: 3 to 35 percent
Elevation: 2,000 to 5,400 feet
Mean annual precipitation: 18 to 25 inches
Mean annual air temperature: 39 to 44 degrees F
Frost-free period: 90 to 130 days

Taxonomic classification: Ashy over loamy, glassy over isotic, frigid Typic Vitrixerands

Typical Pedon

Louploup ashy fine sandy loam; Okanogan National Forest Area, Washington; about 5 miles northwest of Bodie; about 1,300 feet east and 2,200 feet north of the

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southwest corner of section 5, T. 39 N., R. 31 E.; latitude 48 degrees 54 minutes 10 seconds north and longitude 118 degrees 56 minutes 30 seconds west; NAD 83.

- Oi—0 to 2 inches; slightly decomposed mat of grass stems, leaves, twigs, and needles; abrupt smooth boundary.
- A—2 to 8 inches; very pale brown (10YR 7/3) ashy fine sandy loam, brown (10YR 4/3) moist; weak very fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and common fine roots; few fine pores; 10 percent gravel; slightly acid; gradual smooth boundary.
- Bw—8 to 23 inches; pale brown (10YR 6/3) ashy fine sandy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; common very fine and few medium roots; few fine pores; 5 percent gravel; slightly acid; gradual wavy boundary.
- 2CB—23 to 43 inches; light yellowish brown (10YR 6/4) gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; few fine and coarse roots; 15 percent gravel; neutral; gradual wavy boundary.
- 2Cd—43 to 60 inches; light brownish gray (10YR 6/2) gravelly sandy loam, dark grayish brown (10YR 4/2) moist; massive; hard, friable, slightly sticky and nonplastic; few medium roots; 20 percent gravel and 10 percent cobbles; neutral.

Range in Characteristics

Thickness of the volcanic ash: 14 to 30 inches

Depth to the densic material: 40 to 50 inches

A horizon:

Value—5 to 7 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Content of gravel—0 to 10 percent

Bw horizon:

Value—6 or 7 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Content of gravel—0 to 10 percent

2CB horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 4 dry or moist

Texture—sandy loam or gravelly sandy loam

Content of gravel—10 to 20 percent

Content of cobbles—0 to 5 percent

2Cd horizon:

Hue—10YR or 2.5Y

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 4 dry or moist

Texture—gravelly sandy loam or gravelly coarse sandy loam

Content of gravel—15 to 30 percent

Content of cobbles—5 to 10 percent

Content of stones—0 to 5 percent

Manley Series

Depth class: Moderately deep

Drainage class: Well drained

Landform: Mountains

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Parent material: Volcanic ash (14 to 25 inches thick) over glacial till

Slope range: 0 to 65 percent

Elevation: 4,200 to 5,700 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 37 to 43 degrees F

Frost-free period: 70 to 90 days

Taxonomic classification: Ashy over loamy-skeletal, glassy over isotic Xeric
Vitricryands

Typical Pedon

Manley ashy fine sandy loam; Okanogan National Forest Area, Washington; about 2.5 miles southeast of Havillah; about 2,000 feet west and 2,100 feet south of the northeast corner of section 17, T. 38 N., R. 29 E.; latitude 48 degrees 47 minutes 35 seconds north and longitude 119 degrees 11 minutes 42 seconds west; NAD 83.

Oi—0 to 2 inches; slightly decomposed mat of needles and twigs; abrupt smooth boundary.

Oe—2 to 3 inches; moderately decomposed mat of needles and twigs; abrupt smooth boundary.

C—3 to 5 inches; white (10YR 8/1) ashy silt loam, brown (10YR 5/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; moderately smeary; common very fine and fine roots; few fine pores; moderately acid; clear wavy boundary.

2Bw1—5 to 16 inches; pale brown (10YR 6/3) ashy fine sandy loam, brown (10YR 4/3) moist; weak medium subangular blocky structure parting to weak fine subangular blocky; soft, very friable, nonsticky and nonplastic; weakly smeary; common very fine and fine roots; common fine pores; NaF pH 10.5; 5 percent gravel; slightly acid; gradual wavy boundary.

2Bw2—16 to 24 inches; light yellowish brown (10YR 6/4) ashy fine sandy loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; common very fine and fine roots; common fine pores; NaF pH 10.5; 5 percent gravel; slightly acid; clear wavy boundary.

3Cd1—24 to 37 inches; light gray (5Y 7/2) very cobbly sandy loam, olive gray (5Y 5/2) moist; massive; slightly hard, friable, nonsticky and nonplastic; few very fine and fine roots; few fine pores; 25 percent gravel, 25 percent cobbles, and 5 percent stones; slightly acid; gradual wavy boundary.

3Cd2—37 to 60 inches; light gray (5Y 7/2) very gravelly sandy loam, olive gray (5Y 4/2) moist; massive; slightly hard, friable, nonsticky and nonplastic; few very fine roots; few fine pores; 40 percent gravel, 10 percent cobbles, and 5 percent stones; slightly acid.

Range in Characteristics

Thickness of the volcanic ash: 14 to 25 inches

Depth to the densic material: 20 to 40 inches

The C horizon is not present in all pedons.

C horizon:

Texture—ashy silt loam or ashy fine sandy loam

2Bw horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—ashy fine sandy loam or gravelly ashy fine sandy loam

Content of gravel—0 to 20 percent

3Cd horizon:

Hue—2.5Y or 5Y

Value—6 or 7 dry, 4 to 6 moist

Chroma—2 to 4 dry or moist

Texture—very cobbly sandy loam, very gravelly sandy loam, or very gravelly loamy sand

Content of gravel—25 to 50 percent

Content of cobbles—5 to 25 percent

Content of stones—0 to 10 percent

Mansonia Series

Depth class: Deep

Drainage class: Well drained

Landform: Hills

Parent material: Volcanic ash and pumice (40 to 60 inches thick) over granodiorite

Slope range: 8 to 45 percent

Elevation: 2,000 to 2,100 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 45 to 49 degrees F

Frost-free period: 110 to 140 days

Taxonomic classification: Ashy, glassy, mesic Vitrandic Haploxerolls

Typical Pedon

Mansonia paragravelly ashy fine sandy loam; Cashmere Mountain Area, Washington; about 2,000 feet west and 1,750 feet north of the southeast corner of section 26, T. 29 N., R. 21 E.; latitude 47 degrees 58 minutes 46 seconds north and longitude 120 degrees 13 minutes 27 seconds west; NAD 83.

A1—0 to 4 inches; grayish brown (10YR 5/2) paragravelly ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many very fine and fine tubular pores; 15 percent pumice paragravel; neutral; clear wavy boundary.

A2—4 to 10 inches; brown (10YR 5/3) paragravelly ashy fine sandy loam, dark brown (10YR 3/3) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many very fine and fine tubular pores; 15 percent pumice paragravel; neutral; clear wavy boundary.

Bw—10 to 20 inches; light brownish gray (10YR 6/2) paragravelly ashy sandy loam, yellowish brown (10YR 5/4) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine and fine tubular pores; 20 percent pumice paragravel; neutral; gradual wavy boundary.

C—20 to 50 inches; pale brown (10YR 6/3) paragravelly ashy sandy loam, yellowish brown (10YR 5/4) moist; single grain; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; common very fine and fine tubular pores; 25 percent pumice paragravel and 5 percent gravel; neutral; abrupt wavy boundary.

2R—50 inches; granodiorite.

Range in Characteristics

Thickness of the volcanic ash and pumice: 40 to 60 inches

Depth of the mollic epipedon: 7 to 12 inches

Depth to bedrock: 40 to 60 inches

A horizon:

Value—2 or 3 moist

Chroma—2 or 3 dry or moist

Texture—paragravelly ashy fine sandy loam

Content of paragravel—15 to 25 percent

Bw horizon:

Value—5 or 6 dry, 3 to 5 moist

Chroma—2 to 4 dry or moist

Texture—paragravelly ashy sandy loam or paragravelly ashy fine sandy loam

Content of paragravel—15 to 25 percent

C horizon:

Value—4 or 5 moist

Chroma—3 or 4 dry or moist

Texture—paragravelly ashy sandy loam or very paragravelly ashy sandy loam

Content of paragravel—20 to 40 percent

Merkel Series

Depth class: Moderately deep

Drainage class: Well drained

Landform: Mountains

Parent material: Mixed volcanic ash (10 to 30 inches thick) over glacial till

Slope range: 5 to 65 percent

Elevation: 2,800 to 5,100 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Loamy-skeletal, isotic, frigid Vitrandic Dystroxerepts

Typical Pedon

Merkel ashy sandy loam; Colville Indian Reservation, Washington, Parts of Ferry and Okanogan Counties; about 400 feet north and 1,100 feet west of the southeast corner of section 6, T. 34 N., R. 31 E.; latitude 48 degrees 28 minutes 9 seconds north and longitude 118 degrees 57 minutes 25 seconds west.

Oe—0 to 1 inch; moderately decomposed mat of twigs, needles, and leaves; abrupt smooth boundary.

A—1 to 6 inches; brown (10YR 5/3) ashy sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and common medium roots; common very fine and fine irregular pores; 10 percent gravel; moderately acid; gradual wavy boundary.

Bw1—6 to 12 inches; yellowish brown (10YR 5/4) gravelly ashy sandy loam, dark yellowish brown (10YR 3/4) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine, fine, and medium roots; common very fine and fine irregular pores; 20 percent gravel; moderately acid; gradual wavy boundary.

Bw2—12 to 29 inches; yellowish brown (10YR 5/4) gravelly ashy sandy loam, dark yellowish brown (10YR 3/4) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine, fine, and medium roots;

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common very fine and fine irregular pores; 25 percent gravel, 5 percent cobbles, and 2 percent stones; moderately acid; clear wavy boundary.

2BC—29 to 35 inches; light yellowish brown (10YR 6/4) very gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; weak very fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine, fine, medium, and coarse roots; few very fine and fine tubular pores; 40 percent gravel, 5 percent cobbles, and 5 percent stones; neutral; clear wavy boundary.

2Cd—35 to 60 inches; pale brown (10YR 6/3) dense glacial till that crushes to very gravelly coarse sandy loam, brown (10YR 5/3) moist; massive; hard, friable, nonsticky and nonplastic; few very fine and fine roots; few very fine and fine tubular pores; 35 percent gravel, 15 percent cobbles, and 5 percent stones; slightly acid.

Range in Characteristics

Thickness of the mixed volcanic ash: 10 to 30 inches

Depth to the densic material: 20 to 40 inches

A horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Texture—ashy sandy loam or cobbly ashy sandy loam

Content of gravel—0 to 10 percent

Content of cobbles—0 to 20 percent

Bw horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—ashy fine sandy loam, ashy sandy loam, or gravelly ashy sandy loam

Content of gravel—5 to 20 percent

Content of cobbles—0 to 10 percent

Content of stones—0 to 5 percent

2BC horizon:

Hue—10YR or 2.5Y

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 4 dry or moist

Texture—very gravelly or very cobbly sandy loam

Content of gravel—15 to 25 percent

Content of cobbles—10 to 20 percent

Content of stones—0 to 5 percent

2Cd horizon:

Hue—10YR or 2.5Y

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 4 dry or moist

Texture—very cobbly loamy coarse sand, very cobbly sandy loam, or very gravelly coarse sandy loam

Content of gravel—15 to 25 percent

Content of cobbles—10 to 20 percent

Content of stones—0 to 5 percent

Merkel Taxadjunct

Depth class: Moderately deep

Drainage class: Well drained

Landform: Mountains

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Parent material: Mixed volcanic ash (7 to 14 inches thick) over colluvium and residuum

Slope range: 15 to 35 percent

Elevation: 2,000 to 5,500 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Loamy-skeletal, isotic, frigid Vitrandic Haploxerepts

Typical Pedon

Merkel very stony ashy fine sandy loam; Okanogan National Forest Area, Washington; about 4.5 miles southeast of Havillah; 900 feet south and 900 feet west of the northeast corner of section 21, T. 38 N., R. 29 E.; latitude 48 degrees 46 minutes 55 seconds north and longitude 119 degrees 10 minutes 2 seconds west; NAD 83.

Oi—0 to 2 inches; slightly decomposed mat of twigs, needles, and leaves; clear smooth boundary.

Oe—2 to 3 inches; moderately decomposed mat of twigs, needles, and leaves; abrupt smooth boundary.

C—3 to 4 inches; white (10YR 8/1) stony ashy silt loam, light brownish gray (10YR 6/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; moderately smeary; many very fine and fine and common medium roots; many very fine irregular pores; 5 percent gravel, 5 percent cobbles, and 10 percent stones; slightly acid; clear wavy boundary.

2A—4 to 7 inches; pale brown (10YR 6/3) very stony ashy fine sandy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure parting to weak fine granular; soft, very friable, nonsticky and nonplastic; many very fine and fine, common medium and coarse, and few very coarse roots; many fine irregular pores; 15 percent gravel, 5 percent cobbles, and 15 percent stones; slightly acid; clear smooth boundary.

2Bw—7 to 14 inches; light yellowish brown (10YR 6/4) very stony ashy fine sandy loam, dark yellowish brown (10YR 4/4) moist; weak medium and coarse subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine, common medium and coarse, and few very coarse roots; many fine irregular pores; 10 percent gravel, 20 percent cobbles, and 20 percent stones; slightly acid; clear smooth boundary.

3C1—14 to 26 inches; light brownish gray (2.5Y 6/2) extremely stony coarse sandy loam, grayish brown (2.5Y 5/2) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine roots and few medium roots; common fine irregular pores; 20 percent gravel, 25 percent cobbles, and 20 percent stones; slightly acid; gradual wavy boundary.

3C2—26 to 35 inches; light gray (2.5Y 7/2) extremely stony coarse sandy loam, light brownish gray (2.5Y 6/2) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few fine roots; 25 percent gravel, 20 percent cobbles, and 25 percent stones; slightly acid; abrupt smooth boundary.

3R—35 inches; granite.

Range in Characteristics

Thickness of the mixed volcanic ash: 7 to 14 inches

Depth to bedrock: 20 to 40 inches

The C horizon is not present in all pedons.

C horizon:

Value—7 to 8 dry

Content of gravel—0 to 5 percent

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Content of cobbles—0 to 5 percent

Content of stones—5 to 15 percent

2A horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 to 4 dry or moist

Content of gravel—10 to 15 percent

Content of cobbles—5 to 15 percent

Content of stones—15 to 25 percent

2Bw horizon:

Chroma—3 or 4 dry or moist

Content of gravel—10 to 15 percent

Content of cobbles—10 to 25 percent

Content of stones—15 to 25 percent

3C horizon:

Hue—10YR or 2.5Y

Value—6 or 7 dry, 5 or 6 moist

Chroma—2 to 4 dry or moist

Texture—very cobbly sandy loam, very stony sandy loam, or extremely stony coarse sandy loam

Content of gravel—15 to 30 percent

Content of cobbles—20 to 35 percent

Content of stones—15 to 30 percent

The Merkel soil in detailed soil map unit 362 is a taxadjunct to the Merkel series. The Merkel series is classified as Dystroxerepts and is moderately deep to a densic contact. The Merkel soil in map unit 362 is classified as Haploxerepts and is moderately deep to bedrock.

Midpeak Series

Depth class: Moderately deep

Drainage class: Well drained

Landform: Mountains

Parent material: Mixed volcanic ash (7 to 15 inches thick) over colluvium and residuum derived from volcanic rock

Slope range: 35 to 65 percent

Elevation: 2,300 to 4,500 feet

Mean annual precipitation: 18 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Loamy-skeletal, isotic, frigid Vitrandic Haploxerolls

Typical Pedon

Midpeak gravelly ashy sandy loam; Okanogan National Forest Area, Washington; about 2 miles north of Mazama; 1,500 feet east and 2,200 feet north of the southwest corner of section 13, T. 36 N., R. 19 E.; latitude 48 degrees 37 minutes 13 seconds north and longitude 120 degrees 25 minutes 8 seconds west; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of needles and twigs; abrupt smooth boundary.

A1—1 to 7 inches; grayish brown (10YR 5/2) gravelly ashy sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium and coarse

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roots; common very fine and fine irregular pores; 20 percent gravel and 5 percent cobbles; neutral; clear wavy boundary.

A2—7 to 16 inches; brown (10YR 5/3) very gravelly ashy sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium subangular blocky structure parting to weak fine granular; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium and coarse roots; common very fine and fine irregular pores; 30 percent gravel and 5 percent cobbles; neutral; clear wavy boundary.

2Bw—16 to 24 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine, fine, and medium roots; few fine irregular pores; 40 percent gravel and 5 percent cobbles; neutral; clear wavy boundary.

2C—24 to 37 inches; brown (7.5YR 5/3) extremely gravelly sandy loam, dark brown (7.5YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; few very fine irregular pores; 55 percent gravel and 5 percent cobbles; slightly acid; abrupt irregular boundary.

2R—37 inches; breccia.

Range in Characteristics

Thickness of the mixed volcanic ash: 7 to 15 inches

Thickness of the mollic epipedon: 7 to 15 inches

Depth to bedrock: 20 to 40 inches

A horizon:

Hue—7.5YR or 10YR

Value—4 or 5 dry

Chroma—2 or 3 dry or moist

Texture—gravelly or very gravelly ashy sandy loam

Content of gravel—15 to 30 percent

Content of cobbles—0 to 5 percent

2Bw horizon:

Hue—7.5YR or 10YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Texture—very gravelly or very cobbly sandy loam

Content of gravel—30 to 40 percent

Content of cobbles—5 to 20 percent

2C horizon:

Hue—5YR, 7.5YR, or 10YR

Value—4 to 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Texture—very gravelly, very cobbly, or extremely gravelly sandy loam

Content of gravel—30 to 55 percent

Content of cobbles—5 to 20 percent

Mineral Series

Depth class: Moderately deep

Drainage class: Well drained

Landform: Mountains

Parent material: Mixed volcanic ash (7 to 14 inches thick) over colluvium and residuum derived from granitic rock

Slope range: 5 to 65 percent

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Elevation: 2,500 to 4,900 feet

Mean annual precipitation: 18 to 24 inches

Mean annual air temperature: 41 to 46 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Loamy-skeletal, isotic, frigid Vitrandic Haploxerolls

Typical Pedon

Mineral stony ashy loam; Colville Indian Reservation, Washington, Parts of Ferry and Okanogan Counties; about 5 miles northeast of Disautel, Washington; about 550 feet north and 100 feet west of the southeast corner of sec. 34, T. 34 N., R. 29 E.; latitude 48 degrees 23 minutes 52 seconds north and longitude 119 degrees 9 minutes 7 seconds west; NAD 83.

Oi—0 to 1 inch; moderately decomposed mat of leaves and twigs; abrupt wavy boundary.

A—1 to 7 inches; grayish brown (10YR 5/2) stony ashy loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine and few medium roots; common very fine and fine irregular pores; 15 percent gravel, 5 percent cobbles, and 10 percent stones; neutral; clear wavy boundary.

Bw—7 to 13 inches; pale brown (10YR 6/3) very gravelly ashy loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine, fine, medium, and coarse roots; common very fine irregular pores; 20 percent gravel, 5 percent cobbles, and 10 percent stones; neutral; gradual wavy boundary.

2C—13 to 24 inches; very pale brown (10YR 7/3) very stony sandy loam, brown (10YR 5/3) moist; massive; hard, friable, slightly sticky and nonplastic; common very fine and fine and few medium roots; common very fine and fine irregular pores; 25 percent gravel, 10 percent cobbles, and 15 percent stones; neutral; abrupt wavy boundary.

2R—24 inches; quartz monzonite.

Range in Characteristics

Thickness of the mixed volcanic ash: 7 to 14 inches

Thickness of the mollic epipedon: 7 to 12 inches (when mixed)

Depth to bedrock: 20 to 40 inches

A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Content of gravel—15 to 30 percent

Content of cobbles—5 to 10 percent

Content of stones—5 to 10 percent

Bw horizon:

Value—5 to 7 dry, 3 to 5 moist

Chroma—3 or 4 dry or moist

Texture—very gravelly ashy loam, very cobbly ashy sandy loam, or very stony ashy sandy loam

Content of gravel—20 to 40 percent

Content of cobbles—5 to 25 percent

Content of stones—5 to 20 percent

2C horizon:

Value—6 or 7 dry, 3 to 5 moist

Chroma—3 or 4 dry or moist

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Texture—very stony or very cobbly sandy loam
Content of gravel—20 to 30 percent
Content of cobbles—10 to 25 percent
Content of stones—5 to 20 percent

Mires Series

Depth class: Very deep

Drainage class: Well drained

Landform: Outwash terraces

Parent material: Volcanic ash (17 to 25 inches thick) over glacial outwash

Slope range: 0 to 65 percent

Elevation: 2,300 to 4,400 feet

Mean annual precipitation: 14 to 18 inches

Mean annual air temperature: 42 to 45 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Ashy over sandy or sandy-skeletal, glassy over mixed, frigid
Humic Vitrixerands

Typical Pedon

Mires ashy loam, 0 to 8 percent slopes; about 2,530 feet east and 150 feet south of the northwest corner of section 36, T. 40 N., R. 29 E.; latitude 48 degrees 55 minutes 46 seconds north and longitude 119 degrees 6 minutes 36 seconds west; NAD 83.

Ap—0 to 9 inches; dark gray (10YR 4/1) ashy loam, black (10YR 2/1) moist; weak fine granular structure; soft, very friable, slightly sticky and nonplastic; moderately smeary; many very fine and fine roots; many very fine and fine tubular pores; neutral; abrupt smooth boundary.

A—9 to 13 inches; dark grayish brown (10YR 4/2) ashy loam, black (10YR 2/1) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and nonplastic; moderately smeary; many very fine and fine roots; many very fine and fine tubular pores; neutral; abrupt wavy boundary.

Bw—13 to 21 inches; brown (10YR 5/3) gravelly ashy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; moderately smeary; many very fine and fine roots; many very fine and fine tubular pores; 20 percent gravel; slightly alkaline; clear wavy boundary.

2C1—21 to 29 inches; brown (10YR 5/3) gravelly loamy sand, dark brown (10YR 3/3) moist; single grain; loose, nonsticky and nonplastic; common very fine and fine roots; many very fine and fine interstitial pores; 30 percent gravel and 3 percent cobbles; slightly alkaline; abrupt wavy boundary.

2C2—29 to 60 inches; brown (10YR 5/3) very gravelly sand, dark brown (10YR 3/3) moist; single grain; loose, nonsticky and nonplastic; few very fine and fine roots; many very fine and fine interstitial pores; 65 percent gravel and 3 percent cobbles; slightly alkaline.

Range in Characteristics

Depth to the glacial outwash (2C horizon): 17 to 25 inches

Percentage of surface covered with stones: 0 to 15 percent

Thickness of the volcanic ash: 17 to 25 inches

Thickness of the mollic epipedon: 10 to 19 inches

Ap horizon:

Texture—ashy loam or ashy silt loam

Content of gravel—0 to 25 percent

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A horizon:

Texture—ashy loam, ashy silt loam, gravelly ashy loam, or gravelly ashy sandy loam
Content of gravel—0 to 25 percent

Bw horizon:

Texture—gravelly ashy sandy loam, cobbly ashy sandy loam, or gravelly ashy loam
Content of gravel—15 to 30 percent
Content of cobbles—0 to 10 percent

2C1 horizon:

Texture—cobbly loamy sand, cobbly sand, gravelly loamy sand, very gravelly loamy sand, or very gravelly sand
Content of gravel—20 to 35 percent
Content of cobbles—0 to 10 percent

2C2 horizon:

Texture—extremely gravelly sand, very gravelly loamy sand, or very gravelly sand
Content of gravel—35 to 75 percent
Content of cobbles—0 to 10 percent

Mobu Series

Depth class: Very deep

Drainage class: Well drained

Landform: Terraces

Parent material: Loess over glacial lake sediment

Slope range: 3 to 45 percent

Elevation: 1,200 to 3,400 feet

Mean annual precipitation: 11 to 14 inches

Mean annual air temperature: 47 to 50 degrees F

Frost-free period: 110 to 140 days

Taxonomic classification: Coarse-silty, mixed, superactive, mesic Calcic Haploxerolls

Typical Pedon

Mobu silt loam, 3 to 8 percent slopes; about 1 mile east of Synarep; about 260 feet west and 300 feet north of the southeast corner of section 16, T. 35 N., R. 28 E.; latitude 48 degrees 31 minutes 33 seconds north and longitude 119 degrees 20 minutes 45 seconds west; NAD 83.

A1—0 to 2 inches; grayish brown (10YR 5/2) silt loam, very dark brown (10YR 2/2) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine and fine tubular and interstitial pores; slightly acid; abrupt smooth boundary.

A2—2 to 11 inches; grayish brown (10YR 5/2) silt loam, very dark brown (10YR 2/2) moist; weak medium prismatic structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine and fine tubular and interstitial pores; neutral; clear smooth boundary.

Bw—11 to 15 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine and fine tubular and interstitial pores; neutral; clear smooth boundary.

2C—15 to 30 inches; light gray (10YR 7/2) silt loam, grayish brown (10YR 5/2) moist; massive; hard, firm, slightly sticky and plastic; few very fine and fine roots; common very fine tubular and interstitial pores; common medium and coarse faint dark grayish brown (10YR 4/2) redoximorphic concentrations; slightly alkaline; clear wavy boundary.

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2Ck1—30 to 36 inches; light gray (2.5Y 7/2) silt loam, grayish brown (2.5Y 5/2) moist; massive; very hard, very firm, slightly sticky and plastic; few very fine and fine roots; common very fine and fine interstitial pores; slightly effervescent; soft powdery lime in seams and pores; common medium and coarse faint dark grayish brown (10YR 4/2) redoximorphic concentrations; moderately alkaline; abrupt smooth boundary.

2Ck2—36 to 60 inches; light gray (2.5Y 7/2) silt loam, grayish brown (2.5Y 5/2) moist; massive; very hard, very firm, slightly sticky and plastic; few very fine and fine roots; common very fine and fine interstitial pores; strongly effervescent; common medium and coarse faint dark grayish brown (10YR 4/2) redoximorphic concentrations; moderately alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 20 inches

Depth to the calcium carbonate accumulation: 20 to 36 inches

A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Bw horizon:

Hue—10YR or 2.5Y

Value—5 to 7 dry, 3 to 5 moist

Chroma—2 to 4 dry or moist

2C horizon:

Hue—10YR or 2.5Y

Value—5 to 7 dry, 3 to 5 moist

Chroma—2 to 4 dry or moist

Texture—very fine sandy loam or silt loam

2Ck horizon:

Value—6 or 7 dry, 4 to 6 moist

Chroma—2 to 4 dry or moist

Texture—stratified very fine sandy loam, silt loam, or silty clay loam

Molson Series

Depth class: Very deep

Drainage class: Well drained

Landform: Mountains

Parent material: Volcanic ash (14 to 20 inches thick) over glacial till

Slope range: 0 to 45 percent

Elevation: 1,600 to 5,000 feet

Mean annual precipitation: 14 to 18 inches

Mean annual air temperature: 43 to 45 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Ashy over loamy, glassy over mixed, superactive, frigid Humic Vitrixerands

Typical Pedon

Molson ashy silt loam, 8 to 15 percent slopes; about $\frac{3}{8}$ mile northeast of the junction of Lemansky Lake Road and Pine Creek Road; about 1,690 feet south and 1,350 feet west of the northeast corner of section 1, T. 36 N., R. 25 E.; latitude 48 degrees 37 minutes 51 seconds north and longitude 120 degrees 38 minutes 0 seconds west; NAD 83.

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- Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) ashy silt loam, black (10YR 2/1) moist; moderate medium granular structure; slightly hard, very friable, slightly sticky and slightly plastic; moderately smeary; many roots; many very fine pores; 5 percent gravel and 5 percent cobbles; neutral; clear smooth boundary.
- A—8 to 18 inches; very dark grayish brown (10YR 3/2) ashy silt loam, black (10YR 2/1) moist; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; moderately smeary; common roots; many very fine and fine pores; neutral; gradual smooth boundary.
- 2Bw—18 to 42 inches; yellowish brown (10YR 5/4) gravelly silt loam, dark yellowish brown (10YR 3/4) moist; weak medium prismatic structure; slightly hard, very friable, slightly sticky and slightly plastic; common roots; many fine pores; 30 percent gravel; neutral; clear smooth boundary.
- 2BC—42 to 50 inches; light gray (2.5Y 7/2) gravelly silt loam, olive brown (2.5Y 4/4) moist; massive; hard, firm, slightly sticky and slightly plastic; few roots; many fine pores; 30 percent gravel; slightly effervescent; slightly alkaline; diffuse wavy boundary.
- 2Cd—50 to 60 inches; light gray (5Y 7/2) gravelly loam, light olive brown (2.5Y 5/3) moist; massive; very hard, very firm, slightly sticky and slightly plastic; few roots; few fine pores; 30 percent gravel; slightly alkaline.

Range in Characteristics

Thickness of the volcanic ash: 14 to 20 inches

Depth to the densic material: 40 to 60 inches

Thickness of the mollic epipedon: 14 to 20 inches

A horizon:

Value—3 or 4 dry, 2 or 3 moist

Chroma—1 or 2 dry or moist

Texture—ashy silt loam or gravelly ash silt loam

Content of gravel—0 to 30 percent

Content of cobbles—0 to 5 percent

2Bw horizon:

Value—4 or 5 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—loam, gravelly loam, or gravelly silt loam

Content of gravel—10 to 30 percent

Content of cobbles—0 to 5 percent

2BC horizon:

Hue—10YR or 2.5Y

Value—5 to 7 dry, 3 to 5 moist

Chroma—2 to 4 dry or moist

Texture—gravelly loam or gravelly silt loam

Content of gravel—15 to 30 percent

Content of cobbles—0 to 5 percent

2Cd horizon:

Hue—2.5Y or 5Y

Value—5 to 7 dry, 3 to 5 moist

Chroma—2 to 4 dry or moist

Texture—gravelly loam or gravelly silt loam

Content of gravel—15 to 30 percent

Content of cobbles—0 to 5 percent

Muckamuck Series

Depth class: Very deep

Drainage class: Well drained

Landform: Low stream terraces and flood plains

Parent material: Alluvium

Slope range: 0 to 5 percent

Elevation: 1,400 to 2,500 feet

Mean annual precipitation: 14 to 18 inches

Mean annual air temperature: 43 to 45 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Fine-loamy, mixed, superactive, frigid Fluventic Haploxerolls

Typical Pedon

Muckamuck silt loam, 0 to 3 percent slopes; 350 feet north of the junction of Harts Pass, Early Winters, and Winthrop Roads and 50 feet west of Harts Pass Road; in the northwest $\frac{1}{4}$ southeast $\frac{1}{4}$ of section 25, T. 36 N., R. 19 E.; latitude 48 degrees 35 minutes 22 seconds and longitude 120 degrees 24 minutes 44 seconds west; NAD 83.

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; moderate coarse granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine to medium roots; many very fine and fine pores; slightly acid; clear smooth boundary.

BA—7 to 18 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate medium prismatic structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine to medium roots; common very fine to medium pores; slightly acid; clear smooth boundary.

Bw—18 to 28 inches; yellowish brown (10YR 5/4) silty clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium prismatic structure; hard, firm, sticky and plastic; few very fine and fine roots; many very fine and fine pores; slightly acid; gradual smooth boundary.

C—28 to 60 inches; pale brown (10YR 6/3) gravelly loam, brown (10YR 4/3); massive; hard, firm, sticky and slightly plastic; few very fine and fine roots; many very fine and fine pores; 20 percent gravel; slightly acid.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 20 inches

Flooding: Present in spring

Ap and BA horizons:

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 or 2 dry or moist

Texture—loam or silt loam

Bw horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

C horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—3 or 4 dry or moist

Texture—gravelly loam or silt loam; some pedons have thin discontinuous strata of sand

Content of gravel—10 to 25 percent

Myerscreek Series

Depth class: Moderately deep

Drainage class: Well drained

Landform: Mountains

Parent material: Volcanic ash (7 to 14 inches thick) over glacial till

Slope range: 3 to 65 percent

Elevation: 3,400 to 6,800 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 35 to 42 degrees F

Frost-free period: 60 to 90 days

Taxonomic classification: Loamy-skeletal, isotic Haploxerandic Haplocrypts

Typical Pedon

Myerscreek ashy fine sandy loam; Okanogan National Forest Area, Washington; about 1.5 miles north of Mount Bonaparte; 600 feet west and 400 feet north of the southeast corner of section 1, T. 38 N., R. 29 E.; latitude 48 degrees 48 minutes 50 seconds north and longitude 119 degrees 6 minutes 2 seconds west; NAD 83.

- Oe—0 to 1 inch; moderately decomposed mat of needles, leaves, and twigs; abrupt smooth boundary.
- C—1 to 2 inches; white (10YR 8/1) ashy silt loam, grayish brown (10YR 5/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; moderately smeary; common very fine and fine roots; common very fine and fine pores; 5 percent gravel; moderately acid; clear wavy boundary.
- 2A—2 to 5 inches; pale brown (10YR 6/3) ashy fine sandy loam, brown to dark brown (10YR 4/3) moist; weak fine subangular blocky structure parting to weak fine granular; soft, very friable, nonsticky and nonplastic; weakly smeary; common very fine, fine, medium, and coarse roots; common very fine and fine pores; NaF pH 11.0; 5 percent gravel; moderately acid; clear smooth boundary.
- 2Bw—5 to 13 inches; light yellowish brown (10YR 6/4) ashy fine sandy loam, dark yellowish brown (10YR 4/4) moist; weak medium and coarse subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; common very fine and fine and few medium and coarse roots; common very fine and fine pores; NaF pH 11.0; 5 percent gravel; slightly acid; clear smooth boundary.
- 3CB—13 to 32 inches; light brownish gray (10YR 6/2) very gravelly sandy loam, grayish brown (10YR 5/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine and fine and few medium roots; common very fine and fine pores; 35 percent gravel and 5 percent cobbles; slightly acid; gradual wavy boundary.
- 3Cd1—32 to 47 inches; light gray (2.5Y 7/2) very gravelly sandy loam, grayish brown (2.5Y 5/2) moist; massive; hard, friable, nonsticky and nonplastic; few very fine roots; few fine pores; 35 percent gravel and 5 percent cobbles; slightly acid; gradual wavy boundary.
- 3Cd2—47 to 60 inches; light brownish gray (2.5Y 6/2) very gravelly sandy loam, grayish brown (2.5Y 5/2) moist; massive; hard, firm, slightly sticky and slightly plastic; common thin stains that are olive brown (2.5Y 4/3) moist; 30 percent gravel and 5 percent cobbles; slightly acid.

Range in Characteristics

Thickness of the volcanic ash: 7 to 14 inches

Depth to the densic material: 20 to 35 inches

The C horizon is not present in all pedons.

C horizon:

Value—7 or 8 dry, 5 or 6 moist

Chroma—1 or 2 dry or moist

Content of gravel—0 to 5 percent

2A horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—ashy fine sandy loam or stony ashy fine sandy loam

Content of gravel—0 to 15 percent

Content of cobbles—0 to 5 percent

Content of stones—0 to 15 percent

2Bw horizon:

Value—5 or 6 dry

Chroma—4 or 6 dry or moist

Texture—ashy fine sandy loam, gravelly ashy fine sandy loam, gravelly ashy sandy loam, stony ashy sandy loam, or stony ashy fine sandy loam

Content of gravel—0 to 20 percent

Content of cobbles—0 to 5 percent

Content of stones—0 to 15 percent

3CB horizon:

Hue—2.5Y or 10YR

Value—6 or 7 dry

Chroma—2 or 3 dry or moist

Texture—very gravelly, very cobbly, or very stony sandy loam

Content of gravel—25 to 40 percent

Content of cobbles—0 to 25 percent

Content of stones—0 to 20 percent

3Cd horizon:

Hue—2.5Y or 5Y

Value—6 or 7 dry

Chroma—2 or 3 dry or moist

Texture—very gravelly, very cobbly, or very stony sandy loam

Content of gravel—25 to 40 percent

Content of cobbles—0 to 25 percent

Content of stones—0 to 20 percent

Nahahum Series

Depth class: Very deep

Drainage class: Well drained

Landform: Mountains

Parent material: Mixed volcanic ash (7 to 14 inches thick) over glacial till

Slope range: 15 to 65 percent

Elevation: 3,400 to 4,800 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 39 to 44 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Fine-loamy, isotic, frigid Vitrandic Haploxeralfs

Typical Pedon

Nahahum ashy loam; Okanogan National Forest Area, Washington; about 6.5 miles north of Conconully; about 1,200 feet east and 1,600 feet south of the northwest corner of section 3, T. 36 N., R. 24 E.; latitude 48 degrees 39 minutes 0 seconds north and longitude 119 degrees 51 minutes 48 seconds west; NAD 83.

Oe—0 to 2 inches; moderately decomposed mat of needles, leaves, and twigs; abrupt smooth boundary.

A—2 to 5 inches; grayish brown (10YR 5/2) ashy loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and common medium and coarse roots; few fine tubular pores; slightly acid; clear smooth boundary.

Bw—5 to 14 inches; pale brown (10YR 6/3) ashy loam, brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and common medium and coarse roots; few fine tubular pores; 5 percent gravel; neutral; clear wavy boundary.

2Bt1—14 to 22 inches; brown (10YR 5/3) gravelly clay loam, brown (10YR 4/3) moist; strong fine and medium angular blocky structure; very hard, firm, sticky and plastic; common very fine and fine and few medium roots; common fine pores; common distinct clay films on faces of peds; 15 percent gravel; neutral; clear wavy boundary.

2Bt2—22 to 36 inches; pale brown (10YR 6/3) gravelly clay loam, brown (10YR 5/3) moist; strong medium angular blocky structure; very hard, firm, sticky and plastic; common very fine and fine roots; common fine pores; many distinct clay films on faces of peds; 15 percent gravel and 5 percent cobbles; neutral; clear wavy boundary.

2Bt3—36 to 46 inches; light yellowish brown (10YR 6/4) gravelly clay loam, brown (10YR 5/3) moist; strong medium angular blocky structure; very hard, firm, sticky and plastic; few very fine and fine roots; common fine pores; many distinct clay films on faces of peds; 20 percent gravel and 5 percent cobbles; neutral; clear wavy boundary.

2BC—46 to 60 inches; light yellowish brown (10YR 6/4) gravelly loam, brown (10YR 5/3) moist; moderate medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few very fine roots; few fine pores; 20 percent gravel and 5 percent cobbles; neutral.

Range in Characteristics

Thickness of the mixed volcanic ash and depth to the argillic horizon: 7 to 14 inches

A horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Bw horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 to 4 dry or moist

Content of gravel—0 to 15 percent

2Bt horizon:

Value—5 or 6 dry, 3 to 5 moist

Chroma—3 or 4 dry or moist

Texture—gravelly clay loam, gravelly sandy clay loam, or gravelly loam

Content of gravel—15 to 25 percent

Content of cobbles—0 to 10 percent

2BC horizon:

Value—5 to 7 dry, 3 to 5 moist

Chroma—3 or 4 dry or moist

Texture—gravelly loam, gravelly sandy clay loam, or gravelly clay loam

Content of gravel—15 to 25 percent

Content of cobbles—0 to 5 percent

Nevine Series

Depth class: Moderately deep

Drainage class: Well drained

Landform: Mountains

Parent material: Volcanic ash (14 to 30 inches thick) over glacial till

Slope range: 3 to 65 percent

Elevation: 2,000 to 5,500 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 39 to 46 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Ashy over loamy-skeletal, glassy over isotic, frigid Typic Vitrixerands

Typical Pedon

Nevine ashy fine sandy loam; Okanogan National Forest Area, Washington; about 1 mile north of Cayuse Mountain; about 2,400 feet west and 1,500 feet north of the southeast corner of section 9, T. 37 N; R. 29 E.; latitude 48 degrees 42 minutes 59 seconds north and longitude 119 degrees 10 minutes 29 seconds west; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of needles, twigs, and grass; abrupt smooth boundary.

A—1 to 4 inches; light brownish gray (10YR 6/2) ashy fine sandy loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; weakly smeary; common very fine and fine and few medium roots; few fine pores; 5 percent gravel; neutral; clear smooth boundary.

Bw1—4 to 9 inches; pale brown (10YR 6/3) ashy fine sandy loam, brown to dark brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; common very fine and fine and few medium roots; few fine pores; 5 percent gravel; neutral; clear wavy boundary.

Bw2—9 to 21 inches; light yellowish brown (10YR 6/4) gravelly ashy fine sandy loam (volcanic ash), dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; common very fine and fine and few medium roots; common fine pores; 15 percent gravel and 5 percent cobbles; neutral; abrupt wavy boundary.

2CB—21 to 38 inches; light gray (2.5Y 7/2) very gravelly sandy loam, light olive brown (2.5Y 5/3) moist; massive; hard, very friable, nonsticky and nonplastic; common very fine roots; few fine pores; few fine distinct stains that are dark yellowish brown (10YR 4/4) moist; 30 percent gravel, 10 percent cobbles, and 5 percent stones; neutral; gradual wavy boundary.

2Cd1—38 to 51 inches; pale yellow (2.5Y 7/3) very gravelly sandy loam, light olive brown (2.5Y 5/3) moist; massive; hard, friable, slightly sticky and nonplastic; few very fine roots; common fine pores; common fine and medium stains that are dark brown (10YR 4/3) moist; 30 percent gravel, 10 percent cobbles, and 5 percent stones; neutral; gradual wavy boundary.

2Cd2—51 to 60 inches; light gray (2.5Y 7/2) very gravelly sandy loam, grayish brown (2.5Y 5/2) moist; massive; hard, friable, slightly sticky and nonplastic; few prominent bands that are yellowish brown (10YR 4/3) moist and are 1 to 5 millimeters wide; 30 percent gravel, 10 percent cobbles, and 5 percent stones; neutral.

Range in Characteristics

Thickness of the volcanic ash: 14 to 30 inches

Depth to the densic material: 20 to 40 inches

A horizon:

Value—5 to 7 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Content of gravel—0 to 10 percent

Content of cobbles—0 to 5 percent

Bw horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—ashy fine sandy loam or gravelly ashy fine sandy loam

Content of gravel—0 to 25 percent

Content of cobbles—0 to 5 percent

2CB horizon:

Hue—2.5Y or 10YR

Value—6 or 7 dry, 4 to 6 moist

Chroma—2 to 4 dry or moist

Texture—very gravelly sandy loam or very cobbly sandy loam

Content of gravel—20 to 40 percent

Content of cobbles—5 to 15 percent

Content of stones—0 to 10 percent

2Cd horizon:

Hue—2.5Y or 10YR

Value—6 or 7 dry, 4 to 6 moist

Chroma—2 to 4 dry or moist

Texture—very gravelly or very cobbly sandy loam

Content of gravel—20 to 40 percent

Content of cobbles—5 to 25 percent

Content of stones—0 to 15 percent

Newbon Series

Depth class: Very deep

Drainage class: Well drained

Landform: Mountains and hills

Parent material: Glacial till

Slope range: 0 to 65 percent

Elevation: 1,200 to 4,000 feet

Mean annual precipitation: 11 to 15 inches

Mean annual air temperature: 47 to 52 degrees F

Frost-free period: 110 to 140 days

Taxonomic classification: Coarse-loamy, mixed, superactive, mesic Typic Haploxerolls

Typical Pedon

Newbon gravelly loam, 8 to 25 percent slopes; about 900 feet east and 475 feet north of the southwest corner of section 20, T. 33 N., R. 23 E.; latitude 48 degrees 20 minutes 24 seconds north and 120 degrees 6 minutes 22 seconds west; NAD 83.

A1—0 to 2 inches; dark grayish brown (10YR 4/2) gravelly loam, very dark brown (10YR 2/2) moist; weak fine granular structure; soft, very friable, slightly sticky and nonplastic; many roots; 20 percent gravel; neutral; abrupt smooth boundary.

A2—2 to 13 inches; dark grayish brown (10YR 4/2) gravelly loam, very dark brown (10YR 2/2) moist; weak coarse granular structure; slightly hard, very friable, slightly sticky and nonplastic; many roots; few fine pores; 20 percent gravel; neutral; clear wavy boundary.

Bw—13 to 25 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few roots; common very fine pores; 30 percent gravel; neutral; clear smooth boundary.

C—25 to 60 inches; light brownish gray (10YR 6/2) very gravelly loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few roots; few fine pores; 40 percent gravel; neutral.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 18 inches

A horizon:

Value—4 or 5 dry, 2 or 3 moist

Texture—loam, gravelly loam, or very gravelly loam

Content of gravel—0 to 40 percent

Bw horizon:

Hue—7.5YR or 10YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—gravelly loam or gravelly silt loam

Content of gravel—25 to 30 percent

Content of cobbles—0 to 3 percent

C horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 4 moist or dry

Texture—gravelly loam, very gravelly loam, or gravelly silt loam

Content of gravel—15 to 45 percent

Content of cobbles—0 to 5 percent

Newhorn Series

Depth class: Moderately deep

Drainage class: Well drained

Landform: Mountains

Parent material: Volcanic ash (7 to 14 inches thick) over glacial till

Slope range: 15 to 35 percent

Elevation: 3,300 to 4,800 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Loamy-skeletal, isotic, frigid Andic Haploxerepts

Typical Pedon

Newhorn ashy fine sandy loam; Okanogan National Forest Area, Washington; about 7 miles west-northwest of Conconully; about 2,200 feet west and 1,300 feet north of the southeast corner of section 30, T. 36 N., R. 24 E.; latitude 48 degrees 35 minutes 12 seconds north and longitude 119 degrees 52 minutes 20 seconds west; NAD 83.

- Oe—0 to 1 inch; moderately decomposed mat of needles and twigs; abrupt smooth boundary.
- A—1 to 5 inches; brown (10YR 5/3) ashy fine sandy loam, dark brown (10YR 4/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; moderately smeary; many very fine and fine and few medium and coarse roots; common very fine and fine pores; 5 percent gravel; neutral; clear smooth boundary.
- Bw—5 to 14 inches; light yellowish brown (10YR 6/4) ashy fine sandy loam, dark yellowish brown (10YR 4/4) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; moderately smeary; many very fine and fine and few medium and coarse roots; common very fine and fine pores; 5 percent gravel and 5 percent cobbles; neutral; clear wavy boundary.
- 2CB—14 to 29 inches; light brownish gray (10YR 6/2) very gravelly sandy loam, grayish brown (10YR 5/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium roots; common very fine and fine pores; 30 percent gravel and 5 percent cobbles; neutral; gradual wavy boundary.
- 2C—29 to 37 inches; very pale brown (10YR 7/3) very gravelly sandy loam, brown (10YR 5/3) moist; massive; very hard, friable, nonsticky and slightly plastic; few very fine roots; common very fine and fine pores; 35 percent gravel and 10 percent cobbles; neutral; gradual wavy boundary.
- 2Cd—37 to 60 inches; very pale brown (10YR 7/3) very gravelly sandy loam, brown (10YR 5/3) moist; massive; very hard, friable, slightly sticky and slightly plastic; few very fine roots; few very fine and fine pores; 35 percent gravel and 5 percent cobbles; neutral.

Range in Characteristics

Thickness of the volcanic ash: 7 to 14 inches

Depth to the densic material: 20 to 40 inches

A horizon:

Value—3 or 4 moist

Chroma—2 or 3 dry or moist

Content of gravel—0 to 10 percent

Bw horizon:

Chroma—3 or 4 dry or moist

Content of gravel—5 to 15 percent

Content of cobbles—0 to 5 percent

2CB horizon:

Value—5 or 6 dry, 4 or 5 moist

Chroma—2 to 4 dry or moist

Texture—very gravelly sandy loam or very gravelly fine sandy loam

Content of gravel—25 to 40 percent

Content of cobbles—0 to 10 percent

2C horizon:

Hue—2.5Y or 10YR

Value—6 or 7 dry, 5 or 6 moist

Chroma—2 or 3 dry or moist

Texture—very gravelly sandy loam or very cobbly sandy loam

Content of gravel—20 to 40 percent

Content of cobbles—5 to 15 percent

2Cd horizon:

Hue—2.5Y or 10YR

Value—6 or 7 dry, 5 or 6 moist

Chroma—2 or 3 dry or moist

Texture—very gravelly or very cobbly sandy loam

Content of gravel—25 to 45 percent

Content of cobbles—5 to 15 percent

Nicmar Series

Depth class: Very deep

Drainage class: Well drained

Landform: Mountains

Parent material: Mixed volcanic ash (10 to 25 inches thick) over glacial till

Slope range: 15 to 65 percent

Elevation: 2,200 to 5,000 feet

Mean annual precipitation: 18 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Loamy-skeletal, isotic, frigid Vitrandic Palexeralfs

Typical Pedon

Nicmar ashy loam; Okanogan National Forest Area, Washington; about 500 feet south and 200 feet east of the northwest corner of section 10, T. 39 N., R. 31 E.; latitude 48 degrees 53 minutes 55 seconds north and longitude 118 degrees 54 minutes 4 seconds west; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of needles, twigs, and leaves; clear smooth boundary.

A—1 to 5 inches; light brownish gray (10YR 6/2) ashy loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium and coarse roots; many fine irregular pores; 5 percent gravel; neutral; clear smooth boundary.

Bw—5 to 17 inches; light brownish gray (10YR 6/2) gravelly ashy loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium and coarse roots; common fine irregular pores; 10 percent gravel and 5 percent cobbles; neutral; clear wavy boundary.

2Bt1—17 to 24 inches; olive (5Y 5/3) very cobbly clay loam, olive (5Y 4/3) moist; strong medium angular blocky structure; very hard, firm, very sticky and very plastic; common very fine roots; few very fine irregular pores; few faint discontinuous clay films on faces of peds; 15 percent gravel, 25 percent cobbles, and 5 percent stones; neutral; clear wavy boundary.

2Bt2—24 to 34 inches; olive gray (5Y 5/2) very cobbly clay loam, olive gray (5Y 4/2) moist; strong medium angular blocky structure; very hard, firm, very sticky and very plastic; few very fine roots; few very fine irregular pores; few faint

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discontinuous clay films on faces of peds; 15 percent gravel, 30 percent cobbles, and 5 percent stones; neutral; gradual wavy boundary.
2BC—34 to 60 inches; light olive gray (5Y 6/2) very gravelly sandy clay loam, olive gray (5Y 5/2) moist; massive; hard, friable, moderately sticky and moderately plastic; few very fine roots; few very fine irregular pores; 25 percent gravel, 10 percent cobbles, and 5 percent stones; neutral.

Range in Characteristics

Thickness of the mixed volcanic ash and depth to the argillic horizon: 10 to 25 inches

A horizon:

Value—5 or 6 dry, 3 to 5 moist
Chroma—2 or 3 dry or moist
Texture—ashy loam or gravelly ashy loam
Content of gravel—0 to 25 percent

Bw horizon:

Value—5 or 6 dry, 3 to 5 moist
Chroma—2 or 3 dry or moist
Texture—ashy loam or gravelly ashy loam
Content of gravel—0 to 20 percent
Content of cobbles—0 to 10 percent

2Bt horizon:

Hue—5Y, 2.5Y, or 10YR
Value—4 to 7 dry, 3 to 6 moist
Chroma—2 to 4 dry or moist
Texture—very cobbly clay loam or very cobbly sandy clay loam
Content of gravel—10 to 20 percent
Content of cobbles—15 to 40 percent
Content of stones—0 to 10 percent

2BC horizon:

Hue—5Y, 2.5Y, 10YR, or 7.5YR
Value—5 or 6 dry, 4 or 5 moist
Chroma—2 or 3 dry or moist
Texture—very gravelly or gravelly sandy clay loam
Content of gravel—15 to 35 percent
Content of cobbles—0 to 15 percent
Content of stones—0 to 10 percent

Nighthawk Series

Depth class: Very deep

Drainage class: Well drained

Landform: Hills

Parent material: Glacial till over metasediment

Slope range: 3 to 65 percent

Elevation: 1,000 to 2,500 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 140 to 190 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Calcicic Haploxerolls

Typical Pedon

Nighthawk gravelly loam, 8 to 25 percent slopes, extremely stony; in the southwest $\frac{1}{4}$ northeast $\frac{1}{4}$ of section 13, T. 37 N., R. 26 E.; latitude 48 degrees 42 minutes 32 seconds north and longitude 119 degrees 30 minutes 12 seconds west; NAD 83.

A1—0 to 4 inches; grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; common very fine and fine tubular pores; 20 percent gravel, 5 percent cobbles, and 5 percent stones; neutral; abrupt smooth boundary.

A2—4 to 8 inches; grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak thin platy structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; few very fine and fine tubular pores; 20 percent gravel, 5 percent cobbles, and 5 percent stones; neutral; clear smooth boundary.

Bw1—8 to 13 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine and common medium roots; few very fine, fine, and medium tubular pores; 25 percent gravel and 5 percent cobbles; slightly alkaline; clear smooth boundary.

Bw2—13 to 22 inches; light yellowish brown (10YR 6/4) very gravelly loam, brown (10YR 4/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; few very fine, fine, and medium tubular pores; 50 percent gravel and 5 percent cobbles; slightly alkaline; abrupt wavy boundary.

2Ck1—22 to 32 inches; pale yellow (2.5Y 7/4) very gravelly loam, light olive brown (2.5Y 5/4) moist; massive; hard, friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; few very fine, fine, and medium tubular pores; 55 percent gravel; thick calcium carbonate coatings on underside of gravel; strongly effervescent; moderately alkaline; abrupt wavy boundary.

2Ck2—32 to 60 inches; pale yellow (2.5Y 8/4) very gravelly coarse sandy loam, light yellowish brown (2.5Y 6/4) moist; massive; hard, friable, nonsticky and nonplastic; common very fine and fine and few medium roots; few very fine and fine tubular pores; 55 percent gravel; numerous threads and masses of calcium carbonate; violently effervescent; moderately alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 15 inches

Depth to the calcium carbonate accumulation: 20 to 30 inches

A horizon:

Texture—loam, gravelly loam, or gravelly silt loam

Content of gravel—5 to 25 percent

Content of cobbles—0 to 5 percent

Content of stones—0 to 5 percent

Bw horizon:

Texture—gravelly loam, very gravelly loam, gravelly silt loam, or very gravelly silt loam

Content of gravel—20 to 55 percent

Content of cobbles—0 to 10 percent

Content of stones—0 to 5 percent

2Ck horizon:

Texture—very gravelly loam or very gravelly coarse sandy loam
Content of gravel—50 to 60 percent
Content of cobbles—0 to 5 percent
Content of stones—0 to 5 percent

Okanogan Series

Depth class: Very deep

Drainage class: Well drained

Landform: Low stream terraces and flood plains

Parent material: Alluvium

Slope range: 0 to 5 percent

Elevation: 700 to 2,000 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 110 to 140 days

Taxonomic classification: Coarse-loamy, mixed, superactive, mesic Cumulic
Haploxerolls

Typical Pedon

Okanogan loam, 0 to 5 percent slopes; about 4 miles north of Riverside; about 1,100 feet west and 1,200 feet north of the southeast corner of section 5, T. 35 N., R. 27 E.; latitude 48 degrees 33 minutes 24 seconds north and longitude 119 degrees 29 minutes 3 seconds west; NAD 83.

Ap—0 to 3 inches; dark grayish brown (10YR 4/2) loam, very dark brown (10YR 2/2) moist; weak fine granular structure; soft, friable, nonsticky and slightly plastic; many very fine and fine roots; many very fine and fine pores; neutral; clear smooth boundary.

A1—3 to 14 inches; dark grayish brown (10YR 4/2) loam, very dark brown (10YR 2/2) moist; weak coarse granular structure; soft, very friable, nonsticky and slightly plastic; many very fine and fine roots; common very fine, fine, and medium pores; neutral; gradual smooth boundary.

A2—14 to 31 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; weak medium prismatic structure parting to weak medium subangular blocky; soft, very friable, nonsticky and slightly plastic; many very fine and fine and common medium roots; common very fine, fine, and medium pores; neutral; gradual wavy boundary.

AC1—31 to 45 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common very fine, fine, and medium pores; neutral; abrupt wavy boundary.

AC2—45 to 48 inches; brown (10YR 5/3) sandy loam, dark brown (10YR 3/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; common very fine, fine, and medium roots; common very fine, fine, and medium pores; slightly alkaline; abrupt wavy boundary.

C—48 to 60 inches; light brownish gray (10YR 6/2) sandy loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, friable, nonsticky and nonplastic; common very fine, fine, and medium roots; few very fine and fine pores; slightly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 20 to 50 inches

Content of organic matter: Decreases irregularly as depth increases

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Depth to the calcium carbonate accumulation: 44 to 60 inches

Flooding: Present in spring

Ap horizon:

Content of gravel—0 to 5 percent

A horizon:

Texture—loam, very fine sandy loam, or silt loam

Content of gravel—0 to 5 percent

AC horizon:

Texture—silt loam, fine sandy loam, or sandy loam

Content of gravel—0 to 5 percent

C horizon:

Texture—silt loam, sandy loam, or sand

Content of gravel—0 to 10 percent

Ontrail Series

Depth class: Very deep

Drainage class: Well drained

Landform: Mountains

Parent material: Mixed volcanic ash (10 to 20 inches thick) over colluvium derived from sedimentary and volcanic rock

Slope range: 35 to 65 percent

Elevation: 2,200 to 3,000 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Loamy-skeletal, isotic, frigid Vitrandic Haploxerepts

Typical Pedon

Ontrail gravelly ashy sandy loam; Okanogan National Forest Area, Washington; about 1.5 miles southeast of Mazama; about 2,100 feet west and 2,700 feet south of the northeast corner of section 36, T. 36 N., R. 19 E.; latitude 48 degrees 34 minutes 38 seconds north and longitude 120 degrees 24 minutes 38 seconds west; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of needles and twigs; abrupt smooth boundary.

A—1 to 5 inches; dark brown (7.5YR 4/2) gravelly ashy sandy loam, dark brown (7.5YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium roots; common very fine and fine irregular pores; 15 percent gravel; neutral; clear smooth boundary.

Bw—5 to 17 inches; brown (7.5YR 5/3) gravelly ashy sandy loam, dark brown (7.5YR 4/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium roots; common very fine and fine irregular pores; 20 percent gravel; slightly acid; clear wavy boundary.

2C1—17 to 33 inches; reddish brown (5YR 5/3) very gravelly sandy loam, reddish brown (5YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; few fine irregular pores; 35 percent gravel and 5 percent cobbles; slightly acid; gradual wavy boundary.

2C2—33 to 60 inches; reddish brown (5YR 5/3) very gravelly sandy loam, reddish brown (5YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few

very fine roots; few fine irregular pores; 45 percent gravel and 5 percent cobbles; slightly acid.

Range in Characteristics

Thickness of the mixed volcanic ash: 10 to 20 inches

A horizon:

Hue—5YR or 7.5YR

Chroma—2 or 3 dry

Content of gravel—15 to 20 percent

Bw horizon:

Hue—5YR or 7.5YR

Value—5 or 6 dry

Chroma—2 or 3 dry or moist

Content of gravel—15 to 35 percent

2C horizon:

Value—3 or 4 moist

Chroma—2 or 3 dry or moist

Texture—very gravelly sandy loam or very cobbly sandy loam

Content of gravel—35 to 45 percent

Content of cobbles—5 to 20 percent

Owhi Series

Depth class: Very deep

Drainage class: Well drained

Landform: Outwash terraces

Parent material: Mixed volcanic ash (7 to 15 inches thick) over glacial outwash

Slope range: 0 to 65 percent

Elevation: 1,000 to 4,000 feet

Mean annual precipitation: 11 to 15 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free season: 110 to 140 days

Taxonomic classification: Sandy-skeletal, mixed, mesic Vitrandic Haploxerolls

Typical Pedon

Owhi ashy fine sandy loam, 3 to 8 percent slopes, about 5 miles west of Riverside; about 1,450 feet south and 2,700 feet west of northeast corner of section 30, T. 35 N., R. 26 E.; latitude 48 degrees 30 minutes 15 seconds north and longitude 119 degrees 36 minutes 51 seconds west; NAD 83.

A1—0 to 5 inches; dark grayish brown (10YR 4/2) ashy fine sandy loam, very dark brown (10YR 2/2) moist; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; 5 percent gravel; slightly acid; gradual smooth boundary.

A2—5 to 11 inches; yellowish brown (10YR 5/6) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; 5 percent gravel; neutral; clear smooth boundary.

2Bw—11 to 24 inches; brown (10YR 5/3) gravelly sandy loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; 20 percent gravel and 5 percent cobbles; neutral; clear smooth boundary.

2CB—24 to 31 inches; brown (10YR 5/3) very gravelly loamy sand, dark brown (10YR 3/3) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; 40 percent gravel and 10 percent cobbles; neutral; clear smooth boundary.

2C—31 to 60 inches; multicolored extremely gravelly coarse sand; single grain; loose, nonsticky and nonplastic; few very fine and fine roots; 50 percent gravel and 20 percent cobbles; neutral.

Range in Characteristics

Thickness of the mixed volcanic ash: 7 to 15 inches

Thickness of the mollic epipedon: 7 to 15 inches

Depth to the glacial outwash (2CB horizon): 12 to 26 inches

A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Texture—ashy fine sandy loam, gravelly ashy fine sandy loam, or ashy sandy loam

Content of gravel—0 to 30 percent

Content of cobbles—0 to 5 percent

2Bw horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 to 4 dry or moist

Texture—gravelly sandy loam or very cobbly sandy loam

Content of gravel—15 to 35 percent

Content of cobbles—0 to 20 percent

2CB horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—very gravelly coarse sand or very gravelly loamy sand

Content of gravel—30 to 60 percent

Content of cobbles—5 to 15 percent

2C horizon:

Value—5 to 7 dry, 4 to 6 moist

Chroma—2 to 4 dry or moist

Texture—extremely cobbly coarse sand or extremely gravelly coarse sand

Content of gravel—40 to 70 percent

Content of cobbles—10 to 25 percent

Oxerine Series

Depth class: Moderately deep

Drainage class: Well drained

Landform: Mountains

Parent material: Volcanic ash (7 to 14 inches thick) over residuum and colluvium derived from metasedimentary and andesitic rock

Slope range: 35 to 65 percent

Elevation: 2,000 to 5,500 feet

Mean annual precipitation: 20 to 30 inches

Mean annual air temperature: 39 to 46 degrees F

Frost-free season: 90 to 120 days

Taxonomic classification: Loamy-skeletal, isotic, frigid Andic Haploxerepts

Typical Pedon

Oxerine gravelly ashy fine sandy loam; Okanogan National Forest Area, Washington; about 6 miles east of Chesaw; about 1,800 feet west and 2,100 feet north of the southeast corner of section 21, T. 40 N., R. 31 E.; latitude 48 degrees 57 minutes 10 seconds north and longitude 118 degrees 54 minutes 30 seconds west; NAD 83.

Oi—0 to 1 inch; slightly decomposed mat of needles, twigs, leaves, and grass; abrupt smooth boundary.

A—1 to 5 inches; yellowish brown (10YR 5/4) gravelly ashy fine sandy loam, dark yellowish brown (10YR 3/4) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine roots; common fine tubular pores; 25 percent gravel; neutral; clear wavy boundary.

Bw—5 to 11 inches; light yellowish brown (10YR 6/4) gravelly ashy fine sandy loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine roots; common fine tubular pores; 25 percent gravel; slightly acid; clear wavy boundary.

2C1—11 to 20 inches; light yellowish brown (10YR 6/4) very gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common fine and very fine roots; common fine tubular pores; 30 percent gravel, 15 percent cobbles, and 2 percent stones; slightly acid; gradual wavy boundary.

2C2—20 to 32 inches; pale brown (10YR 6/3) extremely cobbly sandy loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots in the upper part; few pores; 30 percent gravel, 35 percent cobbles, and 10 percent stones; slightly acid; abrupt wavy boundary.

2R—32 inches; andesite.

Range in Characteristics

Thickness of the volcanic ash: 7 to 14 inches

Depth to bedrock: 20 to 40 inches

A horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—ashy fine sandy loam or gravelly ashy fine sandy loam

Content of gravel—0 to 35 percent

Content of cobbles—0 to 5 percent

Bw horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Content of gravel—15 to 25 percent

Content of cobbles—0 to 5 percent

2C1 horizon:

Value—6 or 7 dry, 3 or 4 moist

Chroma—2 to 4 dry or moist

Texture—very gravelly sandy loam or very cobbly sandy loam

Content of gravel—25 to 40 percent

Content of cobbles—10 to 20 percent

Content of stones—0 to 5 percent

2C2 horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 4 dry or moist

Texture—extremely gravelly sandy loam, very gravelly sandy loam, extremely cobbly sandy loam, or extremely flaggy sandy loam

Content of gravel—30 to 50 percent

Content of cobbles—10 to 35 percent

Content of flagstones—0 to 10 percent

Content of stones—0 to 10 percent

Parmenter Series

Depth class: Very deep

Drainage class: Well drained

Landform: Outwash terraces

Parent material: Volcanic ash (14 to 30 inches thick) over glacial outwash

Slope range: 0 to 35 percent

Elevation: 3,600 to 4,400 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Ashy over sandy or sandy-skeletal, glassy over isotic, frigid
Typic Vitrixerands

Typical Pedon

Parmenter ashy fine sandy loam; Okanogan National Forest Area, Washington; about 4 miles east of Wauconda; about 1,600 feet west and 2,100 feet north of the southeast corner of section 1, T. 37 N., R. 29 E.; latitude 48 degrees, 43 minutes 55 seconds north and longitude 119 degrees 6 minutes 21 seconds west; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of needles, twigs, and grass; abrupt smooth boundary.

A—1 to 4 inches; pale brown (10YR 6/3) ashy fine sandy loam, brown (10YR 4/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine and few medium and coarse roots; few fine pores; 5 percent gravel; neutral; clear smooth boundary.

Bw1—4 to 13 inches; light yellowish brown (10YR 6/4) ashy fine sandy loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; common very and fine and few medium and coarse roots; few fine pores; 5 percent gravel; slightly acid; gradual smooth boundary.

Bw2—13 to 23 inches; light yellowish brown (10YR 6/4) ashy fine sandy loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; common very fine and fine and few medium and coarse roots; few fine pores; 5 percent gravel; neutral; gradual smooth boundary.

2C1—23 to 35 inches; light yellowish brown (2.5Y 6/3) very gravelly loamy coarse sand, light olive brown (2.5Y 5/3) moist; single grain; loose, nonsticky and nonplastic; few very fine, fine, and medium roots; common fine irregular pores; 30 percent gravel and 10 percent cobbles; neutral; gradual wavy boundary.

2C2—35 to 60 inches; light yellowish brown (2.5Y 6/3) very gravelly loamy coarse sand, light olive brown (2.5Y 5/3) moist; single grain; loose, nonsticky and nonplastic; common fine irregular pores; 30 percent gravel, 15 percent cobbles, and 5 percent stones; neutral.

Range in Characteristics

Thickness of the volcanic ash: 14 to 30 inches

Depth to the glacial outwash (2C horizon): 14 to 30 inches

A horizon:

Content of gravel—0 to 10 percent

Bw horizon:

Texture—ashy fine sandy loam or gravelly ashy fine sandy loam

Content of gravel—5 to 20 percent

Content of cobbles—0 to 5 percent

2C horizon:

Hue—10YR or 2.5Y

Value—4 or 5 moist

Texture—very gravelly loamy sand, very gravelly loamy coarse sand, or very cobbly loamy coarse sand

Content of gravel—30 to 50 percent

Content of cobbles—5 to 20 percent

Content of stones—0 to 5 percent

Pebcreek Series

Depth class: Moderately deep and deep

Drainage class: Well drained

Landform: Mountains

Parent material: Mixed volcanic ash (10 to 14 inches thick) over glacial till

Slope range: 15 to 65 percent

Elevation: 2,100 to 5,500 feet

Mean annual precipitation: 18 to 24 inches

Mean annual air temperature: 39 to 45 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Sandy-skeletal, isotic, frigid Vitrandic Haploxerepts

Typical Pedon

Pebcreek ashy sandy loam; Okanogan National Forest Area, Washington; about 12 miles northeast of Winthrop; 1,500 feet east and 450 feet north of the southwest corner of section 5, T. 36 N., R. 22 E.; latitude 48 degrees 38 minutes 37 seconds north and longitude 120 degrees 6 minutes 51 seconds west; NAD 83.

Oe—0 to 2 inches; moderately decomposed mat of needles and twigs; clear smooth boundary.

A—2 to 7 inches; pale brown (10YR 6/3) ashy sandy loam, brown (10YR 4/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine and few medium and coarse roots; common very fine and fine irregular pores; 10 percent gravel; slightly acid; clear wavy boundary.

Bw—7 to 13 inches; light yellowish brown (10YR 6/4) gravelly ashy sandy loam, dark yellowish brown (10YR 4/4) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine and few medium and coarse roots; common very fine and fine irregular pores; 15 percent gravel; slightly acid; clear wavy boundary.

2C/B—13 to 39 inches; 70 percent very pale brown (10YR 7/3) and 30 percent light yellowish brown (10YR 6/4) very gravelly sand, 70 percent pale brown (10YR

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- 6/3) and 30 percent dark yellowish brown (10YR 4/6) moist; single grain; loose, nonsticky and nonplastic; common very fine and fine roots; 40 percent gravel and 5 percent cobbles; slightly acid; clear wavy boundary.
- 2C—39 to 44 inches; very pale brown (10YR 7/3) very gravelly loamy sand, pale brown (10YR 6/3) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; 45 percent gravel; slightly acid; clear wavy boundary.
- 2Cd—44 to 60 inches; light gray (10YR 7/2) gravelly sandy loam, light brownish gray (10YR 6/2) moist; massive; very hard, friable, nonsticky and nonplastic; few very fine roots; few very fine irregular pores; 30 percent gravel and 5 percent cobbles; slightly acid.

Range in Characteristics

Thickness of the mixed volcanic ash: 10 to 14 inches

Depth to the glacial till: 10 to 14 inches

Depth to the densic material: 30 to 45 inches

A horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Texture—ashy sandy loam or stony ashy sandy loam

Content of gravel—0 to 15 percent

Content of cobbles—0 to 5 percent

Content of stones—0 to 10 percent

Bw horizon:

Value—3 or 4 moist

Chroma—2 to 4 dry or moist

Texture—gravelly ashy sandy loam, ashy sandy loam, or stony ashy sandy loam

Content of gravel—10 to 25 percent

Content of cobbles—0 to 5 percent

2C/B horizon:

Value—6 or 7 dry, 5 or 6 moist

Chroma—3 or 4 dry or moist

Texture—very gravelly sand or very gravelly loamy sand

Content of gravel—35 to 45 percent

Content of cobbles—0 to 5 percent

2C horizon:

Value—6 or 7 dry, 5 or 6 moist

Chroma—2 or 3 dry or moist

Texture—very gravelly loamy sand, extremely gravelly loamy sand, or very gravelly sand

Content of gravel—30 to 45 percent

Content of cobbles—0 to 5 percent

Content of stones—0 to 5 percent

2Cd horizon:

Hue—2.5Y or 10YR

Value—6 or 7 dry, 5 or 6 moist

Chroma—2 or 3 dry or moist

Texture—very gravelly loamy sand, very gravelly sandy loam, or gravelly sandy loam

Content of gravel—25 to 40 percent

Content of cobbles—0 to 10 percent

Content of stones—0 to 5 percent

Peka Series

Depth class: Deep

Drainage class: Well drained

Landform: Mountains and hills

Parent material: Mixed volcanic ash (10 to 18 inches thick) over glacial till

Slope range: 3 to 65 percent

Elevation: 1,500 to 4,500 feet

Mean annual precipitation: 15 to 20 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free season: 110 to 140 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Vitrandic
Haploxerolls

Typical Pedon

Peka stony ashy sandy loam; Okanogan National Forest Area, Washington; about 5 miles west of Wauconda; about 1,400 feet east and 300 feet north of the southwest corner of section 11, T. 37 N., R. 29 E.; latitude 48 degrees 42 minutes 43 seconds north and longitude 119 degrees 8 minutes 12 seconds west; NAD 83.

Oi—0 to 1 inch; slightly decomposed mat of needles, twigs, and grass; clear smooth boundary.

A1—1 to 7 inches; grayish brown (10YR 5/2) stony ashy sandy loam, very dark brown (10YR 2/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine, common medium, and few coarse roots; common very fine and fine irregular pores; 10 percent gravel, 5 percent cobbles, and 10 percent stones; neutral; clear smooth boundary.

A2—7 to 16 inches; brown (10YR 5/3) gravelly ashy sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure parting to weak fine granular; soft, very friable, nonsticky and nonplastic; many very fine and fine roots and common medium and coarse roots; common very fine irregular pores; 10 percent gravel and 5 percent cobbles; neutral; clear smooth boundary.

2Bw—16 to 25 inches; pale brown (10YR 6/3) very cobbly sandy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium and coarse roots; common fine irregular pores; 25 percent gravel, 20 percent cobbles, and 5 percent stones; neutral; clear wavy boundary.

2C—25 to 50 inches; pale brown (10YR 7/3) very cobbly sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; few fine irregular pores; 30 percent gravel and 20 percent cobbles; slightly acid; clear smooth boundary.

2Cd—50 to 60 inches; very pale brown (10YR 7/3) very gravelly sandy loam, brown (10YR 5/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; common fine and few medium roots in the upper part; few very fine irregular pores; 35 percent gravel and 10 percent cobbles; neutral.

Range in Characteristics

Thickness of the mixed volcanic ash: 10 to 18 inches

Thickness of the mollic epipedon: 10 to 18 inches

Depth to the densic material: 40 to 60 inches

A horizon:

Value—4 or 5 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Texture—stony or gravelly ashy sandy loam

Content of gravel—10 to 25 percent
Content of cobbles—0 to 5 percent
Content of stones—0 to 10 percent

2Bw horizon:

Value—5 or 6 dry, 4 or 5 moist
Chroma—3 or 4 dry or moist
Texture—very gravelly or very cobbly sandy loam
Content of gravel—20 to 45 percent
Content of cobbles—5 to 20 percent
Content of stones—0 to 5 percent

2C horizon:

Value—5 to 7 dry, 4 or 5 moist
Chroma—2 to 4 dry or moist
Texture—very gravelly or very cobbly sandy loam
Content of gravel—25 to 45 percent
Content of cobbles—5 to 30 percent
Content of stones—0 to 5 percent

2Cd horizon:

Value—5 to 7 dry, 4 to 6 moist
Chroma—2 to 4 dry or moist
Content of gravel—30 to 45 percent
Content of cobbles—0 to 15 percent

Pelican Series

Depth class: Moderately deep or deep

Drainage class: Well drained

Landform: South-facing slopes of mountains

Parent material: Mixed volcanic ash (10 to 25 inches thick) over glacial till

Slope range: 15 to 65 percent

Elevation: 3,900 to 5,300 feet

Mean annual precipitation: 18 to 22 inches

Mean annual air temperature: 39 to 44 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, frigid Vitrandic
Haploxerolls

Typical Pedon

Pelican gravelly ashy loam; Okanogan National Forest Area, Washington; about 7.5 miles northwest of Conconully; about 400 feet north and 500 feet west of the southeast corner of section 33, T. 37 N., R. 24 E.; latitude 48 degrees 39 minutes 19 seconds north and longitude 119 degrees 49 minutes 17 seconds west; NAD 83.

A—0 to 11 inches; dark grayish brown (10YR 4/2) gravelly ashy loam, very dark brown (10YR 2/2) moist; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium roots; many fine and medium tubular roots; 10 percent gravel and 5 percent cobbles; neutral; clear wavy boundary.

2Bw1—11 to 18 inches; yellowish brown (10YR 5/4) gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; moderate fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many fine and medium tubular pores; 20 percent gravel and 5 percent cobbles; neutral; clear wavy boundary

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- 2Bw2—18 to 28 inches; light yellowish brown (10YR 6/4) very gravelly sandy loam, yellowish brown (10YR 5/4) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; many very fine and fine roots; common fine and medium tubular roots; 35 percent gravel and 10 percent cobbles; neutral; gradual wavy boundary.
- 3C1—28 to 37 inches; light yellowish brown (2.5Y 6/4) very gravelly sandy loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, friable, slightly sticky and nonplastic; common very fine and fine roots; few fine irregular pores; 40 percent gravel and 10 percent cobbles; neutral; gradual wavy boundary.
- 3C2—37 to 46 inches; light yellowish brown (2.5Y 6/4) very gravelly sandy loam, light olive brown (2.5Y 5/4) moist; massive; slightly hard, friable, slightly sticky and nonplastic; few very fine and fine roots; few fine irregular pores; common fine and medium stains that are dark yellowish brown (10YR 4/6) moist; 40 percent gravel and 5 percent cobbles; neutral; clear smooth boundary.
- 3Cd—46 to 60 inches; light olive brown (2.5Y 5/4) very gravelly sandy loam, olive brown (2.5Y 4/4) moist; massive; hard, firm, slightly sticky and nonplastic; very few fine irregular pores; 45 percent gravel and 5 percent cobbles; slightly acid.

Range in Characteristics

Thickness of the mixed volcanic ash: 10 to 25 inches

Thickness of the mollic epipedon: 10 to 25 inches

Depth to the densic material: 35 to 50 inches

A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Content of gravel—5 to 15 percent

Content of cobbles—0 to 5 percent

2Bw1 horizon:

Value—5 or 6 dry, 3 to 5 moist

Chroma—3 or 4 dry or moist

Texture—gravelly sandy loam or very gravelly sandy loam

Content of gravel—15 to 35 percent

Content of cobbles—0 to 10 percent

2Bw2 horizon:

Value—5 or 6 dry, 3 to 5 moist

Chroma—3 or 4 dry or moist

Content of gravel—30 to 45 percent

Content of cobbles—0 to 10 percent

3C horizon:

Chroma—4 to 6 dry or moist

Texture—very gravelly sandy loam or very cobbly sandy loam

Content of gravel—35 to 45 percent

Content of cobbles—0 to 25 percent

3Cd horizon:

Chroma—4 to 6 dry or moist

Texture—very gravelly sandy loam or very cobbly sandy loam

Content of gravel—35 to 45 percent

Content of cobbles—0 to 25 percent

Pettijohn Series

Depth class: Very deep

Drainage class: Well drained

Landform: Mountains

Parent material: Volcanic ash (30 to 45 inches thick) over colluvium derived from granitic rock

Slope range: 35 to 65 percent

Elevation: 3,300 to 4,600 feet

Mean annual precipitation: 18 to 24 inches

Mean annual air temperature: 40 to 46 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Ashy-skeletal, glassy, frigid Typic Vitrixerands

Typical Pedon

Pettijohn stony ashy fine sandy loam; Okanogan National Forest Area, Washington; about 1 mile west of Bonaparte Lake; 1,300 feet north and 2,600 feet east of the southwest corner of section 8, T. 38 N., R. 30 E.; latitude 48 degrees 48 minutes 8 seconds north and longitude 119 degrees 3 minutes 59 seconds west; NAD 83.

Oe—0 to 2 inches; moderately decomposed mat of needles, leaves, and twigs; abrupt smooth boundary.

A—2 to 6 inches; pale brown (10YR 6/3) stony ashy fine sandy loam, dark yellowish brown (10YR 4/4) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine and common medium roots; many very fine and fine irregular pores; 5 percent gravel, 10 percent cobbles, and 10 percent stones; neutral; gradual wavy boundary.

Bw1—6 to 26 inches; pale brown (10YR 6/3) very cobbly ashy fine sandy loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine, common coarse, and few medium roots; many very fine and fine irregular pores; 10 percent gravel, 30 percent cobbles, and 10 percent stones; slightly acid; gradual wavy boundary.

Bw2—26 to 44 inches; very pale brown (10YR 7/4) very stony ashy fine sandy loam, dark yellowish brown (10YR 4/6) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; common very fine, fine, and coarse and few medium roots; many fine irregular pores; 15 percent gravel, 25 percent cobbles, and 15 percent stones; slightly acid; gradual wavy boundary.

2C—44 to 60 inches; light yellowish brown (2.5Y 6/3) very gravelly sandy loam, light olive brown (2.5Y 5/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; few very fine, fine, and medium roots; common fine irregular pores; 40 percent gravel, 5 percent cobbles, and 5 percent stones; slightly acid.

Range in Characteristics

Thickness of the volcanic ash: 30 to 45 inches

A horizon:

Value—4 to 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Content of gravel—5 to 10 percent

Content of cobbles—5 to 15 percent

Content of stones—5 to 10 percent

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Bw horizon:

Value—5 to 7 dry, 4 or 5 moist

Chroma—3 to 6 dry or moist

Texture—very stony, extremely stony, or very cobbly ashy fine sandy loam

Content of stones—10 to 20 percent

Content of cobbles—10 to 35 percent

Content of stones—10 to 30 percent

2C horizon:

Hue—2.5Y or 10YR

Value—6 or 7 dry, 4 to 6 moist

Chroma—3 or 4 dry or moist

Texture—very gravelly or very cobbly sandy loam

Content of stones—20 to 40 percent

Content of cobbles—5 to 20 percent

Content of stones—5 to 10 percent

Pogue Series

Depth class: Very deep

Drainage class: Somewhat excessively drained

Landform: Outwash terraces

Parent material: Loess over glacial outwash

Slope range: 0 to 65 percent

Elevation: 700 to 2,200 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 140 to 190 days

Taxonomic classification: Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Aridic Haploxerolls

Typical Pedon

Pogue fine sandy loam, 0 to 3 percent slopes; about 50 feet south of the road in the northeast $\frac{1}{4}$ northeast $\frac{1}{4}$ northwest $\frac{1}{4}$ of section 11, T. 34 N., R. 26 E.; latitude 48 degrees 25 minutes 59 seconds north and longitude 119 degrees 31 minutes 22 seconds west; NAD 83.

A—0 to 6 inches; grayish brown (10YR 5/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium platy structure parting to weak medium subangular blocky; soft, very friable, slightly sticky and nonplastic; many very fine and fine roots; few very fine and fine tubular pores; 5 percent gravel; neutral; clear smooth boundary.

BA—6 to 12 inches; yellowish brown (10YR 5/4) gravelly fine sandy loam, dark brown (10YR 3/3) moist; weak coarse prismatic structure parting to weak medium subangular blocky; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; few very fine and fine tubular pores; 25 percent gravel; neutral; clear smooth boundary.

Bw—12 to 29 inches; yellowish brown (10YR 5/4) gravelly fine sandy loam, dark yellowish brown (10YR 3/4) moist; weak coarse prismatic structure parting to weak medium subangular blocky; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; few very fine and fine tubular pores; 25 percent gravel and 5 percent cobbles; neutral; clear smooth boundary.

2C—29 to 60 inches; multicolored very gravelly sand; single grain; loose, nonsticky and nonplastic; few very fine and fine roots; 40 percent gravel and 5 percent cobbles; neutral.

Range in Characteristics

Thickness of the mollic epipedon: 7 to 16 inches

Depth to the glacial outwash (2C horizon): 20 to 40 inches

A and BA horizons:

Value—4 or 5 dry

Chroma—2 or 3 moist

Texture—fine sandy loam or gravelly fine sandy loam

Content of gravel—0 to 30 percent

Bw horizon:

Value—4 to 6 dry, 4 or 5 moist

Chroma—3 or 4 dry or moist

Texture—cobbly fine sandy loam, gravelly fine sandy loam, or gravelly loam

Content of gravel—15 to 30 percent

Content of cobbles—0 to 10 percent

2C horizon:

Texture—very cobbly sand, very gravelly loamy sand, very gravelly sand, or extremely gravelly loamy coarse sand

Content of gravel—30 to 50 percent

Content of cobbles—0 to 15 percent

Radercreek Series

Depth class: Deep

Drainage class: Well drained

Landform: Mountains

Parent material: Mixed volcanic ash (7 to 24 inches thick) over colluvium and residuum derived from sedimentary and volcanic rock

Slope range: 35 to 65 percent

Elevation: 3,300 to 4,100 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 39 to 45 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Loamy-skeletal, isotic, frigid Vitrandic Haploxerepts

Typical Pedon

Radercreek gravelly ashy sandy loam; Okanogan National Forest Area, Washington; about 15 miles southwest of Twisp; about 1,700 feet west and 1,900 feet south of the northeast corner of section 18, T. 33 N., R. 21 E.; latitude 48 degrees 21 minutes 31 seconds north and longitude 120 degrees 15 minutes 50 seconds west; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of needles, twigs, and leaves; abrupt smooth boundary.

A—1 to 6 inches; brown (10YR 5/3) gravelly ashy sandy loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium and coarse roots; many fine tubular pores; 15 percent gravel; neutral; clear smooth boundary.

Bw1—6 to 13 inches; brown (10YR 5/3) gravelly ashy sandy loam, brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common fine irregular pores; 20 percent gravel; neutral; clear wavy boundary.

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Bw2—13 to 18 inches; brown (10YR 5/3) very gravelly ashy sandy loam, brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium and coarse roots; common fine irregular pores; 35 percent gravel and 5 percent cobbles; neutral; clear wavy boundary.

2C1—18 to 25 inches; brownish gray (10YR 6/3) very cobbly sandy loam, brown (10YR 5/3) moist; massive; soft, friable, nonsticky and nonplastic; common very fine and fine and few medium roots; few fine irregular pores; 35 percent gravel and 20 percent cobbles; slightly acid; gradual wavy boundary.

2C2—25 to 44 inches; brownish gray (10YR 6/3) very cobbly sandy loam, brown (10YR 5/3) moist; massive; soft, friable, nonsticky and nonplastic; few very fine, fine, and medium roots; few fine irregular pores; 35 percent gravel and 20 percent cobbles; slightly acid; abrupt irregular boundary.

2R—44 inches; sandstone.

Range in Characteristics

Thickness of the mixed volcanic ash: 7 to 24 inches

Depth to bedrock: 40 to 60 inches

A horizon:

Hue—10YR or 7.5YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Content of gravel—15 to 20 percent

Bw horizon:

Value—4 or 5 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Texture—gravelly or very gravelly sandy ashy loam

Content of gravel—15 to 35 percent

Content of cobbles—0 to 10 percent

2C horizon:

Value—4 or 5 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Texture—very cobbly loam, very gravelly sandy loam, or very cobbly sandy loam

Content of gravel—20 to 50 percent

Content of cobbles—10 to 30 percent

Content of stones—0 to 5 percent

Redpeak Series

Depth class: Moderately deep

Drainage class: Well drained

Landform: Mountains

Parent material: Mixed volcanic ash (10 to 20 inches thick) over colluvium and residuum derived from sedimentary and volcanic rock

Slope range: 35 to 65 percent

Elevation: 2,200 to 3,000 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Loamy-skeletal, isotic, frigid Vitrandic Haploxerepts

Typical Pedon

Redpeak gravelly ashy sandy loam; Okanogan National Forest Area, Washington; about 1.5 miles southwest of Mazama; about 1,500 feet west and 1,200 feet north of the southeast corner of section 36, T. 36 N., R. 19 E.; latitude 48 degrees 34 minutes 30 seconds north and longitude 120 degrees 24 minutes 27 seconds west; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of needles and twigs; abrupt smooth boundary.

A—1 to 5 inches; reddish brown (5YR 4/3) gravelly ashy sandy loam, dark reddish brown (5YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium and coarse roots; common very fine and fine irregular pores; 15 percent gravel; slightly acid; clear wavy boundary.

Bw1—5 to 10 inches; reddish brown (2.5YR 5/3) gravelly ashy sandy loam, reddish brown (2.5YR 4/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium and coarse roots; common fine and very fine irregular pores; 20 percent gravel and 5 percent cobbles; slightly acid; clear wavy boundary.

Bw2—10 to 17 inches; reddish brown (2.5YR 5/3) very gravelly ashy sandy loam, reddish brown (2.5YR 3/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium roots; common fine and very fine irregular pores; 30 percent gravel and 5 percent cobbles; neutral; clear wavy boundary.

2C1—17 to 29 inches; reddish brown (2.5YR 4/3) very gravelly sandy loam, dark reddish brown (2.5YR 3/3) moist; massive; soft, very friable, slightly sticky and nonplastic; common very fine and fine roots; few fine irregular pores; 40 percent gravel and 5 percent cobbles; neutral; clear wavy boundary.

2C2—29 to 36 inches; reddish brown (2.5YR 4/3) very gravelly sandy loam, dark reddish brown (2.5YR 3/3) moist; massive; soft, very friable, slightly sticky and nonplastic; few very fine and fine roots; few fine irregular pores; 50 percent gravel and 5 percent cobbles; slightly acid; abrupt irregular boundary.

2R—36 inches; sandstone.

Range in Characteristics

Thickness of the mixed volcanic ash: 10 to 20 inches

Depth to bedrock: 20 to 40 inches

A horizon:

Hue—2.5YR or 5YR

Chroma—2 or 3 dry or moist

Content of gravel—15 to 20 percent

Bw horizon:

Hue—2.5YR or 5YR

Value—3 or 4 moist

Texture—gravelly ashy sandy loam, gravelly ashy loam, or very gravelly ashy sandy loam

Content of gravel—15 to 40 percent

Content of cobbles—0 to 5 percent

2C horizon:

Hue—2.5YR or 5YR

Value—4 or 5 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist
Texture—very gravelly sandy loam or very gravelly loam
Content of gravel—30 to 50 percent
Content of cobbles—0 to 5 percent

Rommel Series

Depth class: Very deep
Drainage class: Well drained
Landform: Mountains
Parent material: Volcanic ash (7 to 14 inches thick) over colluvium over glacial till derived from granitic rock
Slope range: 35 to 65 percent
Elevation: 5,400 to 7,500 feet
Mean annual precipitation: 25 to 35 inches
Mean annual air temperature: 35 to 39 degrees F
Frost-free period: 60 to 80 days
Taxonomic classification: Loamy-skeletal, isotic Haploxerandic Haplocrypts

Typical Pedon

Rommel very stony ashy sandy loam; Okanogan National Forest Area, Washington; about 1,220 feet west and 1,200 feet south of the northeast corner of section 32, T. 38 N., R. 21 E.; latitude 48 degrees 45 minutes 11 seconds north and longitude 120 degrees 14 minutes 16 seconds west; NAD 83.

- Oe—0 to 1 inch; moderately decomposed mat of needles and twigs; abrupt smooth boundary.
- A—1 to 5 inches; dark grayish brown (10YR 4/2) very stony ashy sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine and common medium and coarse roots; few fine irregular pores; 15 percent gravel, 10 percent cobbles, and 15 percent stones; slightly acid; clear smooth boundary.
- Bw1—5 to 9 inches; pale brown (10YR 6/3) gravelly ashy sandy loam, dark brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine and common medium and coarse roots; common fine irregular pores; 15 percent gravel and 5 percent cobbles; slightly acid; clear wavy boundary.
- Bw2—9 to 14 inches; light yellowish brown (10YR 6/4) very gravelly ashy sandy loam, dark yellowish brown (10YR 4/4) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine and few medium and coarse roots; few fine irregular pores; 30 percent gravel and 5 percent cobbles; slightly acid; clear smooth boundary.
- 2BC—14 to 30 inches; light yellowish brown (10YR 6/4) very cobbly sandy loam, yellowish brown (10YR 5/4) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium and coarse roots; few fine irregular pores; 30 percent gravel, 15 percent cobbles, and 5 percent stones; slightly acid; clear wavy boundary.
- 2C1—30 to 42 inches; pale brown (10YR 6/3) very cobbly sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; few very fine irregular pores; 35 percent gravel, 20 percent cobbles, and 5 percent stones; neutral; gradual wavy boundary.
- 3C2—42 to 60 inches; pale brown (10YR 6/3) very cobbly loamy coarse sand, brown (10YR 5/3) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; 40 percent gravel, 20 percent cobbles, and 5 percent stones; neutral.

Range in Characteristics

Thickness of the volcanic ash: 7 to 14 inches

A horizon:

Value—4 or 5 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Content of gravel—10 to 20 percent

Content of cobbles—5 to 15 percent

Content of stones—15 to 25 percent

Bw horizon:

Chroma—3 or 4 dry or moist

Texture—gravelly or very gravelly ashy sandy loam

Content of gravel—15 to 40 percent

Content of cobbles—0 to 5 percent

Content of stones—0 to 5 percent

2BC horizon:

Value—4 or 5 moist

Chroma—3 or 4 dry or moist

Texture—very gravelly sandy loam, very cobbly sandy loam, or very cobbly coarse sandy loam

Content of gravel—30 to 45 percent

Content of cobbles—5 to 20 percent

Content of stones—0 to 5 percent

2C horizon:

Value—6 or 7 dry, 5 or 6 moist

Chroma—2 or 3 dry or moist

Texture—very gravelly sandy loam, extremely cobbly sandy loam, or very cobbly sandy loam

Content of gravel—35 to 50 percent

Content of cobbles—5 to 20 percent

Content of stones—0 to 5 percent

3C horizon:

Value—6 or 7 dry, 5 or 6 moist

Chroma—2 or 3 dry or moist

Texture—extremely gravelly or very cobbly loamy coarse sand

Content of gravel—35 to 50 percent

Content of cobbles—10 to 25 percent

Content of stones—0 to 5 percent

Rendovy Series

Depth class: Very deep

Drainage class: Well drained

Landform: Mountains

Parent material: Volcanic ash (7 to 14 inches thick) over glacial till derived from sedimentary and volcanic rock

Slope range: 35 to 65 percent

Elevation: 3,500 to 3,600 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Loamy-skeletal, isotic, frigid Andic Palexeralfs

Typical Pedon

Rendovy gravelly ashy fine sandy loam; Okanogan National Forest Area, Washington; about 8 miles northwest of Winthrop; about 1,900 feet west and 300 feet south of the northeast corner of section 25, T. 36 N., R. 20 E.; latitude 48 degrees 35 minutes 55 seconds north and longitude 120 degrees 16 minutes 49 seconds west; NAD 83.

Oe—0 to 2 inches; moderately decomposed mat of needles and twigs; abrupt smooth boundary.

A—2 to 7 inches; brown (10YR 4/3) gravelly ashy fine sandy loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; moderately smeary; many very fine and fine and few medium and coarse roots; many very fine and fine irregular pores; 15 percent gravel; neutral; clear smooth boundary.

Bw—7 to 14 inches; brown (10YR 5/3) gravelly ashy sandy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; moderately smeary; many very fine and fine and few medium and coarse roots; many very fine and fine irregular pores; 15 percent gravel; neutral; clear smooth boundary.

2Bt1—14 to 26 inches; light brownish gray (10YR 6/2) very gravelly sandy loam, grayish brown (10YR 5/2) moist; moderate fine subangular blocky structure; hard, firm, slightly sticky and slightly plastic; many very fine and fine and few medium roots; many very fine and fine irregular pores; few discontinuous faint clay films between sand grains; 30 percent gravel and 5 percent cobbles; neutral; clear wavy boundary.

3Bt2—26 to 37 inches; pale brown (10YR 6/3) very gravelly sandy clay loam, brown (10YR 5/3) moist; strong fine and medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common very fine and fine and few medium and coarse roots; common fine irregular pores; few discontinuous faint clay films on faces of peds and in pores; 30 percent gravel and 5 percent cobbles; neutral; clear wavy boundary.

3Bt3—37 to 48 inches; light yellowish brown (10YR 6/4) very gravelly sandy clay loam, yellowish brown (10YR 5/4) moist; strong fine and medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common very fine and fine and few medium and coarse roots; few fine and medium irregular pores; common discontinuous faint clay films on faces of peds, in pores, and between sand grains; 35 percent gravel and 5 percent cobbles; neutral; clear wavy boundary.

3Bt4—48 to 60 inches; light yellowish brown (10YR 6/4) very gravelly sandy clay loam, yellowish brown (10YR 5/6) moist; moderate fine and medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; few fine and medium irregular pores; few discontinuous faint clay films between sand grains; 30 percent gravel and 5 percent cobbles; neutral.

Range in Characteristics

Thickness of the volcanic ash and depth to the argillic horizon: 7 to 14 inches

A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Content of gravel—15 to 25 percent

Bw horizon:

Value—5 or 6 dry, 4 or 5 moist

Chroma—3 or 4 dry or moist

Texture—gravelly ashy sandy loam or gravelly ashy fine sandy loam

Content of gravel—15 to 25 percent

2Bt horizon:

Value—5 or 6 dry, 4 or 5 moist

Chroma—3 or 4 dry or moist

Texture—very gravelly sandy loam or very gravelly sandy clay loam

Content of gravel—30 to 40 percent

Content of cobbles—5 to 10 percent

3Bt horizon:

Value—5 or 6 dry, 4 or 5 moist

Chroma—3 or 4 dry, 3 to 6 moist

Texture—very gravelly sandy clay loam, very cobbly sandy clay loam, or very gravelly clay loam

Content of gravel—25 to 45 percent

Content of cobbles—5 to 20 percent

Republic Series

Depth class: Very deep

Drainage class: Well drained

Landform: Mountains

Parent material: Mixed volcanic ash (10 to 20 inches thick) over glacial till

Slope range: 0 to 65 percent

Elevation: 2,500 to 4,700 feet

Mean annual precipitation: 17 to 20 inches

Mean annual air temperature: 40 to 45 degrees F

Frost-free season: 90 to 120 days

Taxonomic classification: Coarse-loamy, isotic, frigid Vitrandic Haploxerolls

Typical Pedon

Republic ashy loam; Okanogan National Forest Area, Washington; Conconully West U.S. Geological Survey topographic quadrangle; about 5 miles northwest of Conconully; about 850 feet west and 1,300 feet south of the southeast corner of section 29, T. 36 N., R. 24 E.; latitude 48 degrees 35 minutes 11 seconds north and longitude 119 degrees 50 minutes 43 seconds west; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of needles, twigs, and leaves; abrupt smooth boundary.

A1—1 to 7 inches; dark grayish brown (10YR 4/2) ashy loam, very dark brown (10YR 2/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; smeary; many very fine and few medium and coarse roots; common fine irregular pores; slightly acid; clear wavy boundary.

A2—7 to 16 inches; brown (10YR 5/3) ashy sandy loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure parting to weak fine granular; soft, very friable, nonsticky and nonplastic; many very fine and common medium and coarse roots; common fine irregular pores; 5 percent gravel; slightly acid; gradual wavy boundary.

2Bw1—16 to 29 inches; pale brown (10YR 6/3) sandy loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and

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nonplastic; common very fine, medium, and coarse roots; common fine irregular pores; 10 percent gravel; neutral; gradual wavy boundary.

2Bw2—29 to 36 inches; pale brown (10YR 6/3) gravelly sandy loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few fine and common medium and coarse roots; common fine irregular pores; 20 percent gravel and 10 percent cobbles; slightly alkaline; clear wavy boundary.

2C—36 to 60 inches; pale olive (5Y 6/3) very gravelly sandy loam, olive (5Y 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few fine and medium roots; common fine irregular pores; 25 percent gravel and 10 percent cobbles; slightly alkaline.

Range in Characteristics:

Thickness of the mixed volcanic ash: 10 to 20 inches

Thickness of the mollic epipedon: 10 to 20 inches

A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 to 3 dry or moist

Texture—ashy loam or ashy sandy loam

Content of gravel—0 to 15 percent

2Bw horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—loam, sandy loam, or gravelly sandy loam

Content of gravel—5 to 25 percent

Content of cobbles—0 to 10 percent

2C horizon:

Hue—10YR or 5Y

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—sandy loam or very gravelly sandy loam

Content of gravel—5 to 35 percent

Content of cobbles—0 to 10 percent

Resner Series

Depth class: Very deep

Drainage class: Well drained

Landform: Mountains

Parent material: Volcanic ash (14 to 22 inches thick) over glacial outwash or glacial till

Slope range: 0 to 65 percent

Elevation: 3,500 to 6,000 feet

Mean annual precipitation: 20 to 35 inches

Mean annual air temperature: 35 to 41 degrees F

Frost-free period: 60 to 90 days

Taxonomic classification: Ashy over sandy or sandy-skeletal, glassy over isotic Xeric Vitricryands

Typical Pedon

Resner ashy fine sandy loam; Okanogan National Forest Area, Washington; about 1 mile northwest of Mount Bonaparte and 2 miles southeast of Havillah; about 300 feet west and 1,500 feet south of the northeast corner of section 15, T. 38 N., R. 29 E.;

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latitude 48 degrees 47 minutes 40 seconds north and longitude 119 degrees 8 minutes 36 seconds west; NAD 83.

Oi—0 to 1 inch; slightly decomposed mat of twigs, leaves, and needles; abrupt smooth boundary.

C—1 to 2 inches; white (10YR 8/1) ashy silt loam, brown (10YR 5/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; moderately smeary; many very fine and fine and common medium and coarse roots; few fine pores; 5 percent gravel; strongly acid; abrupt smooth boundary.

2A—2 to 6 inches; pale brown (10YR 6/3) ashy fine sandy loam, dark yellowish brown (10YR 4/4) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine and common medium and coarse roots; few fine pores; 5 percent gravel; slightly acid; gradual wavy boundary.

2Bw—6 to 19 inches; light yellowish brown (10YR 6/4) ashy fine sandy loam, dark yellowish brown (10YR 4/6) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and common medium roots; few fine pores; 10 percent gravel; slightly acid; gradual wavy boundary.

3C—19 to 60 inches; light gray (2.5Y 7/2) very cobbly loamy sand, light olive brown (2.5Y 5/3) moist; single grain; loose, nonsticky and nonplastic; common fine and few medium and coarse roots; common fine irregular pores; 20 percent gravel, 30 percent cobbles, and 5 percent stones; slightly acid.

Range in Characteristics

Thickness of the volcanic ash: 14 to 22 inches

Depth to the glacial outwash or glacial till (3C horizon): 14 to 22 inches

The C horizon is not present in all pedons.

2A horizon:

Chroma—2 to 4 dry or moist

Content of gravel—0 to 10 percent

2Bw horizon:

Value—6 or 7 dry

Chroma—3 to 6 dry or moist

Texture—ashy fine sandy loam or gravelly ashy fine sandy loam

Content of gravel—0 to 20 percent

3C horizon:

Hue—10YR or 2.5Y

Value—6 to 8 dry, 5 or 6 moist

Chroma—2 to 4 dry or moist

Texture—very cobbly loamy sand, extremely cobbly loamy sand, or extremely gravelly coarse sand

Content of gravel—20 to 60 percent

Content of cobbles—10 to 30 percent

Content of stones—0 to 5 percent

Rufus Series

Depth class: Shallow

Drainage class: Well drained

Landform: Hills and mountains

Parent material: Mixed volcanic ash (10 to 20 inches thick) over residuum and colluvium derived from metasedimentary rock

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Slope range: 35 to 90 percent

Elevation: 3,000 to 4,700 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 47 to 52 degrees F

Frost-free period: 100 to 140 days

Taxonomic classification: Loamy-skeletal, isotic, mesic Lithic Ultic Haploxerolls

Typical Pedon

Rufus flaggy ashy sandy loam in an area of Rufus-Wynhoff-Rock outcrop complex, 35 to 65 percent slopes; about 2 miles north of Conconully; about 1,000 feet east and 300 feet south of the northwest corner of section 30, T. 36 N., R. 25 E.; latitude 48 degrees 35 minutes 49 seconds north and longitude 119 degrees 44 minutes 52 seconds west; NAD 83.

A1—0 to 6 inches; dark grayish brown (10YR 4/2) flaggy ashy sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium roots; many fine irregular pores; 10 percent channers and 10 percent flagstones; neutral; clear smooth boundary.

A2—6 to 14 inches; brown (10YR 4/3) very channery ashy sandy loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium roots; common fine irregular pores; 35 percent channers and 15 percent flagstones; neutral; clear wavy boundary.

Bw—14 to 18 inches; brown (10YR 5/3) very flaggy ashy sandy loam, dark brown (10YR 4/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; 30 percent channers and 30 percent flagstones; neutral; abrupt wavy boundary.

2R—18 inches; metasedimentary rock.

Range in Characteristics

Thickness of the mixed volcanic ash: 10 to 20 inches

Thickness of the mollic epipedon: 7 to 14 inches (when mixed)

Depth to bedrock: 10 to 20 inches

A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Texture—flaggy, very flaggy, or extremely flaggy ashy sandy loam or very channery ashy sandy loam

Content of channers—35 to 45 percent

Content of flagstones—5 to 30 percent

Bw horizon:

Value—4 or 5 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—very channery, very flaggy, or extremely flaggy ashy sandy loam

Content of channers—20 to 40 percent

Content of flagstones—15 to 45 percent

Sacheen Series

Depth class: Very deep

Drainage class: Somewhat excessively drained

Landform: Outwash terraces

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Parent material: Glacial outwash or glaciofluvial deposits

Slope range: 35 to 65 percent

Elevation: 2,300 to 4,400 feet

Mean annual precipitation: 18 to 22 inches

Mean annual air temperature: 40 to 45 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Mixed, frigid Typic Xeropsamments

Typical Pedon

Sacheen loamy sand, 35 to 65 percent slopes; about 4 miles west of Wauconda; about 1,700 feet west and 1,100 feet south of the northeast corner of section 1, T. 37 N., R. 29 E.; latitude 48 degrees 44 minutes 15 seconds north and longitude 119 degrees 6 minutes 38 seconds west; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of needles, twigs, and leaves; abrupt smooth boundary.

A—1 to 6 inches; light brownish gray (10YR 6/2) loamy sand, dark grayish brown (10YR 4/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common fine irregular pores; 5 percent gravel; slightly acid; clear smooth boundary.

C1—6 to 16 inches; light gray (10YR 7/2) loamy sand, grayish brown (10YR 5/2) moist; single grain; loose, nonsticky and nonplastic; common very fine and fine and few medium roots; common fine irregular pores; 10 percent gravel; neutral; gradual wavy boundary.

C2—16 to 60 inches; light gray (10YR 7/2) loamy sand, grayish brown (10YR 5/2) moist; single grain; loose, nonsticky and nonplastic; common very fine and fine and few medium roots; common fine irregular pores; 5 percent gravel; neutral.

Range in Characteristics

A horizon:

Value—4 to 6 dry, 2 to 4 moist

Chroma—1 or 2 dry or moist

Content of gravel—0 to 15 percent

C horizon:

Hue—10YR or 2.5Y

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 4 dry or moist

Texture—loamy sand, sand, or gravelly sand

Content of gravel—5 to 25 percent

Salcreek Series

Depth class: Very deep

Drainage class: Well drained

Landform: Mountains

Parent material: Mixed volcanic ash (14 to 20 inches thick) over glacial till

Slope range: 15 to 65 percent

Elevation: 3,600 to 4,000 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Fine-loamy, isotic, frigid Vitrandic Argixerolls

Typical Pedon

Salcreek ashy loam; Okanogan National Forest Area, Washington; about 2,550 feet west and 2,000 feet south of the northeast corner of section 27, T. 36 N., R. 24 E.; latitude 48 degrees 35 minutes 28 seconds north and longitude 119 degrees 48 minutes 33 seconds west; NAD 83.

- Oe—0 to 1 inch; moderately decomposed mat of needles, leaves, and twigs; abrupt smooth boundary.
- A—1 to 7 inches; dark grayish brown (10YR 4/2) ashy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium roots; common fine and very fine tubular pores; 5 percent gravel; neutral; clear wavy boundary.
- AB—7 to 14 inches; brown (10YR 5/3) ashy loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium roots; few fine irregular pores; 10 percent gravel; neutral; clear smooth boundary.
- Bw—14 to 21 inches; yellowish brown (10YR 5/4) gravelly ashy sandy loam, dark brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium roots; few very fine and fine pores; 15 percent gravel; neutral; clear wavy boundary.
- 2Bt1—21 to 29 inches; yellowish brown (10YR 5/4) gravelly sandy loam, dark brown (10YR 4/3) moist; moderate fine and medium subangular blocky structure; slightly hard, very friable, slightly sticky and nonplastic; common very fine and fine roots; few fine irregular pores; few discontinuous faint clay films on faces of peds; 25 percent gravel and 5 percent cobbles; neutral; clear wavy boundary.
- 2Bt2—29 to 36 inches; yellowish brown (10YR 5/4) gravelly clay loam, dark brown (10YR 4/3) moist; strong medium angular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine and fine roots; few fine irregular pores; few discontinuous faint clay films on faces of peds; 20 percent gravel and 5 percent cobbles; neutral; clear wavy boundary.
- 2Bt3—36 to 45 inches; yellowish brown (10YR 5/4) gravelly clay loam, dark brown (10YR 4/3) moist; strong medium and coarse angular blocky structure; very hard, firm, moderately sticky and moderately plastic; few very fine roots; few fine irregular pores; few discontinuous faint clay films on faces of peds; 20 percent gravel and 5 percent cobbles; neutral; gradual wavy boundary.
- 2Bt4—45 to 60 inches; yellowish brown (10YR 5/4) gravelly clay loam, dark brown (10YR 4/3) moist; strong fine and medium angular blocky structure; very hard, firm, moderately sticky and moderately plastic; few very fine roots; few fine irregular pores; few discontinuous faint clay films on faces of peds; 20 percent gravel and 5 percent cobbles; neutral.

Range in Characteristics

Thickness of the mixed volcanic ash and depth to the argillic horizon: 14 to 20 inches

Thickness of the mollic epipedon: 10 to 18 inches

A horizon:

Value—3 or 4 dry, 2 or 3 moist

Content of gravel—0 to 10 percent

AB horizon:

Value—4 or 5 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

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Texture—ashy sandy loam or ashy loam
Content of gravel—5 to 15 percent

Bw horizon:

Value—4 or 5 dry, 3 or 4 moist
Chroma—3 or 4 dry
Texture—gravelly ashy sandy loam or gravelly ashy loam
Content of gravel—15 to 25 percent

2Bt horizon:

Value—5 or 6 dry, 4 or 5 moist
Chroma—3 or 4 dry
Texture—gravelly clay loam, gravelly sandy clay loam, or gravelly sandy loam
Content of gravel—15 to 30 percent
Content of cobbles—0 to 5 percent

Santop Series

Depth class: Moderately deep

Drainage class: Well drained

Landform: Mountains

Parent material: Mixed volcanic ash (10 to 18 inches thick) over residuum and colluvium derived from sedimentary rock

Slope range: 35 to 65 percent

Elevation: 2,600 to 4,100 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 39 to 45 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Loamy-skeletal, isotic, frigid Vitrandic Haploxerepts

Typical Pedon

Santop gravelly ashy sandy loam; Okanogan National Forest Area, Washington; about 8.5 miles northwest of Winthrop, Washington; about 2,250 east and 1,350 feet north of the southwest corner of section 30, T. 36 N., R. 21 E.; latitude 48 degrees 35 minutes 18 seconds north and longitude 120 degrees 15 minutes 46 seconds west; NAD 83.

Oe—0 to 2 inches; moderately decomposed mat of needles and twigs; abrupt smooth boundary.

A—2 to 7 inches; brown (10YR 5/3) gravelly ashy sandy loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium and coarse roots; common fine irregular pores; 20 percent gravel and 5 percent cobbles; slightly acid; gradual wavy boundary.

Bw—7 to 17 inches; pale brown (10YR 6/3) very gravelly ashy sandy loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium roots; few fine and very fine irregular pores; 35 percent gravel and 5 percent cobbles; slightly acid; gradual wavy boundary.

2C—17 to 36 inches; pale brown (10YR 6/3) very stony sandy loam, yellowish brown (10YR 5/4) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine roots and few medium roots around rock fragments; few very fine and fine irregular pores; 25 percent gravel, 10 percent cobbles, and 20 percent stones; slightly acid; abrupt wavy boundary.

2R—36 inches; sandstone.

Range in Characteristics

Thickness of the mixed volcanic ash: 10 to 18 inches

Depth to bedrock: 20 to 40 inches

A horizon:

Value—5 or 6 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Content of gravel—15 to 25 percent

Content of cobbles—0 to 5 percent

Bw horizon:

Value—4 or 5 moist

Chroma—3 or 4 dry or moist

Texture—very gravelly ashy sandy loam or very cobbly ashy sandy loam

Content of gravel—25 to 35 percent

Content of cobbles—5 to 15 percent

Content of stones—0 to 5 percent

2C horizon:

Value—6 or 7 dry, 5 or 6 moist

Chroma—3 or 4 dry or moist

Texture—very gravelly sandy loam, very cobbly sandy loam, or very stony sandy loam

Content of gravel—25 to 40 percent

Content of cobbles—5 to 15 percent

Content of stones—0 to 20 percent

Scheiner Series

Depth class: Very deep

Drainage class: Well drained

Landform: Mountains

Parent material: Mixed volcanic ash (7 to 14 inches thick) over glaciofluvial material

Slope range: 35 to 65 percent

Elevation: 3,400 to 4,200 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 37 to 40 degrees F

Frost-free period: 60 to 90 days

Taxonomic classification: Sandy, isotic Vitrixerandic Haplocryepts

Typical Pedon

Scheiner ashy sandy loam in an area of Scheiner-Myerscreek complex, 35 to 65 percent slopes; about 6 miles east of Conconully; about 350 feet south and 1,350 feet west of the northeast corner of section 7, T. 35 N., R. 20 E.; latitude 48 degrees 31 minutes 12 seconds north and longitude 119 degrees 52 minutes 7 seconds west; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of needles, grass, and twigs; clear smooth boundary.

C—1 to 3 inches; light gray (10YR 7/2) ashy sandy loam, brown (10YR 4/3) moist; moderate fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common fine and medium and few very fine roots; many very fine and fine irregular pores; 5 percent gravel; moderately acid; gradual smooth boundary.

2A—3 to 8 inches; pale brown (10YR 6/3) ashy sandy loam, dark yellowish brown (10YR 4/4) moist; moderate fine and medium subangular blocky structure; soft,

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very friable, nonsticky and nonplastic; common very fine, fine, and medium roots; many very fine and fine irregular pores; 5 percent gravel; slightly acid; clear smooth boundary.

2Bw—8 to 13 inches; very pale brown (10YR 7/3) ashy sandy loam, yellowish brown (10YR 5/4) moist; weak medium and coarse subangular blocky structure; soft, very friable, nonsticky and nonplastic; few fine and coarse and common medium roots; common fine irregular pores; 5 percent gravel; neutral; gradual smooth boundary.

3BC—13 to 17 inches; pale brown (10YR 6/3) loamy sand, grayish brown (10YR 5/2) moist; single grain; loose, nonsticky and nonplastic; few medium roots; many fine and medium irregular pores; 10 percent gravel; neutral; gradual smooth boundary.

3C1—17 to 49 inches; light gray (10YR 7/2) sand, light brownish gray (2.5Y 6/2) moist; single grain; loose, nonsticky and nonplastic; few fine and medium roots; many fine and medium irregular pores; 10 percent gravel; neutral; gradual smooth boundary.

3C2—49 to 60 inches; light gray (10YR 7/2) gravelly sand, light brownish gray (2.5Y 6/2) moist; single grain; loose, nonsticky and nonplastic; 30 percent gravel; neutral.

Range in Characteristics

Thickness of the mixed volcanic ash and depth to the glaciofluvial material (3BC horizon): 7 to 14 inches

The C horizon is not present in all pedons.

C horizon:

Value—6 to 8 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Content of gravel—0 to 15 percent

2A horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Content of gravel—0 to 15 percent

2Bw horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—3 or 4 dry or moist

Texture—ashy sandy loam or gravelly ashy sandy loam

Content of gravel—5 to 20 percent

3BC and 3C horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—3 or 4 dry or moist

Texture—loamy sand, sand, gravelly sand, or coarse sand

Content of gravel—0 to 30 percent

Content of cobbles—0 to 10 percent

Scoop Series

Depth class: Very deep

Drainage class: Well drained

Landform: Mountains

Parent material: Mixed volcanic ash (10 to 20 inches thick) over glacial till and colluvium derived from granitic and metamorphic rock

Slope range: 15 to 35 percent

Elevation: 3,300 to 4,400 feet

Mean annual precipitation: 20 to 24 inches

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Mean annual air temperature: 42 to 45 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Loamy-skeletal, isotic, frigid Vitrandic Haploxerolls

Typical Pedon

Scoop gravelly ashy loam; Okanogan National Forest Area, Washington; in the northwest corner of section 14, T. 35 N., R. 31 E.; latitude 48 degrees 32 minutes 23 seconds north and longitude 118 degrees 54 minutes 21 seconds west; NAD 83.

Oe—0 to 2 inches; moderately decomposed mat of twigs, needles, and leaves; abrupt smooth boundary.

A1—2 to 9 inches; dark grayish brown (10YR 4/2) gravelly ashy loam, very dark brown (10YR 2/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium and coarse roots; common very fine and fine tubular pores; 20 percent gravel; neutral; clear smooth boundary.

A2—9 to 22 inches; dark grayish brown (10YR 4/2) gravelly ashy sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium and coarse roots; common very fine and fine tubular pores; 20 percent gravel and 5 percent cobbles; neutral; clear wavy boundary.

2Bw—22 to 34 inches; pale brown (10YR 6/3) very gravelly sandy loam, dark brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium roots; few fine irregular pores; 25 percent gravel and 10 percent cobbles; neutral; clear wavy boundary.

2BC—34 to 44 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine roots; 35 percent gravel and 5 percent cobbles; neutral; clear wavy boundary.

2C—44 to 60 inches; pale brown (10YR 6/3) very gravelly sandy loam, grayish brown (10YR 5/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; 40 percent gravel and 15 percent cobbles; neutral.

Range in Characteristics

Thickness of the mixed volcanic ash: 10 to 20 inches

Thickness of the mollic epipedon: 20 to 25 inches

A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 moist or dry

Texture—gravelly ashy loam or gravelly ashy sandy loam

Content of gravel—15 to 25 percent

Content of cobbles—0 to 5 percent

2Bw horizon:

Value—5 to 6 dry, 4 or 5 moist

Chroma—2 to 3 dry or moist

Texture—very gravelly sandy loam, very cobbly sandy loam, or gravelly loam

Content of gravel—15 to 30 percent

Content of cobbles—0 to 20 percent

2BC and 2C horizons:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Texture—very gravelly or very cobbly sandy loam

Content of gravel—35 to 50 percent

Content of cobbles—5 to 25 percent

Content of stones—0 to 5 percent

Setill Series

Depth class: Moderately deep

Drainage class: Well drained

Landform: Mountains

Parent material: Mixed volcanic ash (10 to 20 inches thick) over glacial till

Slope range: 15 to 35 percent

Elevation: 3,000 to 3,900 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 110 to 140 days

Taxonomic classification: Loamy-skeletal, isotic, mesic Vitrandic Argixerolls

Typical Pedon

Setill ashy loam; Okanogan National Forest Area, Washington; about 8 miles north of Winthrop; about 2,600 feet east and 2,600 feet north of the southwest corner of section 19, T. 36 N., R. 21 E.; latitude 48 degrees 36 minutes 22 seconds north and longitude 120 degrees 15 minutes 42 seconds west; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of needles and twigs; abrupt smooth boundary.

A1—1 to 7 inches; dark grayish brown (10YR 4/2) ashy loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium and coarse roots; common fine tubular pores; 5 percent gravel; neutral; clear smooth boundary.

A2—7 to 11 inches; dark grayish brown (10YR 4/2) ashy loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium and coarse roots; common fine and very fine tubular pores; 10 percent gravel; neutral; clear smooth boundary.

BA—11 to 20 inches; brown (10YR 5/3) gravelly ashy loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium roots; common very fine and fine pores; 20 percent gravel and 5 percent cobbles; neutral; clear wavy boundary.

2Bt—20 to 27 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 4/3) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; few very fine irregular pores; few discontinuous faint clay films on faces of peds; 35 percent gravel and 5 percent cobbles; neutral; clear smooth boundary.

2Btd1—27 to 39 inches; pale brown (10YR 6/3) very gravelly clay loam, brown (10YR 5/3) moist; massive; very hard, firm, moderately sticky and slightly plastic; few very fine roots; few fine irregular pores; few fine and medium irregularly shaped yellowish brown (10YR 5/6) stains; few discontinuous faint clay films on faces of peds; 40 percent gravel and 5 percent cobbles; neutral; gradual wavy boundary.

2Btd2—39 to 60 inches; pale brown (10YR 6/3) very gravelly clay loam, brown (10YR 5/3) moist; massive; very hard, firm, moderately sticky and moderately plastic; few very fine roots; few fine irregular pores; few fine irregularly shaped yellowish brown

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(10YR 5/6) stains; few discontinuous faint clay films on faces of peds; 35 percent gravel and 5 percent cobbles; neutral.

Range in Characteristics

Thickness of the mixed volcanic ash and depth to the argillic horizon: 10 to 20 inches

Thickness of the mollic epipedon: 10 to 20 inches

Depth to the densic material: 25 to 35 inches

A horizon:

Value—4 or 5 dry

Chroma—2 or 3 dry

Content of gravel—0 to 10 percent

BA horizon:

Value—4 to 6 dry, 3 to 5 moist

Chroma—2 or 3 dry or moist

Content of gravel—15 to 35 percent

Content of cobbles—0 to 5 percent

2Bt horizon:

Value—5 or 6 dry, 4 or 5 moist

Chroma—3 or 4 moist

Texture—very gravelly loam or very gravelly clay loam

Content of gravel—30 to 40 percent

Content of cobbles—0 to 5 percent

2Btd horizon:

Value—5 or 6 dry, 4 or 5 moist

Chroma—3 or 4 moist

Texture—very gravelly clay loam or very gravelly sandy clay loam

Content of gravel—30 to 45 percent

Content of cobbles—0 to 10 percent

Shalrock Series

Depth class: Moderately deep

Drainage class: Well drained

Landform: Mountains

Parent material: Mixed volcanic ash (7 to 20 inches thick) over colluvium and residuum derived from sedimentary rock

Slope range: 15 to 65 percent

Elevation: 3,400 to 4,300 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Loamy-skeletal, isotic, frigid Vitrandic Haploxerolls

Typical Pedon

Shalrock very stony ashy sandy loam; Okanogan National Forest Area, Washington; about 2,000 feet east and 900 feet north of the southwest corner of section 7, T. 36 N., R. 21 E.; latitude 48 degrees 37 minutes 50 seconds north and longitude 120 degrees 15 minutes 59 seconds west; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of needles, leaves, and twigs; abrupt smooth boundary.

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A1—1 to 8 inches; very dark grayish brown (10YR 3/2) very stony ashy sandy loam, very dark brown (10YR 2/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and common medium and coarse roots; common fine irregular pores; 10 percent gravel, 5 percent cobbles, and 20 percent stones; neutral; clear smooth boundary.

A2—8 to 11 inches; dark grayish brown (10YR 4/2) gravelly ashy sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and common medium and coarse roots; common fine irregular pores; 20 percent gravel and 5 percent cobbles; neutral; clear wavy boundary.

Bw—11 to 16 inches; brown (10YR 5/3) very cobbly ashy sandy loam, dark brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium and coarse roots; few fine irregular pores; 25 percent gravel, 10 percent cobbles, and 5 percent stones; neutral; clear wavy boundary.

2C—16 to 25 inches; pale brown (10YR 6/3) very cobbly sandy loam, yellowish brown (10YR 5/4) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; few fine irregular pores; 35 percent gravel, 20 percent cobbles, and 5 percent stones; neutral; gradual wavy boundary.

2R—25 inches; sandstone.

Range in Characteristics

Thickness of the mixed volcanic ash: 7 to 20 inches

Thickness of the mollic epipedon: 7 to 12 inches

Depth to bedrock: 20 to 40 inches

A1 horizon:

Value—3 or 4 dry, 2 or 3 moist

Content of gravel—10 to 20 percent

Content of cobbles—0 to 5 percent

Content of stones—15 to 25 percent

A2 horizon:

Value—3 or 4 dry, 2 or 3 moist

Content of gravel—10 to 20 percent

Content of cobbles—0 to 5 percent

Content of stones—0 to 5 percent

Bw horizon:

Value—4 or 5 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Texture—very gravelly or very cobbly ashy sandy loam

Content of gravel—25 to 30 percent

Content of cobbles—5 to 15 percent

Content of stones—0 to 5 percent

2C horizon:

Value—5 or 6 dry, 4 or 5 moist

Chroma—3 or 4 moist

Texture—very cobbly or very gravelly sandy loam

Content of gravel—20 to 35 percent

Content of cobbles—15 to 35 percent

Content of stones—0 to 5 percent

Sinlahekin Series

Depth class: Very deep

Drainage class: Well drained

Landform: Outwash terraces of hills and mountains

Parent material: Mixed volcanic ash (10 to 18 inches thick) over glacial outwash

Slope range: 3 to 15 percent

Elevation: 1,500 to 2,300 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 110 to 140 days

Taxonomic classification: Loamy-skeletal, isotic, mesic Vitrandic Haploxerolls

Typical Pedon

Sinlahekin cobbly ashy sandy loam in an area of Sinlahekin-Peka-Hodgson association, 3 to 15 percent slopes; 2.2 miles north on Sinlahekin Road from intersection of Fish Lake Road and Sinlahekin Road; Blue Goat Mountain U.S. Geological Survey topographic quadrangle; section 33, T. 37 N., R. 25 E.; latitude 48 degrees 39 minutes 36 seconds north and longitude 119 degrees 41 minutes 52 seconds west; NAD 83.

Oi—0 to 1 inch; slightly decomposed mat of plant material; abrupt smooth boundary.

A1—1 to 7 inches; black (10YR 2/1) cobbly ashy sandy loam, dark grayish brown (10YR 4/2) dry; strong medium and coarse subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; many very fine and fine roots; many very fine and fine tubular pores; 10 percent cobbles and 10 percent gravel; neutral; clear wavy boundary.

A2—7 to 14 inches; very dark brown (10YR 2/2) gravelly ashy very fine sandy loam, dark grayish brown (10YR 4/2) dry; moderate medium and coarse subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many very fine and fine tubular pores; 10 percent gravel and 5 percent cobbles; neutral; abrupt wavy boundary.

2Bw1—14 to 23 inches; very dark grayish brown (10YR 3/2) cobbly sandy loam, brown (10YR 4/3) dry; weak fine and medium subangular blocky structure; slightly hard, nonsticky and nonplastic; common very fine and fine roots; many very fine and fine tubular pores; 15 percent gravel and 10 percent cobbles; neutral; clear wavy boundary.

2Bw2—23 to 35 inches; dark brown (10YR 3/3) extremely gravelly very fine sandy loam, yellowish brown (10YR 5/4) dry; single grain; loose, nonsticky and nonplastic; few very fine and fine and few medium roots; many very fine and fine interstitial pores; 50 percent gravel and 20 percent cobbles; slightly alkaline; clear wavy boundary.

2Bk—35 to 60 inches; multicolored extremely gravelly fine sand; massive; soft, very friable, nonsticky and nonplastic; few very fine and fine and few medium roots; many very fine and fine interstitial pores; 5 percent calcium carbonate on underside of coarse fragments; slightly effervescent; 50 percent gravel and 20 percent cobbles; slightly alkaline.

Range in Characteristics

Thickness of the mixed volcanic ash: 10 to 18 inches

Thickness of the mollic epipedon: 10 to 18 inches

Depth to the calcium carbonate accumulation: 30 to 50 inches

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A horizon:

Value—2 or 3 moist, 4 or 5 dry

Chroma—1 or 2 moist, 2 or 3 dry

Texture—cobblely ashy sandy loam and gravelly ashy very fine sandy loam

Content of gravel—5 to 25 percent

Content of cobbles—0 to 15 percent

2Bw horizon:

Value—2 to 4 moist, 4 to 6 dry

Chroma—2 to 4 dry or moist

Texture—cobblely sandy loam or gravelly very fine sandy loam in the upper part and extremely gravelly very fine sandy loam or extremely cobblely sandy loam in the lower part

Content of gravel—15 to 50 percent

Content of cobbles—0 to 25 percent

Content of stones—0 to 10 percent

2Bk horizon:

Value—4 or 5 moist, 6 or 7 dry

Chroma—2 to 4 dry or moist

Texture—extremely gravelly fine sand, extremely gravelly coarse sand, or extremely gravelly sandy loam

Content of gravel—15 to 50 percent

Content of cobbles—0 to 30 percent

Content of stones—0 to 10 percent

Sitdown Series

Depth class: Very deep

Drainage class: Well drained

Landform: Mountains

Parent material: Volcanic ash (10 to 14 inches thick) over glacial outwash or glacial till

Slope range: 0 to 65 percent

Elevation: 3,500 to 6,400 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 35 to 41 degrees F

Frost-free period: 60 to 90 days

Taxonomic classification: Sandy-skeletal, isotic Haploxerandic Haplocrypts

Typical Pedon

Sitdown stony ashy sandy loam; Okanogan National Forest Area, Washington; about 14 miles west-northwest of the town of Loomis; 500 feet west and 2,100 feet south of the northeast corner of section 20, T. 39 N., R. 23 E.; latitude 48 degrees 51 minutes 57 seconds north and longitude 119 degrees 58 minutes 16 seconds west; NAD 83.

Oe—0 to 2 inches; moderately decomposed mat of needles, leaves, and twigs; clear smooth boundary.

A—2 to 5 inches; light yellowish brown (10YR 6/4) stony ashy sandy loam, brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine roots and common medium and coarse roots; common fine irregular pores; 15 percent gravel, 5 percent cobbles, and 10 percent stones; slightly acid; clear smooth boundary.

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Bw—5 to 13 inches; light yellowish brown (10YR 6/4) gravelly ashy sandy loam, dark brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine, common medium, and few coarse roots; few irregular pores; 20 percent gravel, 5 percent cobbles, and 5 percent stones; slightly acid; clear smooth boundary.

2C1—13 to 26 inches; very pale brown (10YR 7/3) very cobbly loamy sand, brown (10YR 5/3) moist; single grain; loose, nonsticky and nonplastic; common very fine and fine roots and few medium roots; 30 percent gravel, 20 percent cobbles, and 5 percent stones; slightly acid; gradual wavy boundary.

2C2—26 to 60 inches; light gray (10YR 7/2) extremely gravelly loamy sand, light brownish gray (10YR 6/2) moist; single grain; loose, nonsticky and nonplastic; 65 percent gravel and 5 percent cobbles; slightly acid.

Range in Characteristics

Thickness of the volcanic ash: 10 to 14 inches

Depth to the glacial outwash or glacial till (2C horizon)—10 to 14 inches

A horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—stony or gravelly ashy sandy loam

Content of gravel—10 to 20 percent

Content of cobbles—0 to 5 percent

Content of stones—0 to 15 percent

Bw horizon:

Value—5 or 6 dry, 4 or 5 moist

Chroma—3 to 6 dry and 3 or 4 moist

Texture—stony or gravelly ashy sandy loam

Content of gravel—10 to 30 percent

Content of cobbles—0 to 5 percent

Content of stones—0 to 15 percent

2C horizon:

Hue—2.5Y or 10YR

Value—6 or 7 dry, 5 or 6 moist

Chroma—2 or 3 dry or moist

Texture—extremely gravelly sand or very cobbly, extremely gravelly, extremely cobbly, or very stony loamy sand

Content of gravel—30 to 65 percent

Content of cobbles—5 to 20 percent

Content of stones—0 to 20 percent

Skaha Series

Depth class: Very deep

Drainage class: Excessively drained

Landform: Outwash terraces

Parent material: Glacial outwash

Slope range: 0 to 65 percent

Elevation: 800 to 1,500 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 47 to 52 degrees F

Frost-free period: 140 to 190 days

Taxonomic classification: Sandy-skeletal, mixed, mesic Xeric Torriorthents

Typical Pedon

Skaha gravelly loamy sand, 0 to 8 percent slopes; about 310 feet west and 110 feet south of the northeast corner of section 35, T. 39 N., R. 27 E.; latitude 48 degrees 50 minutes 35 seconds north and longitude 119 degrees 23 minutes 14 seconds west; NAD 83.

Ap—0 to 7 inches; grayish brown (10YR 5/2) gravelly loamy sand, very dark grayish brown (10YR 3/2) moist; single grain; loose, nonsticky and nonplastic; common very fine and fine roots; common very fine and fine irregular pores; 25 percent gravel; neutral; clear smooth boundary.

C1—7 to 13 inches; brown (10YR 5/3) gravelly loamy sand, dark brown (10YR 3/3) moist; single grain; loose, nonsticky and nonplastic; common very fine and fine and few medium roots; common very fine and fine interstitial pores; 25 percent gravel and 5 percent cobbles; neutral; abrupt smooth boundary.

C2—13 to 23 inches; yellowish brown (10YR 5/4) very gravelly loamy sand, dark yellowish brown (10YR 3/4) moist; single grain; loose, nonsticky and nonplastic; few very fine, fine, and medium roots; common very fine and fine interstitial pores; 35 percent gravel and 5 percent cobbles; neutral; abrupt wavy boundary.

C3—23 to 60 inches; extremely gravelly coarse sand; single grain; loose, nonsticky and nonplastic; few very fine and fine roots between peds; common very fine and fine interstitial pores; 55 percent gravel, 10 percent cobbles, and 5 percent stones; neutral.

Range in Characteristics

C horizon:

Texture—gravelly coarse sand, very gravelly coarse sand, gravelly loamy sand, very gravelly loamy sand, gravelly loamy coarse sand, extremely gravelly coarse sand, or extremely cobbly sand

Content of gravel: 15 to 65 percent

Content of cobbles—0 to 30 percent

Content of stones—0 to 10 percent

Smokejump Series

Depth class: Moderately deep

Drainage class: Well drained

Landform: North-facing slopes of mountains

Parent material: Volcanic ash (7 to 14 inches thick) over colluvium and residuum derived from gneiss, granodiorite, and granitic rock

Slope range: 15 to 65 percent

Elevation: 4,800 to 6,800 feet

Mean annual precipitation: 30 to 35 inches

Mean annual air temperature: 35 to 40 degrees F

Frost-free period: 60 to 80 days

Taxonomic classification: Loamy-skeletal, isotic Andic Dystricrypts

Typical Pedon

Smokejump stony ashy fine sandy loam; Okanogan National Forest Area, Washington; about 1,500 feet west and 1,700 feet north of the southeast corner of section 9, T. 37 N., R. 23 E.; latitude 48 degrees 43 minutes 2 seconds north and longitude 119 degrees 57 minutes 13 seconds west; NAD 83.

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- Oe—0 to 1 inch; moderately decomposed mat of needles, twigs, and leaves; abrupt smooth boundary.
- A—1 to 5 inches; pale brown (10YR 6/3) stony ashy fine sandy loam, dark brown (10YR 4/3) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine and few medium and coarse roots; common fine and medium tubular pores; 15 percent gravel, 5 percent cobbles, and 10 percent stones; moderately acid; clear wavy boundary.
- Bw—5 to 14 inches; light yellowish brown (10YR 6/4) very stony ashy sandy loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine and common medium and coarse roots; common fine and medium tubular pores; 20 percent gravel, 10 percent cobbles, and 15 percent stones; moderately acid; gradual wavy boundary.
- 2C1—14 to 29 inches; very pale brown (10YR 7/4) very stony sandy loam, dark yellowish brown (10YR 4/4) moist; massive; soft, friable, nonsticky and nonplastic; common very fine and fine and few medium roots; common very fine and fine irregular pores; 25 percent gravel, 10 percent cobbles, and 20 percent stones; slightly acid; gradual wavy boundary.
- 2C2—29 to 33 inches; very pale brown (10YR 7/4) extremely stony sandy loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, friable, nonsticky and nonplastic; few very fine roots; 30 percent gravel, 10 percent cobbles, and 35 percent stones; moderately acid; gradual wavy boundary.
- 2R—33 inches; granodiorite.

Range in Characteristics

Thickness of the volcanic ash: 7 to 14 inches

Depth to bedrock: 20 to 40 inches

A horizon:

Chroma—3 or 4 dry

Content of gravel—10 to 20 percent

Content of cobbles—0 to 10 percent

Content of stones—5 to 15 percent

Bw horizon:

Chroma—3 or 4 dry or moist

Texture—very stony ashy sandy loam or very cobbly ashy sandy loam

Content of gravel—10 to 20 percent

Content of cobbles—10 to 20 percent

Content of stones—10 to 20 percent

2C horizon:

Value—5 to 7 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Texture—very stony coarse sandy loam, very stony sandy loam, extremely stony coarse sandy loam, extremely stony sandy loam, or very cobbly sandy loam

Content of gravel—15 to 30 percent

Content of cobbles—10 to 30 percent

Content of stones—10 to 35 percent

Stapaloop Series

Depth class: Very deep

Drainage class: Well drained

Landform: Mountains and outwash terraces

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Parent material: Mixed volcanic ash (7 to 21 inches thick) over glaciofluvial deposits

Slope range: 0 to 25 percent

Elevation: 3,400 to 3,900 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Coarse-loamy, isotic, frigid Vitrandic Haploxerepts

Typical Pedon

Stapaloop ashy fine sandy loam; Okanogan National Forest Area, Washington; about 2.5 miles south of Wauconda; about 550 feet east and 2,700 feet north of the southwest corner of section 21, T. 37 N., R. 30 E.; latitude 48 degrees 41 minutes 24 seconds north and longitude 119 degrees 3 minutes 8 seconds west; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of needles, twigs, and leaves; abrupt smooth boundary.

A—1 to 4 inches; light brownish gray (10YR 6/2) ashy fine sandy loam, dark grayish brown (10YR 4/2) moist; weak fine and medium subangular blocky structure breaking to weak fine granular; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium roots; few very fine and fine pores; slightly acid; clear wavy boundary.

Bw1—4 to 14 inches; pale brown (10YR 6/3) ashy fine sandy loam, brown (10YR 4/3) moist; moderate fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium roots; common very fine and fine pores; slightly acid; gradual wavy boundary.

Bw2—14 to 22 inches; pale brown (10YR 6/3) ashy fine sandy loam, brown (10YR 4/3) moist; weak medium and coarse subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium roots; common very fine and fine pores; slightly acid; gradual wavy boundary.

2C1—22 to 35 inches; pale brown (10YR 6/3) fine sandy loam, grayish brown (10YR 5/2) moist; massive; slightly hard, friable, slightly sticky and nonplastic; common very fine and fine and few medium roots; few very fine pores; 5 percent gravel; slightly acid; clear wavy boundary.

2C2—35 to 51 inches; pale brown (10YR 6/3) very fine sandy loam, brown (10YR 5/3) moist; massive; slightly hard, friable, slightly sticky and nonplastic; few very fine and fine roots; few very fine pores; 5 percent gravel; slightly acid; clear wavy boundary.

2C3—51 to 60 inches; pale brown (10YR 6/3) gravelly very fine sandy loam, brown (10YR 5/3) moist; massive; slightly hard, friable, slightly sticky and nonplastic; 10 percent gravel and 5 percent cobbles; slightly acid.

Range in Characteristics

Thickness of the mixed volcanic ash: 7 to 21 inches

A horizon:

Value—5 or 6 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Content of gravel—0 to 5 percent

Bw horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Texture—ashy fine sandy loam or ashy sandy loam

Content of gravel—0 to 10 percent

2C horizon:

Hue—10YR or 2.5Y

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 4 dry or moist

Texture—fine sandy loam, gravelly sandy loam, sandy loam, very fine sandy loam, gravelly fine sandy loam, or gravelly loamy fine sand

Content of gravel—0 to 30 percent

Content of cobbles—0 to 5 percent

Stemilt Series

Depth class: Very deep

Drainage class: Well drained

Landform: Mountains

Parent material: Mixed volcanic ash (10 to 22 inches thick) over colluvium derived from sedimentary and volcanic rock

Slope range: 35 to 65 percent

Elevation: 2,300 to 3,000 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost free period: 90 to 120 days

Taxonomic classification: Loamy-skeletal, isotic, frigid Vitrandic Argixerolls

Typical Pedon

Stemilt gravelly ashy sandy loam; Okanogan National Forest Area, Washington; about 12 miles west of Twisp; about 1,500 feet west and 800 feet north of the southeast corner of section 33, T. 34 N., R. 20 E.; latitude 48 degrees 23 minutes 56 seconds north and longitude 120 degrees 20 minutes 41 seconds west; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of needles, twigs, and leaves; abrupt smooth boundary.

A1—1 to 8 inches; grayish brown (10YR 5/2) gravelly ashy sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium roots; many fine tubular pores; 20 percent gravel; neutral; clear wavy boundary.

A2—8 to 13 inches; brown (10YR 5/3) gravelly ashy sandy loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium roots; many fine tubular pores; 30 percent gravel; neutral; gradual wavy boundary.

Bw—13 to 22 inches; grayish brown (10YR 5/2) very gravelly ashy sandy loam, brown (10YR 4/2) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium and coarse roots; common fine irregular pores; 35 percent gravel and 5 percent cobbles; neutral; clear wavy boundary.

2Bt1—22 to 33 inches; brown (7.5YR 5/3) very gravelly clay loam, brown (7.5YR 4/3) moist; strong fine and medium subangular blocky structure; very hard, firm, moderately sticky and moderately plastic; common very fine and fine roots; few fine irregular pores; continuous faint clay films on faces of peds; 35 percent gravel and 5 percent cobbles; slightly acid; gradual wavy boundary.

2Bt2—33 to 47 inches; brown (7.5YR 5/3) very gravelly clay loam, brown (7.5YR 4/3) moist; strong medium subangular blocky structure; very hard, firm, moderately sticky and moderately plastic; common very fine and fine roots; few fine irregular

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pores; continuous faint clay films on faces of peds; 40 percent gravel and 5 percent cobbles; slightly acid; gradual wavy boundary.
2Bt3—47 to 60 inches; brown (7.5YR 5/3) very gravelly clay loam, brown (7.5YR 4/3) moist; strong medium subangular blocky structure; very hard, firm, moderately sticky and moderately plastic; few very fine and fine roots; few fine irregular pores; continuous faint clay films on faces of peds; 40 percent gravel and 5 percent cobbles; slightly acid.

Range in Characteristics

Thickness of the mixed volcanic ash and depth to the argillic horizon: 10 to 22 inches

Thickness of the mollic epipedon: 10 to 18 inches

A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Content of gravel—15 to 30 percent

Bw horizon:

Hue—10YR or 7.5YR

Value—4 or 5 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Texture—very gravelly ashy sandy loam or very gravelly ashy loam

Content of gravel—25 to 45 percent

Content of cobbles—0 to 15 percent

2Bt horizon:

Hue—10YR or 7.5YR

Value—4 or 5 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Texture—very gravelly clay loam or very gravelly sandy clay loam

Content of gravel—35 to 55 percent

Content of cobbles—0 to 15 percent

Content of stones—0 to 5 percent

Stepstone Series

Depth class: Very deep

Drainage class: Well drained

Landform: Mountains

Parent material: Volcanic ash (14 to 24 inches thick) over glacial till

Slope range: 3 to 35 percent

Elevation: 3,000 to 4,800 feet

Mean annual precipitation: 18 to 24 inches

Mean annual air temperature: 39 to 44 degrees F

Average Frost-free period: 90 to 120 days

Taxonomic classification: Ashy over sandy or sandy-skeletal, glassy over isotic, frigid
Typic Vitrixerands

Typical Pedon

Stepstone ashy fine sandy loam; Okanogan National Forest Area, Washington; about 2.5 miles east of Sweat Creek Campground; about 1,200 feet west and 2,200 feet south of the northeast corner of section 24, T. 37 N., R. 31 E.; latitude 48 degrees 41 minutes 58 seconds north and longitude 118 degrees 50 minutes and 26 seconds; NAD 83.

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- Oe—0 to 1 inch; moderately decomposed mat of needles, twigs, and grass; abrupt smooth boundary.
- A—1 to 2 inches; pale brown (10YR 6/3) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many fine and few medium roots; common fine irregular pores; 5 percent gravel; slightly acid; abrupt smooth boundary.
- Bw1—2 to 6 inches; pale brown (10YR 6/3) ashy fine sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine and common medium and coarse roots; common fine irregular pores; 3 percent gravel; neutral; clear smooth boundary.
- Bw2—6 to 19 inches; light yellowish brown (10YR 6/4) ashy fine sandy loam, dark yellowish brown (10YR 4/4) moist; weak medium and fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; common very fine, fine, and medium roots; common fine irregular pores; 5 percent gravel; slightly acid; clear wavy boundary.
- 2CB—19 to 23 inches; light gray (2.5Y 7/2) very gravelly sandy loam, grayish brown (2.5Y 5/2) moist; weak medium and fine subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; few fine and medium roots; few fine irregular pores; 25 percent gravel and 10 percent cobbles; slightly acid; gradual wavy boundary.
- 2C1—23 to 39 inches; pale yellow (2.5Y 8/2) very gravelly loamy sand, grayish brown (2.5Y 5/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; few fine irregular pores; 30 percent gravel and 15 percent cobbles; slightly acid; gradual wavy boundary.
- 2C2—39 to 60 inches; pale yellow (2.5Y 8/3) very gravelly loamy sand, grayish brown (2.5Y 5/2) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; few very fine irregular pores; 40 percent gravel and 15 percent cobbles; slightly acid.

Range in Characteristics

Thickness of the volcanic ash: 14 to 24 inches

*Depth to the glacial till (2CB horizon)—*14 to 24 inches

A horizon:

Value—5 to 7 dry, 3 to 5 moist

Chroma—2 or 3 dry or moist

Content of gravel—0 to 10 percent

Bw horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—ashy fine sandy loam or gravelly ashy fine sandy loam

Content of gravel—0 to 20 percent

Content of cobbles—0 to 10 percent

2CB horizon:

Hue—10YR or 2.5Y

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 4 dry or moist

Texture—very gravelly sandy loam or gravelly sandy loam

Content of gravel—10 to 25 percent

Content of cobbles—0 to 15 percent

2C horizon:

Hue—10YR or 2.5Y

Value—6 to 8 dry, 5 or 6 moist

Chroma—2 or 3 dry or moist

Texture—very gravelly, extremely gravelly, or very cobbly loamy sand

Content of gravel—25 to 55 percent

Content of cobbles—5 to 20 percent

Content of stones—0 to 10 percent

Storer Series

Depth class: Deep

Drainage class: Well drained

Landform: South-facing slopes of hills and mountains

Parent material: Residuum and colluvium derived from metamorphic rock

Slope range: 35 to 75 percent

Elevation: 2,600 to 4,000 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 47 to 52 degrees F

Frost-free period: 110 to 140 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Typic Haploxerolls

Typical Pedon

Storer gravelly sandy loam; Okanogan National Forest Area, Washington; about 6 miles northeast of Twisp; about 1,800 feet east and 250 feet south of the northwest corner of section 25, T. 34 N., R. 22 E.; latitude 48 degrees 25 minutes 26 seconds north and longitude 120 degrees 1 minute 36 seconds west; NAD 83.

A1—0 to 5 inches; dark grayish brown (10YR 4/2) gravelly sandy loam, very dark brown (10YR 2/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common very fine and fine irregular pores; 20 percent gravel; neutral; clear wavy boundary.

A2—5 to 12 inches; grayish brown (10YR 5/2) very gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common very fine and fine irregular pores; 40 percent gravel; neutral; gradual wavy boundary.

Bw—12 to 19 inches; grayish brown (10YR 5/2) very gravelly sandy loam, dark grayish brown (10YR 4/2) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; few fine irregular pores; 40 percent gravel; neutral; clear wavy boundary.

C1—19 to 31 inches; brown (10YR 5/3) extremely gravelly sandy loam, dark brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; few very fine irregular pores; 55 percent gravel and 10 percent channers; neutral; gradual wavy boundary.

C2—31 to 42 inches; brown (10YR 5/3) extremely channery sandy loam, dark brown (10YR 4/3) moist; massive; soft, very friable, slightly sticky and nonplastic; few very fine roots; 25 percent gravel and 40 percent channers; slightly acid; gradual wavy boundary.

R—42 inches; metavolcanic rock.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 15 inches

Depth to bedrock: 40 to 60 inches

A1 horizon:

Value—3 or 4 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Content of gravel—15 to 20 percent

A2 horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Content of gravel—35 to 50 percent

Bw horizon:

Value—4 or 5 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Content of gravel—30 to 45 percent

Content of cobbles—0 to 5 percent

C horizon:

Value—5 or 6 dry, 4 or 5 moist

Chroma—2 to 4 dry, 2 or 3 moist

Texture—very gravelly, extremely gravelly, channery, or extremely channery sandy loam

Content of gravel—25 to 55 percent

Content of channers—10 to 40 percent

Strat Series

Depth class: Very deep

Drainage class: Well drained

Landform: Outwash terraces

Parent material: Mixed loess over glacial outwash

Slope range: 0 to 10 percent

Elevation: 800 to 900 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 140 to 190 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Calcic Haploxerolls

Typical Pedon

Strat gravelly fine sandy loam; Colville Indian Reservation, Washington, Parts of Ferry and Okanogan Counties; about 360 feet east of the southwest corner of section 31, T. 23 N., R. 25 E.; latitude 47 degrees 26 minutes 22 seconds north and longitude 119 degrees 44 minutes 45 seconds west; NAD 83.

A—0 to 10 inches; brown (10YR 5/3) gravelly fine sandy loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; 20 percent gravel and 5 percent cobbles; slightly alkaline; clear smooth boundary.

Bw1—10 to 18 inches; pale brown (10YR 6/3) very gravelly fine sandy loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; 35 percent gravel and 20 percent cobbles; slightly alkaline; gradual smooth boundary.

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Bw2—18 to 22 inches; yellowish brown (10YR 5/4) very gravelly fine sandy loam, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, nonsticky and nonplastic; 40 percent gravel and 15 percent cobbles; slightly alkaline; abrupt wavy boundary.

2Bkq—22 to 60 inches; yellowish brown (10YR 5/4) extremely gravelly loamy sand, dark yellowish brown (10YR 4/4) moist; massive; loose, nonsticky and nonplastic; 65 percent gravel, 10 percent cobbles, and 5 percent stones; white coatings of silica and lime on underside of rock fragments; strongly effervescent; slightly alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 8 to 15 inches

Depth to the calcium carbonate accumulation: 20 to 30 inches

A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 moist or dry

Content of gravel—15 to 25 percent

Content of cobbles—0 to 5 percent

Bw horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 moist or dry

Texture—very gravelly loam, very cobbly loam, or very gravelly fine sandy loam

Content of gravel—25 to 45 percent

Content of cobbles—10 to 25 percent

2Bkq horizon:

Hue—10YR or 2.5Y

Value—5 to 7 dry, 3 to 6 moist

Chroma—1 to 4 moist or dry

Texture—extremely gravelly sand, extremely gravelly loamy sand, or extremely cobbly coarse sand

Content of gravel—35 to 70 percent

Content of cobbles—5 to 25 percent

Content of stones—0 to 5 percent

Swakane Series

Depth class: Shallow

Drainage class: Well drained

Landform: South-facing slopes of mountains and hills

Parent material: Mixed volcanic ash (7 to 12 inches thick) over residuum and colluvium derived from granitic rock

Slope range: 15 to 90 percent

Elevation: 2,000 to 4,600 feet

Mean annual precipitation: 12 to 20 inches

Mean annual air temperature: 45 to 52 degrees F

Frost-free period: 110 to 140 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Lithic Ultic Haploxerolls

Typical Pedon

Swakane very stony ashy sandy loam; Okanogan National Forest Area, Washington; about 7.5 miles north of Winthrop; about 2,000 feet east and 500 feet

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south of the northwest corner of section 36, T. 36 N, R. 21 E.; latitude 48 degrees 35 minutes 0 seconds north and longitude 120 degrees 9 minutes 18 seconds west; NAD 83.

A1—0 to 4 inches; dark grayish brown (10YR 4/2) very stony ashy sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many fine and very fine roots; few fine pores; 20 percent gravel, 10 percent cobbles, and 20 percent stones; neutral; clear smooth boundary.

A2—4 to 11 inches; dark grayish brown (10YR 4/2) very cobbly ashy sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many fine and very fine roots; few fine pores; 25 percent gravel, 15 percent cobbles, and 5 percent stones; neutral; clear wavy boundary.

2Bw—11 to 17 inches; brown (10YR 5/3) very gravelly sandy loam, dark grayish brown (10YR 4/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many fine and very fine roots; few fine pores; 30 percent gravel, 10 percent cobbles, and 5 percent stones; slightly alkaline; clear wavy boundary.

2R—17 inches; granite.

Range in Characteristics

Thickness of the mixed volcanic ash: 7 to 12 inches

Thickness of the mollic epipedon: 7 to 12 inches

Depth to bedrock: 10 to 20 inches

A horizon:

Value—3 or 4 dry, 2 or 3 moist

Texture—very gravelly, very cobbly, or very stony ashy sandy loam

Content of gravel—10 to 30 percent

Content of cobbles—0 to 15 percent

Content of stones—0 to 30 percent

Bw horizon:

Chroma—2 or 3 dry or moist

Texture—very gravelly, extremely gravelly, or very cobbly sandy loam

Content of gravel—20 to 45 percent

Content of cobbles—10 to 20 percent

Content of stones—0 to 10 percent

Sycreek Series

Depth class: Moderately deep and deep

Drainage class: Well drained

Landform: Mountains

Parent material: Mixed volcanic ash (10 to 15 inches thick) over glacial till

Slope range: 5 to 35 percent

Elevation: 2,800 to 4,400 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Loamy-skeletal, isotic, frigid Vitrandic Argixerolls

Typical Pedon

Sycreek ashy loam; Okanogan National Forest Area, Washington; about 8 miles northwest of Winthrop; about 900 feet west and 400 feet south of the northeast corner

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of section 30, T. 36 N., R. 21 E.; latitude 48 degrees 35 minutes 52 seconds north and longitude 120 degrees 15 minutes 15 seconds west; NAD 83.

Oe—0 to 2 inches; moderately decomposed mat of needles and twigs; abrupt smooth boundary.

A—2 to 8 inches; very dark brown (10YR 2/2) ashy loam, black (10YR 2/1) moist; moderate fine and medium subangular blocky structure parting to moderate fine and medium granular; soft, very friable, nonsticky and nonplastic; many very fine and fine and common medium and coarse roots; common fine tubular pores; 5 percent gravel; slightly acid; clear wavy boundary.

AB—8 to 16 inches; very dark grayish brown (10YR 3/2) ashy loam, very dark brown (10YR 2/2) moist; moderate fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine, common medium, and few coarse roots; common fine tubular pores; 10 percent gravel; slightly acid; clear wavy boundary.

2Bt1—16 to 27 inches; light yellowish brown (10YR 6/4) very gravelly sandy clay loam, yellowish brown (10YR 5/4) moist; moderate medium angular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; few fine irregular pores; few discontinuous faint clay films on faces of peds; 35 percent gravel and 5 percent cobbles; neutral; clear wavy boundary.

2Bt2—27 to 44 inches; brown (10YR 5/3) very gravelly sandy clay loam, dark brown (10YR 4/3) moist; moderate fine and medium angular blocky structure; hard, friable, sticky and slightly plastic; few fine and medium roots; few fine irregular pores; few discontinuous faint clay films on faces of peds; 35 percent gravel and 5 percent cobbles; neutral; clear wavy boundary.

3CBd—44 to 60 inches; light brownish gray (10YR 6/2) very gravelly clay loam, brown (10YR 5/3) moist; massive; very hard, friable, sticky and plastic; few very fine roots; few very fine irregular pores; few fine and medium irregularly shaped stains that are dark yellowish brown (10YR 4/6) moist; 30 percent gravel and 10 percent cobbles; neutral (pH 7.0).

Range in Characteristics

Thickness of the mixed volcanic ash and depth to the argillic horizon: 10 to 15 inches

Thickness of the mollic epipedon: 10 to 15 inches

Depth to the densic material: 35 to 45 inches

A horizon:

Value—2 or 3 dry

Chroma—1 or 2 dry or moist

Content of gravel—0 to 5 percent

AB horizon:

Value—3 or 4 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Content of gravel—5 to 15 percent

2Bt horizon:

Value—5 or 6 dry, 4 or 5 moist

Chroma—3 or 4 dry or moist

Texture—very gravelly sandy clay loam or very gravelly clay loam

Content of gravel—25 to 35 percent

Content of cobbles—0 to 10 percent

3CBd horizon:

Value—5 or 6 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Texture—very gravelly clay loam or very gravelly sandy clay loam
Content of gravel—25 to 40 percent
Content of cobbles—5 to 10 percent

Synarep Series

Depth class: Very deep

Drainage class: Moderately well drained

Landform: Low stream terraces

Parent material: Volcanic ash (40 to 55 inches thick) over alluvium

Slope range: 0 to 3 percent

Elevation: 1,500 to 3,000 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 45 to 47 degrees F

Frost-free period: 110 to 140 days

Taxonomic classification: Ashy, glassy, mesic Typic Vitrixerands

Typical Pedon

Synarep ashy silt loam in an area of Synarep-Colville-Xerofluvents complex, 0 to 3 percent slopes; about 660 feet west and 900 feet south of the east $\frac{1}{4}$ corner of section 34, T. 36 N., R. 27 E.; latitude 48 degrees 34 minutes 22 seconds north and longitude 119 degrees 26 minutes 18 seconds west; NAD 83.

Ap—0 to 8 inches; gray (10YR 5/1) ashy silt loam, black (10YR 2/1) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; moderately smeary; common very fine and fine roots; common very fine, fine, and medium tubular pores; violently effervescent; moderately alkaline; abrupt smooth boundary.

Bw—8 to 33 inches; gray (10YR 6/1) ashy silt loam, very dark gray (10YR 3/1) moist; weak coarse granular structure; slightly hard, friable, slightly sticky and slightly plastic; moderately smeary; common very fine and fine roots; common very fine, fine, and medium tubular pores; violently effervescent; moderately alkaline; clear smooth boundary.

BC—33 to 46 inches; gray (N 6/0) ashy silt loam, dark gray (N 4/0) moist; massive; slightly hard, friable, moderately sticky and moderately plastic; moderately smeary; few very fine and fine roots; common very fine, fine, and medium tubular pores; violently effervescent; moderately alkaline; abrupt smooth boundary.

2C—46 to 60 inches; pale yellow (2.5Y 8/2) sandy loam, light brownish gray (2.5Y 6/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; few very fine and fine tubular pores; 5 percent gravel; slightly alkaline.

Range in Characteristics

Thickness of the volcanic ash: 40 to 55 inches

High water table: Present in winter and spring

The Synarep soils are effervescent throughout the ashy soil horizons.

Bw and BC horizons:

Texture—ashy silt loam or ashy very fine sandy loam

2C horizon:

Texture—sandy loam, loam, or silt loam

Content of gravel—0 to 10 percent

Thout Series

Depth class: Moderately deep

Drainage class: Well drained

Landform: Mountains

Parent material: Mixed volcanic ash (7 to 14 inches thick) over residuum and colluvium derived from volcanic rock

Slope range: 15 to 65 percent

Elevation: 2,500 to 5,500 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Loamy-skeletal, isotic, frigid Vitrandic Haploxerepts

Typical Pedon

Thout gravelly ashy sandy loam; Okanogan National Forest Area, Washington; about 3 miles northwest of Mazama; about 1,000 feet east and 1,200 feet south of the northwest corner of section 14, T. 36 N., R. 19 E.; latitude 48 degrees 37 minutes 31 seconds north and longitude 120 degrees 26 minutes 33 seconds west; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of needles, leaves, and twigs; abrupt smooth boundary.

A—1 to 5 inches; brown (10YR 5/3) gravelly ashy sandy loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium and coarse roots; many fine irregular pores; 15 percent gravel; slightly acid; clear smooth boundary.

Bw1—5 to 12 inches; pale brown (10YR 6/3) very gravelly ashy sandy loam, dark brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium and coarse roots; many fine irregular pores; 35 percent gravel and 10 percent cobbles; moderately acid; clear wavy boundary.

2Bw2—12 to 25 inches; pale brown (10YR 6/3) very gravelly sandy loam, dark brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium roots; common fine pores; 35 percent gravel and 10 percent cobbles; moderately acid; abrupt wavy boundary.

2R—25 inches; andesite.

Range in Characteristics

Thickness of the mixed volcanic ash: 7 to 14 inches

Depth to bedrock: 20 to 40 inches

A horizon:

Value—4 to 6 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Content of gravel—15 to 25 percent

Content of cobbles—0 to 10 percent

Bw horizon:

Value—5 or 6 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Texture—very gravelly ashy sandy loam, very cobbly ashy sandy loam, or very gravelly ashy loam

Content of gravel—25 to 50 percent

Content of cobbles—0 to 15 percent

2Bw horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—very gravelly sandy loam, very cobbly sandy loam, or very gravelly loam

Content of gravel—25 to 50 percent

Content of cobbles—0 to 15 percent

Thow Series

Depth class: Very deep

Drainage class: Well drained

Landform: Mountains

Parent material: Volcanic ash and pumice

Slope range: 15 to 65 percent

Elevation: 2,700 to 4,000 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Ashy, glassy, frigid Typic Vitrixerands

Typical Pedon

Thow ashy loamy fine sand; Okanogan National Forest Area, Washington; about 8 miles southwest of Methow; 80 feet east and 30 feet south of the northwest corner of section 3, T. 29 N., R. 22 E.; latitude 48 degrees 2 minutes 50 seconds north and longitude 120 degrees 4 minutes 15 seconds west; NAD 83.

Oi—0 to 1 inch; slightly decomposed mat of forest litter; abrupt smooth boundary.

C—1 to 6 inches; white (10YR 8/1) ashy loamy fine sand, grayish brown (10YR 5/2) moist; massive; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine roots; common very fine and fine irregular pores; 5 percent pumice paragravel; slightly acid; clear wavy boundary.

2A—6 to 12 inches; light brownish gray (10YR 6/2) ashy sandy loam, dark grayish brown (10YR 4/2) moist; moderate fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine roots; many very fine and fine irregular pores; 10 percent pumice paragravel; slightly acid; gradual wavy boundary.

2Bw1—12 to 38 inches; light brownish gray (10YR 6/2) paragravelly ashy coarse sandy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine and common medium and coarse roots; common fine irregular pores; 20 percent pumice paragravel; slightly acid; gradual wavy boundary.

2Bw2—38 to 51 inches; light gray (10YR 7/2) paragravelly ashy loamy coarse sand, brown (10YR 5/3) moist; very weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine and few medium roots; common fine irregular pores; 25 percent pumice paragravel; neutral; gradual wavy boundary.

3Bw3—51 to 60 inches; light gray (10YR 7/2) paragravelly ashy loamy sand, brown (10YR 5/3) moist; very weak fine subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; weakly smeary; common very fine and fine roots; common fine irregular pores; 25 percent pumice paragravel; neutral.

Range in Characteristics

C horizon:

Value—6 to 8 dry, 4 to 6 moist

Chroma—1 to 3 dry or moist

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Content of paragravel—0 to 10 percent

2A horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—1 to 3 dry or moist

Texture—ashy sandy loam, ashy coarse sandy loam, or paragravelly ashy coarse sandy loam

Content of paragravel—5 to 25 percent

2Bw horizon:

Value—5 to 7 dry, 4 to 6 moist

Chroma—2 to 4 dry or moist

Texture—ashy coarse sandy loam, ashy sandy loam, paragravelly ashy coarse sandy loam, or paragravelly ashy loamy coarse sand

Content of paragravel—5 to 30 percent

3Bw horizon:

Value—6 or 7 dry, 5 or 6 moist

Chroma—2 to 4 dry or moist

Texture—paragravelly ashy loamy sand, very paragravelly ashy loamy coarse sand, or very paragravelly ashy coarse sandy loam

Content of paragravel—20 to 50 percent

Content of paracobbles—0 to 10 percent

Thrapp Series

Depth class: Moderately deep and deep

Drainage class: Moderately well drained

Landform: Mountains

Parent material: Mixed volcanic ash (10 to 15 inches thick) over glacial till

Slope range: 5 to 35 percent

Elevation: 2,000 to 3,800 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Coarse-loamy, isotic, frigid Vitrandic Haploxerolls

Typical Pedon

Thrapp ashy loam; Okanogan National Forest Area, Washington; about 8 miles southeast of Twisp; about 2,100 feet east and 700 feet south of the northwest corner of section 18, T. 32 N., R. 23 E.; latitude 48 degrees 17 minutes 15 seconds north and longitude 120 degrees 0 minutes 13 seconds west; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of needles, twigs, and leaves; abrupt smooth boundary.

A1—1 to 5 inches; very dark grayish brown (10YR 3/2) ashy loam, very dark brown (10YR 2/2) moist; weak fine and medium subangular blocky structure parting to moderate fine granular; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium and coarse roots; common fine tubular pores; neutral; clear wavy boundary.

A2—5 to 13 inches; very dark grayish brown (10YR 3/2) ashy loam, very dark brown (10YR 2/2) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium and coarse roots; common fine tubular pores; neutral; clear smooth boundary.

2Bw—13 to 23 inches; light brownish gray (10YR 6/2) sandy loam, grayish brown (10YR 5/2) moist; weak medium subangular blocky structure; soft, very friable,

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nonsticky and nonplastic; common very fine and fine roots; common fine irregular pores; 5 percent gravel; slightly acid; clear wavy boundary.

2C1—23 to 30 inches; very pale brown (10YR 7/3) gravelly sandy loam, pale brown (10YR 6/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; common very fine and fine irregular pores; 20 percent gravel; slightly acid; gradual wavy boundary.

2C2—30 to 37 inches; very pale brown (10YR 7/3) gravelly sandy loam, pale brown (10YR 6/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; common very fine and fine irregular pores; 20 percent gravel; slightly acid; clear smooth boundary.

2Cd—37 to 60 inches; white (10YR 8/2) gravelly sandy loam, light gray (10YR 7/2) moist; 30 percent fine and medium distinct irregularly shaped redoximorphic concentrations that are yellowish brown (10YR 5/6) moist and are in the upper part; massive; hard, friable, slightly sticky and nonplastic; few very fine roots; 20 percent gravel; slightly acid.

Range in Characteristics

Thickness of the mixed volcanic ash: 10 to 15 inches

Thickness of the mollic epipedon: 10 to 15 inches

Depth to the densic material: 35 to 45 inches

Depth to redoximorphic concentrations: 35 to 45 inches

High water table: Present in spring

A horizon:

Value—3 or 4 dry, 2 or 3 moist

Content of gravel—0 to 10 percent

Bw horizon:

Value—5 or 6 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Texture—sandy loam or gravelly sandy loam

Content of gravel—0 to 20 percent

2C horizon:

Value—6 or 7 dry, 5 or 6 moist

Chroma—2 or 3 dry or moist

Texture—gravelly sandy loam or gravelly coarse sandy loam

Content of gravel—15 to 30 percent

2Cd horizon:

Value—6 to 8 dry, 6 or 7 moist

Texture—gravelly sandy loam, gravelly coarse sandy loam, or gravelly loamy sand

Content of gravel—10 to 30 percent

Thuso Series

Depth class: Very deep

Drainage class: Well drained

Landform: Foothills and mountains

Parent material: Mixed volcanic ash (15 to 25 inches thick) over colluvium derived from metasedimentary rock

Slope range: 3 to 65 percent

Elevation: 2,600 to 3,600 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 45 to 52 degrees F

Frost-free period: 110 to 140 days

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Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Vitrandic Haploxerolls

Typical Pedon

Thuso ashy sandy loam; Okanogan National Forest Area, Washington; about 3 miles northeast of Conconully; about 600 feet west and 1,800 feet south of the northeast corner of section 28, T. 36 N., R. 20 E.; latitude 48 degrees 35 minutes 36 seconds north and longitude 119 degrees 41 minutes 28 seconds west; NAD 83.

A1—0 to 12 inches; dark brown (10YR 4/3) ashy sandy loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium granular structure; soft, friable, nonsticky and nonplastic; many very fine and fine roots; many very fine and fine irregular pores; neutral; gradual smooth boundary.

A2—12 to 25 inches; dark brown (10YR 4/3) gravelly ashy sandy loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; many very fine and fine roots; many very fine and fine irregular pores; 20 percent gravel and 5 percent cobbles; neutral; gradual smooth boundary.

2Bw—25 to 37 inches; brown (10YR 5/3) very cobbly sandy loam, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; many very fine and common fine roots; many irregular pores; 20 percent gravel and 25 percent cobbles; neutral; gradual wavy boundary.

2C—37 to 61 inches; olive brown (2.5Y 4/4) very cobbly sandy loam, olive brown (2.5Y 4/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; common very fine and few fine roots; common very fine and fine irregular pores; 20 percent gravel and 30 percent cobbles; neutral.

Range in Characteristics

Thickness of the mixed volcanic ash: 15 to 25 inches

Thickness of the mollic epipedon: 15 to 25 inches

A1 horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 to 3 dry or moist

Texture—ashy sandy loam or ashy loam

Content of gravel—0 to 15 percent

Content of cobbles—0 to 5 percent

A2 horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 to 3 dry or moist

Texture—gravelly or very cobbly ashy sandy loam

Content of gravel—10 to 30 percent

Content of cobbles—0 to 25 percent

2Bw horizon:

Value—4 to 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—very cobbly sandy loam, very gravelly sandy loam, or very cobbly loamy sand

Content of gravel—5 to 30 percent

Content of cobbles—10 to 30 percent

2C horizon:

Value—4 to 6 dry, 3 to 5 moist

Chroma—3 or 4 dry or moist

Texture—very cobbly or very gravelly sandy loam

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Content of gravel—10 to 30 percent
Content of cobbles—10 to 30 percent

Toats Series

Depth class: Very deep

Drainage class: Well drained

Landform: Mountains

Parent material: Mixed volcanic ash (12 to 14 inches thick) over glacial till

Slope range: 15 to 35 percent

Elevation: 4,600 to 5,500 feet

Mean annual precipitation: 25 to 30 inches

Mean annual air temperature: 37 to 40 degrees F

Frost-free period: 70 to 90 days

Taxonomic classification: Loamy-skeletal, mixed, superactive Vitrixerandic
Humicryepts

Typical Pedon

Toats ashy loam; Okanogan National Forest Area, Washington; about 2,400 feet west and 1,800 feet south of the northeast corner of section 20, T. 29 N., R. 24 E.; latitude 48 degrees 52 minutes 0 seconds north and longitude 119 degrees 51 minutes 9 seconds west; NAD 83.

- A1—0 to 5 inches; very dark grayish brown (10YR 3/2) ashy loam, black (10YR 2/1) moist; strong fine and medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common very fine and fine pores; 10 percent gravel; neutral; gradual wavy boundary.
- A2—5 to 14 inches; very dark grayish brown (10YR 3/2) ashy loam, black (10YR 2/1) moist; moderate fine subangular blocky structure parting to moderate fine granular; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common very fine and fine pores; 10 percent gravel; neutral; gradual wavy boundary.
- 2Bw—14 to 23 inches; dark grayish brown (10YR 4/2) very cobbly loam, black (10YR 2/1) moist; moderate fine and medium subangular blocky structure parting to moderate medium granular; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine and fine pores; 20 percent gravel, 20 percent cobbles, and 5 percent stones; neutral; clear wavy boundary.
- 2C1—23 to 40 inches; light yellowish brown (2.5Y 6/3) very cobbly sandy loam, olive brown (2.5Y 4/2) moist; massive; slightly hard, very friable, slightly sticky and nonplastic; common very fine and fine roots; common very fine and fine pores; 15 percent gravel, 25 percent cobbles, and 15 percent stones; neutral; gradual wavy boundary.
- 2C2—40 to 52 inches; light olive brown (2.5Y 5/3) extremely stony sandy loam, olive brown (2.5Y 4/3) moist; massive; slightly hard, very friable, slightly sticky and nonplastic; few very fine and fine roots; few very fine pores; 20 percent gravel, 20 percent cobbles, and 25 percent stones; neutral; gradual wavy boundary.
- 2C3—52 to 60 inches; light yellowish brown (2.5Y 6/3) extremely stony sandy loam, light olive brown (2.5Y 5/4) moist; massive; hard, friable, slightly sticky and slightly plastic; few very fine roots; few very fine pores; 15 percent gravel, 15 percent cobbles, and 30 percent stones; neutral.

Range in Characteristics

Thickness of the mixed volcanic ash: 12 to 14 inches

Thickness of the umbric epipedon: 20 to 25 inches

Depth to the glacial till (2Bw horizon): 12 to 14 inches

A horizon:

Value—3 or 4 dry, 2 or 3 moist
Chroma—1 or 2 dry or moist
Content of gravel—5 to 10 percent

2Bw horizon:

Value—3 or 4 dry, 2 or 3 moist
Chroma—1 or 2 dry or moist
Texture—very cobbly loam, very gravelly sandy loam, or gravelly loam
Content of gravel—15 to 25 percent
Content of cobbles—0 to 20 percent
Content of stones—0 to 5 percent

2C horizon:

Hue—10YR or 2.5Y
Value—5 or 6 dry, 4 or 5 moist
Chroma—2 or 3 dry or moist
Texture—extremely stony, very stony, or very cobbly sandy loam
Content of gravel—15 to 30 percent
Content of cobbles—15 to 25 percent
Content of stones—10 to 30 percent

Tonasket Series

Depth class: Very deep

Drainage class: Well drained

Landform: Glacial lake terraces

Parent material: Glaciolacustrine deposits

Slope range: 0 to 45 percent

Elevation: 800 to 2,000 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 140 to 190 days

Taxonomic classification: Coarse-loamy, mixed, superactive, mesic Calcic
Haploxerolls

Typical Pedon

Tonasket silt loam, 3 to 8 percent slopes; in the northwest $\frac{1}{4}$ southwest $\frac{1}{4}$ northeast $\frac{1}{4}$ northwest $\frac{1}{4}$ of section 14, T. 30 N., R. 24 E.; latitude 48 degrees 6 minutes 13 seconds north and longitude 119 degrees 47 minutes 30 seconds west; NAD 83.

Ap—0 to 8 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak medium platy structure parting to weak medium subangular blocky; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; few very fine, fine, and medium tubular pores; neutral; clear smooth boundary.

Bw1—8 to 15 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; few very fine, fine, and medium tubular pores; slightly alkaline; clear smooth boundary.

Bw2—15 to 28 inches; light brownish gray (10YR 6/2) silt loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine and common medium roots; common very fine, fine, and medium tubular pores; 5 percent gravel; slightly alkaline; abrupt wavy boundary.

2Bk1—28 to 41 inches; light gray (2.5Y 7/2) stratified silt loam to fine sand, grayish brown (2.5Y 5/2) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine, fine, and medium tubular pores; discontinuous varves or plates of calcium carbonate $\frac{1}{8}$ to $\frac{1}{4}$ inch thick; slightly effervescent; 5 percent gravel; moderately alkaline; clear smooth boundary.

2Bk2—41 to 65 inches; light gray (2.5Y 7/2) stratified silt loam to fine sand, grayish brown (2.5Y 5/2) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots in cracks; common very fine, fine, medium, and coarse tubular pores; many thin veins and discontinuous varves or plates of calcium carbonate $\frac{1}{8}$ to $\frac{1}{4}$ inch thick; strongly effervescent; 5 percent gravel; strongly alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 15 inches

Depth to the calcium carbonate accumulation: 25 to 36 inches

Bw horizon:

Texture—very fine sandy loam, loam, or silt loam

Content of gravel—0 to 10 percent

2Bk horizon:

Texture—stratified silt loam to fine sand

Content of gravel—0 to 10 percent

Torboy Series

Depth class: Very deep

Drainage class: Well drained

Landform: Mountains

Parent material: Mixed volcanic ash (14 to 20 inches thick) over glacial outwash

Slope range: 0 to 15 percent

Elevation: 3,000 to 4,600 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 39 to 42 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Sandy, isotic, frigid Vitrandic Haploxerepts

Typical Pedon

Torboy ashy sandy loam; Okanogan National Forest Area, Washington; about 2 miles east of Tunk Mountain; 350 feet east and 1,100 feet north of the southwest corner of section 10, T. 35 N., R. 29 E.; latitude 48 degrees 32 minutes 34 seconds north and longitude 119 degrees 11 minutes 33 seconds west; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of needles, twigs, and leaves; abrupt smooth boundary.

A—1 to 6 inches; light brownish gray (10YR 6/2) ashy sandy loam, dark grayish brown (10YR 4/2) moist; weak thin and medium platy structure parting to weak fine and medium subangular blocky; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium and coarse roots; few fine tubular pores; slightly acid; clear wavy boundary.

Bw1—6 to 11 inches; pale brown (10YR 6/3) ashy sandy loam, brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium and coarse roots; few fine tubular pores; slightly acid; clear wavy boundary.

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Bw2—11 to 19 inches; pale brown (10YR 6/3) ashy sandy loam, dark yellowish brown (10YR 4/4) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium roots; few fine tubular pores; slightly acid; clear wavy boundary.

2C1—19 to 28 inches; light yellowish brown (2.5Y 6/3) loamy sand, olive brown (2.5Y 4/3) moist; single grain; loose, nonsticky and nonplastic; few very fine, fine, and medium roots; common medium distinct stains that are dark yellowish brown (10YR 4/4) moist; 5 percent gravel; slightly acid; gradual wavy boundary.

2C2—28 to 38 inches; light yellowish brown (2.5Y 6/3) loamy sand, brown (2.5Y 5/3) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; 5 percent gravel; slightly acid; gradual wavy boundary.

2C3—38 to 60 inches; light brownish gray (2.5Y 6/2) gravelly loamy sand, grayish brown (2.5Y 5/2) moist; single grain; loose, nonsticky and nonplastic; 15 percent gravel; neutral.

Range in Characteristics

Thickness of the mixed volcanic ash and depth to the glacial outwash (2C horizon): 14 to 20 inches

A horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Content of gravel—0 to 10 percent

Bw horizon:

Value—5 or 6 dry, 3 to 5 moist

Chroma—2 to 4 dry or moist

Texture—ashy sandy loam or gravelly ashy sandy loam

Content of gravel—0 to 20 percent

2C horizon:

Hue—10YR or 2.5Y

Value—5 or 6 dry, 4 or 5 moist

Chroma—1 to 3 dry or moist

Texture—gravelly loamy sand, loamy sand, or gravelly sand

Content of gravel—5 to 30 percent

Treebutte Series

Depth class: Shallow

Drainage class: Well drained

Landform: Mountains

Parent material: Mixed volcanic ash (7 to 10 inches thick) over residuum and colluvium derived from granitic rock

Slope range: 15 to 65 percent

Elevation: 4,800 to 7,200 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 35 to 40 degrees F

Frost-free period: 60 to 90 days

Taxonomic classification: Loamy-skeletal, isotic Lithic Haplocryepts

Typical Pedon

Treebutte very stony ashy sandy loam; Okanogan National Forest Area, Washington; about 14 miles northwest of the town of Conconully; 2,300 feet east and 1,300 feet north of the southwest corner of section 9, T. 37 N., R. 23 E.; latitude 48

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degrees 43 minutes 2 seconds north and longitude 119 degrees 57 minutes 39 seconds west; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of needles, leaves, and twigs; abrupt smooth boundary.

A—1 to 2 inches; grayish brown (10YR 5/2) very stony ashy sandy loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots and few medium roots; common fine and medium tubular pores; 20 percent gravel, 5 percent cobbles, and 20 percent stones; slightly acid; clear wavy boundary.

Bw—2 to 11 inches; pale brown (10YR 6/3) very stony ashy sandy loam, dark yellowish brown (10YR 4/6) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common fine and very fine roots; common fine tubular pores; 20 percent gravel, 10 percent cobbles, and 20 percent stones; moderately acid; abrupt wavy boundary.

2C—11 to 20 inches; very pale brown (10YR 7/3) extremely stony coarse sandy loam, pale brown (10YR 6/3) moist; massive; soft, very friable, nonsticky and nonplastic; common fine and very fine roots; common fine and medium tubular pores; 30 percent gravel, 15 percent cobbles, and 25 percent stones; moderately acid; gradual wavy boundary.

2R—20 inches; granite.

Range in Characteristics

Thickness of the mixed volcanic ash: 7 to 10 inches

Depth to bedrock: 14 to 20 inches

Soil moisture regime: Xeric

A horizon:

Value—4 or 5 dry

Chroma—2 or 3 dry or moist

Content of gravel—10 to 25 percent

Content of cobbles—5 to 20 percent

Content of stones—15 to 25 percent

Bw horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—3 to 6 dry or moist

Content of gravel—10 to 20 percent

Content of cobbles—10 to 25 percent

Content of stones—15 to 25 percent

2C horizon:

Value—6 or 7 dry, 4 to 6 moist

Chroma—3 to 6 dry or moist

Texture—extremely stony coarse sandy loam, extremely stony sandy loam, or very stony sandy loam

Content of gravel—20 to 30 percent

Content of cobbles—15 to 25 percent

Content of stones—25 to 35 percent

Twentymile Series

Depth class: Moderately deep

Drainage class: Well drained

Landform: North-facing slopes of mountains

Parent material: Volcanic ash (7 to 14 inches thick) over glacial till

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Slope range: 15 to 65 percent

Elevation: 4,800 to 6,800 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 35 to 40 degrees F

Frost-free period: 60 to 80 days

Taxonomic classification: Loamy-skeletal, isotic Andic Dystricrypts

Typical Pedon

Twentymile stony ashy fine sandy loam; Okanogan National Forest Area, Washington; about 3.5 miles southwest of Thunder Mountain; about 2,300 feet east and 2,100 feet north of the southwest corner of section 10, T. 37 N., R. 23 E.; latitude 48 degrees 43 minutes 6 seconds north and longitude 119 degrees 56 minutes 19 seconds west; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of needles, leaves, and twigs; abrupt smooth boundary.

C—1 to 2 inches; white (10YR 8/1) ashy silt loam, grayish brown (10YR 5/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; moderately smeary; common very fine and fine roots; common very fine and fine pores; moderately acid; clear wavy boundary.

2A—2 to 5 inches; pale brown (10YR 6/3) stony ashy fine sandy loam, dark brown (10YR 4/3) moist; weak fine subangular blocky structure parting to weak fine granular; soft, very friable, nonsticky and nonplastic; weakly smeary; common very fine, fine, medium, and coarse roots; common very fine and fine pores; 5 percent gravel, 5 percent cobbles, and 5 percent stones; NaF pH 11.0; moderately acid; clear smooth boundary.

2Bw—5 to 14 inches; light yellowish brown (10YR 6/4) gravelly ashy fine sandy loam, dark yellowish brown (10YR 4/4) moist; weak medium and coarse subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; common very fine and fine and few medium and coarse roots; common very fine and fine pores; 15 percent gravel; NaF pH 11.0; slightly acid; clear smooth boundary.

3CB—14 to 32 inches; light brownish gray (10YR 6/2) very gravelly sandy loam, grayish brown (10YR 5/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine, fine, and medium roots; common very fine and fine irregular pores; 35 percent gravel and 5 percent cobbles; slightly acid; gradual wavy boundary.

3Cd1—32 to 45 inches; light gray (2.5Y 7/2) very gravelly sandy loam, grayish brown (2.5Y 5/2) moist; massive; slightly hard, friable, nonsticky and nonplastic; few very fine roots; few fine irregular pores; 35 percent gravel and 5 percent cobbles; slightly acid; gradual wavy boundary.

3Cd2—45 to 60 inches; light brownish gray (2.5Y 6/2) very gravelly sandy loam, grayish brown (2.5Y 5/2) moist; massive; hard, firm, slightly sticky and slightly plastic; common thin stains that are olive brown (2.5Y 4/3) moist; 30 percent gravel and 5 percent cobbles; slightly acid.

Range in Characteristics

Thickness of the volcanic ash: 7 to 14 inches

Depth to the glacial till: 7 to 14 inches

Depth to the densic material: 20 to 35 inches

The C horizon is not present in all pedons.

C horizon:

Value—7 or 8 dry, 5 or 6 moist

Chroma—1 or 2 dry

2A horizon:

Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Content of gravel—0 to 10 percent
Content of cobbles—0 to 5 percent
Content of stones—5 to 15 percent

2Bw horizon:

Chroma—3 or 4 dry or moist
Texture—ashy fine sandy loam or gravelly ashy fine sandy loam
Content of gravel—5 to 20 percent
Content of cobbles—0 to 5 percent

3CB horizon:

Hue—2.5Y or 10YR
Value—6 or 7 dry
Chroma—2 or 3 dry or moist
Texture—very gravelly, very cobbly, or very stony sandy loam
Content of gravel—25 to 40 percent
Content of cobbles—0 to 25 percent
Content of stones—0 to 20 percent

3Cd horizon:

Hue—2.5Y or 5Y
Value—6 or 7 dry
Chroma—2 or 3 dry or moist
Texture—very gravelly, very cobbly, or very stony sandy loam
Content of gravel—25 to 40 percent
Content of cobbles—0 to 25 percent
Content of stones—0 to 20 percent

Typic Humicryepts

Depth class: Moderately deep to very deep

Drainage class: Well drained

Landform: Mountains

Parent material: Volcanic ash (3 to 7 inches thick) over granitic colluvium

Slope range: 15 to 35 percent

Elevation: 7,200 to 7,600 feet

Mean annual precipitation: 30 to 35 inches

Mean annual air temperature: 35 to 40 degrees F

Frost-free period: 40 to 70 days

Taxonomic classification: Typic Humicryepts

Reference Pedon

Typic Humicryepts; classification was Humic Dystricryepts in the Okanogan National Forest Area, Washington, soil survey but was changed to Typic Humicryepts in this survey due to changes in Soil Taxonomy; Pasayten Wilderness Area, South Spur Bunker Hill; in the northwest $\frac{1}{4}$ southwest $\frac{1}{4}$ of section 16, T. 40 N., R. 19 E.; latitude 48 degrees 57 minutes 51 seconds north and longitude 120 degrees 29 minutes 26 seconds west; NAD 83.

A1—0 to 7 inches; very dark gray (10YR 3/1) ashy silt loam, black (10YR 2/1) moist; weak very fine granular structure; soft, loose, slightly sticky and slightly plastic; many very fine and fine roots; few fine dendritic tubular and common very fine

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irregular pores; 5 percent gravel and 5 percent cobbles; moderately acid; clear wavy boundary.

A2—7 to 12 inches; dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; weak fine subangular blocky structure; soft, loose, slightly sticky and slightly plastic; common very fine and fine roots; few fine dendritic tubular and common very fine irregular pores; 5 percent gravel and 5 percent cobbles; moderately acid; abrupt wavy boundary.

A3—12 to 24 inches; grayish brown (10YR 5/2) gravelly silt loam, very dark brown (10YR 2/2) moist; weak fine and medium subangular blocky structure; soft, loose, slightly sticky and slightly plastic; common very fine and fine roots; few fine dendritic tubular and common very fine irregular pores; 15 percent gravel and 5 percent cobbles; moderately acid; abrupt wavy boundary.

2Bw—24 to 30 inches; pale brown (10YR 6/3) very gravelly coarse sandy loam, dark yellowish brown (10YR 3/4) moist; weak fine subangular blocky structure; loose, nonsticky and nonplastic; few very fine roots; common very fine irregular pores; 30 percent gravel and 5 percent cobbles; moderately acid; clear wavy boundary.

2R—30 inches; granite.

Range in Characteristics

Thickness of the mixed volcanic ash: 3 to 7 inches

Depth to bedrock: 20 to 60 inches or more

Thickness of the umbric epipedon: 10 to 25 inches

Vallan Series

Depth class: Very shallow or shallow

Drainage class: Well drained

Landform: Mountains

Parent material: Mixed volcanic ash (1 to 3 inches thick) over colluvium and residuum derived from rhyodacite and andesitic rock

Slope range: 15 to 50 percent

Elevation: 3,000 to 3,900 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 43 to 45 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Loamy, mixed, superactive, frigid Lithic Haploxerepts

Typical Pedon

Vallan ashy loam; North Ferry Area, Washington; about 500 feet east and 400 feet south of the northwest corner of the southwest $\frac{1}{4}$ northeast $\frac{1}{4}$ of section 26, T. 37 N., R. 32 E.; latitude 48 degrees 40 minutes 40 seconds north and longitude 118 degrees 43 minutes 57 seconds west; NAD 83.

A—0 to 2 inches; brown (10YR 5/3) ashy loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; soft, very friable, slightly sticky and slightly plastic; many roots; neutral; abrupt smooth boundary.

2Bw—2 to 10 inches; yellowish brown (10YR 5/4) loam, dark yellowish brown (10YR 3/4) moist; moderate fine and medium granular structure; soft, very friable, slightly sticky and slightly plastic; many roots; 5 percent gravel; slightly acid; clear smooth boundary.

2Bt—10 to 16 inches; brown (10YR 5/4) gravelly loam, dark brown (7.5YR 3/4) moist; moderate medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common roots; common fine and medium pores; thin to moderately

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thick clay films in pores and on peds; 15 percent gravel; slightly acid; abrupt wavy boundary.
2R—16 inches; andesite.

Range in Characteristics

Thickness of the mixed volcanic ash: 1 to 3 inches

Depth to bedrock: 6 to 20 inches

A horizon:

Hue—7.5YR or 10YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 moist or dry

Content of gravel—0 to 15 percent

Bw and 2Bt horizons:

Hue—7.5YR or 10YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—loam, gravelly loam, or clay loam

Content of gravel—0 to 25 percent

Content of cobbles—0 to 10 percent

Vanbrunt Series

Depth class: Moderately deep

Drainage class: Well drained

Landform: South-facing slopes of mountains

Parent material: Mixed volcanic ash (7 to 19 inches thick) over residuum and colluvium derived from granitic rock

Slope range: 35 to 65 percent

Elevation: 2,000 to 4,600 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 45 to 52 degrees F

Frost-free period: 110 to 140 days

Taxonomic classification: Loamy-skeletal, isotic, mesic Vitrandic Haploxerolls

Typical Pedon

Vanbrunt stony ashy sandy loam; Okanogan National Forest Area, Washington; about 7.5 miles northeast of Winthrop; 2,700 feet east and 1,100 feet south of the northwest corner of section 33, T. 36 N., R. 22 E.; latitude 48 degrees 34 minutes 51 seconds north and longitude 120 degrees 5 minutes 17 seconds west; NAD 83.

Oi—0 to 1 inch; slightly decomposed mat of needles, twigs, and grass; abrupt smooth boundary.

A1—1 to 8 inches; grayish brown (10YR 5/2) stony ashy sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and common medium and coarse roots; common fine irregular pores; 15 percent gravel, 5 percent cobbles, and 10 percent stones; slightly acid; clear smooth boundary.

A2—8 to 13 inches; brown (10YR 5/3) very cobbly ashy sandy loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and common medium and coarse roots; common fine irregular pores; 20 percent gravel and 25 percent cobbles; slightly acid; clear wavy boundary.

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2Bw—13 to 20 inches; pale brown (10YR 6/3) very cobbly sandy loam, brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine, fine, medium, and coarse roots; common fine irregular pores; 20 percent gravel, 30 percent cobbles, and 2 percent stones; slightly acid; clear wavy boundary.

2C—20 to 26 inches; pale brown (10YR 6/3) very cobbly sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium and coarse roots; 20 percent gravel, 30 percent cobbles, and 5 percent stones; slightly acid; abrupt wavy boundary.

2R—26 inches; granite.

Range in Characteristics

Thickness of the mixed volcanic ash: 7 to 19 inches

Thickness of the mollic epipedon: 7 to 12 inches

Depth to bedrock: 20 to 40 inches

A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Texture—very gravelly, very cobbly, extremely cobbly, or stony ashy sandy loam

Content of gravel—10 to 35 percent

Content of cobbles—0 to 30 percent

Content of stones—0 to 15 percent

Bw horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Texture—very cobbly, very gravelly, or extremely cobbly ashy sandy loam

Content of gravel—20 to 35 percent

Content of cobbles—10 to 30 percent

Content of stones—0 to 5 percent

2C horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Texture—very cobbly, extremely gravelly, or extremely cobbly sandy loam

Content of gravel—20 to 40 percent

Content of cobbles—15 to 30 percent

Content of stones—0 to 10 percent

Verhart Series

Depth class: Moderately deep

Drainage class: Well drained

Landform: Mountains

Parent material: Mixed volcanic ash (7 to 14 inches thick) over residuum and colluvium derived from sedimentary rock

Slope range: 35 to 65 percent

Elevation: 4,800 to 6,600 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 37 to 42 degrees F

Frost-free season: 60 to 90 days

Taxonomic classification: Loamy-skeletal, isotic Vitrixerandic Haplocrypts

Typical Pedon

Verhart stony ashy sandy loam; Okanogan National Forest Area, Washington; about 1,100 feet west and 800 feet north of the southeast corner of section 20, T. 37 N., R. 20 E.; latitude 48 degrees 41 minutes 19 seconds north and longitude 120 degrees 22 minutes 7 seconds west; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of needles and twigs; abrupt smooth boundary.

A—1 to 5 inches; brown (10YR 5/3) stony ashy sandy loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium roots; common fine irregular pores; 10 percent gravel, 5 percent cobbles, and 5 percent stones; neutral; clear wavy boundary.

Bw—5 to 12 inches; pale brown (10YR 6/3) very gravelly ashy sandy loam, brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium roots; common very fine and fine irregular pores; 30 percent gravel, 5 percent cobbles, and 5 percent stones; slightly acid; clear smooth boundary.

2C—12 to 25 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; few fine irregular pores; 40 percent gravel, 5 percent cobbles, and 5 percent stones; slightly acid; clear wavy boundary.

2R—25 inches; sandstone.

Range in Characteristics

Thickness of the mixed volcanic ash: 7 to 14 inches

Depth to bedrock: 20 to 40 inches

A horizon:

Value—5 or 6 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Content of gravel—5 to 15 percent

Content of cobbles—0 to 5 percent

Content of stones—5 to 15 percent

Bw horizon:

Value—3 or 4 moist

Texture—gravelly, very gravelly, or very cobbly ashy sandy loam

Content of gravel—25 to 40 percent

Content of cobbles—0 to 20 percent

Content of stones—0 to 5 percent

2C horizon:

Value—5 or 6 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Texture—very gravelly, extremely gravelly, or very cobbly sandy loam

Content of gravel—35 to 45 percent

Content of cobbles—5 to 20 percent

Content of stones—0 to 5 percent

Veridge Series

Depth class: Moderately deep

Drainage class: Well drained

Landform: Mountains

Soil Survey of Okanogan County Area, Washington

Parent material: Volcanic ash (7 to 14 inches thick) over residuum and colluvium derived from sedimentary rock

Slope range: 35 to 65 percent

Elevation: 2,800 to 3,700 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Loamy-skeletal, isotic, frigid Andic Haploxerepts

Typical Pedon

Veridge gravelly ashy sandy loam; Okanogan National Forest Area, Washington; about 2 miles west-southwest of Mazama; about 1,900 west and 2,100 feet north of the southeast corner of section 35, T. 36 N., R. 19 E.; latitude 48 degrees 34 minutes 36 seconds north and longitude 120 degrees 26 minutes 12 seconds west; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of needles and twigs; abrupt smooth boundary.

A—1 to 5 inches; pale brown (10YR 6/3) gravelly ashy sandy loam, dark brown (10YR 4/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine and few medium and coarse roots; common very fine and fine pores; 15 percent gravel; slightly acid; clear smooth boundary.

Bw—5 to 13 inches; light yellowish brown (10YR 6/4) gravelly ashy sandy loam, dark yellowish brown (10YR 4/4) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine and few medium and coarse roots; common very fine and fine pores; 15 percent gravel and 5 percent cobbles; slightly acid; clear wavy boundary.

2CB—13 to 22 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 5/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium and coarse roots; few very fine and fine pores; 30 percent gravel and 10 percent cobbles; neutral; gradual wavy boundary.

2C—22 to 31 inches; pale brown (10YR 6/3) very cobbly sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine, fine, and medium roots; few very fine pores; 20 percent gravel and 30 percent cobbles; neutral; gradual wavy boundary.

2R—31 inches; sandstone.

Range in Characteristics

Thickness of the volcanic ash: 7 to 14 inches

Depth to bedrock: 20 to 40 inches

A horizon:

Value—3 or 4 moist

Chroma—3 or 4 dry or moist

Content of gravel—15 to 20 percent

Content of cobbles—0 to 5 percent

Bw horizon:

Value—3 or 4 moist

Chroma—3 or 4 moist

Texture—gravelly ashy sandy loam or ashy sandy loam

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Content of gravel—5 to 20 percent
Content of cobbles—0 to 5 percent

2CB horizon:

Value—5 or 6 dry, 4 or 5 moist
Chroma—3 or 4 dry or moist
Texture—very gravelly sandy loam or very cobbly sandy loam
Content of gravel—25 to 35 percent
Content of cobbles—5 to 20 percent

2C horizon:

Value—4 or 5 moist
Chroma—3 or 4 dry or moist
Content of gravel—20 to 35 percent
Content of cobbles—20 to 30 percent

Vinegar Series

Depth class: Very deep

Drainage class: Well drained

Landform: Mountains

Parent material: Volcanic ash and pumice more than 60 inches thick

Slope range: 0 to 35 percent

Elevation: 2,200 to 4,000 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Ashy, glassy, frigid Typic Vitrixerands

Typical Pedon

Vinegar ashy sandy loam; Okanogan National Forest Area, Washington; about 7 miles west of Methow; about 70 feet west and 1,500 feet north of the southeast corner of section 12, T. 30 N., R. 21 E.; latitude 48 degrees 6 minutes 40 seconds north and longitude 120 degrees 8 minutes 32 seconds W., NAD 83.

Oi—0 to 1 inch; slightly decomposed mat of forest litter; abrupt smooth boundary.

A—1 to 6 inches; light grayish brown (10YR 6/2) ashy sandy loam, dark grayish brown (10YR 4/2) moist; moderate fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; common very fine and fine and few medium and coarse roots; common very fine and fine irregular pores; 10 percent pumice paragravel; slightly acid; gradual wavy boundary.

Bw1—6 to 16 inches; light grayish brown (10YR 6/2) ashy coarse sandy loam, dark grayish brown (10YR 4/2) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine and few medium and coarse roots; common very fine and fine irregular pores; 10 percent pumice paragravel; slightly acid; gradual wavy boundary.

Bw2—16 to 34 inches; pale brown (10YR 6/3) paragravelly ashy coarse sandy loam, brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; common very fine and fine and few medium and coarse roots; common very fine and fine irregular pores; 20 percent pumice paragravel; slightly acid; gradual wavy boundary.

Bw3—34 to 60 inches; pale brown (10YR 6/3) paragravelly ashy coarse sandy loam, brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine and

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few medium and coarse roots; common very fine and fine irregular pores;
25 percent pumice paragravel; slightly acid.

Range in Characteristics

A horizon:

Value—5 or 6 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Texture—ashy very fine sandy loam or ashy sandy loam

Content of pumice paragravel—5 to 15 percent

Bw horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Texture—ashy sandy loam, ashy coarse sandy loam, or paragravelly ashy coarse sandy loam

Content of pumice paragravel—10 to 25 percent

Vingulch Series

Depth class: Moderately deep

Drainage class: Well drained

Landform: Mountains

Parent material: Volcanic ash and pumice (14 to 36 inches thick) over residuum and colluvium derived from sedimentary and volcanic rock

Slope range: 35 to 65 percent

Elevation: 2,700 to 4,000 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Ashy over loamy-skeletal, glassy over isotic, frigid Typic Vitrixerands

Typical Pedon

Vingulch ashy loamy very fine sand; Okanogan National Forest Area, Washington; about 5 miles west of Methow; about 2,300 feet east and 70 feet south of the northwest corner of section 8, T. 30 N., R. 22 E.; latitude 48 degrees 7 minutes 8 seconds north and longitude 120 degrees 6 minutes 43 seconds west; NAD 83.

Oi—0 to 1 inch; slightly decomposed mat of forest litter; abrupt smooth boundary.

C—1 to 4 inches; white (10YR 8/1) ashy loamy very fine sand, grayish brown (10YR 5/2) moist; massive; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine roots; common very fine and fine irregular pores; slightly acid; abrupt wavy boundary.

2A—4 to 12 inches; light brownish gray (10YR 6/2) ashy coarse sandy loam, dark grayish brown (10YR 4/2) moist; moderate fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine and few medium and coarse roots; many very fine and fine irregular pores; 10 percent pumice paragravel; slightly acid; gradual wavy boundary.

2Bw1—12 to 22 inches; light brownish gray (10YR 6/2) paragravelly ashy coarse sandy loam, brown (10YR 5/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine roots; many very fine and fine irregular pores; 20 percent pumice paragravel; neutral; gradual wavy boundary.

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2Bw2—22 to 28 inches; light gray (10YR 7/2) paragravelly ashy coarse sandy loam, brown (10YR 5/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine roots; many very fine and fine irregular pores; 25 percent pumice paragravel; neutral; gradual wavy boundary.

2C1—28 to 34 inches; very pale brown (10YR 8/2) paragravelly ashy loamy coarse sand, light brownish gray (10YR 6/2) moist; single grain; loose, nonsticky and nonplastic; common very fine and fine roots; common very fine and fine irregular pores; 15 percent pumice paragravel; neutral; gradual wavy boundary.

3C2—34 to 39 inches; very pale brown (10YR 8/2) very gravelly sandy loam, light brownish gray (10YR 6/2) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine and fine irregular pores; 35 percent gravel and 5 percent cobbles; neutral; abrupt wavy boundary.

3R—39 inches; gneiss.

Range in Characteristics

Thickness of the volcanic ash and pumice: 14 to 36 inches

Depth to bedrock: 20 to 40 inches

C horizon:

Value—6 to 8 dry, 4 to 6 moist

Chroma—1 or 2 dry or moist

Content of pumice paragravel—0 to 5 percent

2A horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—1 or 2 dry or moist

Texture—ashy sandy loam, ashy coarse sandy loam, paragravelly ashy sandy loam, or paragravelly ashy coarse sandy loam

Content of pumice paragravel—0 to 20 percent

2Bw horizon:

Value—5 to 7 dry, 4 or 5 moist

Chroma—2 to 4 dry or moist

Texture—ashy sandy loam, ashy coarse sandy loam, paragravelly ashy sandy loam, or paragravelly ashy coarse sandy loam

Content of pumice paragravel—5 to 30 percent

2C horizon:

Value—6 to 8 dry, 5 or 6 moist

Chroma—2 or 3 dry or moist

Texture—ashy sandy loam, ashy coarse sandy loam, paragravelly ashy sandy loam, or paragravelly ashy loamy coarse sand

Content of pumice paragravel—5 to 30 percent

3C horizon:

Value—6 to 8 dry, 5 or 6 moist

Chroma—2 or 3 dry or moist

Texture—very gravelly loamy sand, very gravelly loamy coarse sand, very gravelly coarse sandy loam, or very gravelly sandy loam

Content of gravel—35 to 55 percent

Content of cobbles—0 to 15 percent

Vitrandidic Haploxerepts

Depth class: Deep

Drainage class: Well drained

Soil Survey of Okanogan County Area, Washington

Landform: Mountains

Parent material: Mixed volcanic ash (10 to 22 inches thick) over residuum and colluvium derived from sedimentary and volcanic rock

Slope range: 15 to 90 percent

Elevation: 2,600 to 3,800 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Vitrandic Haploxerepts

Reference Pedon

Vitrandic Haploxerepts; Okanogan National Forest Area, Washington; about 8 miles northwest of Mazama; 2,000 feet west and 2,600 feet south of the northeast corner of section 36, T. 37 N., R. 19 E.; latitude 48 degrees 39 minutes 51 seconds north and longitude 120 degrees 32 minutes 45 seconds north; NAD 83.

Oe—0 to 2 inches; moderately decomposed mat of needles, leaves, and twigs; abrupt smooth boundary.

A—2 to 6 inches; pale brown (10YR 6/3) gravelly ashy sandy loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many fine and very fine and few medium and coarse roots; common fine irregular pores; 15 percent gravel and 2 percent cobbles; neutral; clear smooth boundary.

Bw1—6 to 11 inches; pale brown (10YR 6/3) gravelly ashy sandy loam, dark brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many fine and very fine and few medium and coarse roots; common fine irregular pores; 15 percent gravel, 5 percent cobbles, and 2 percent stones; slightly acid; clear wavy boundary.

Bw2—11 to 17 inches; pale brown (10YR 6/3) very gravelly ashy sandy loam, dark brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium roots; few fine irregular pores; 25 percent gravel, 5 percent cobbles, and 5 percent stones; slightly acid; clear wavy boundary.

BC—17 to 24 inches; pale brown (10YR 6/3) very gravelly ashy loam, dark brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; 25 percent gravel, 10 percent cobbles, and 5 percent stones; slightly acid; gradual wavy boundary.

2C1—24 to 37 inches; light brownish gray (10YR 6/2) very gravelly sandy loam, grayish brown (10YR 5/2) moist; massive; soft, friable, slightly sticky and nonplastic; few very fine, fine, and medium roots; 40 percent gravel and 5 percent cobbles; slightly acid; gradual wavy boundary.

2C2—37 to 47 inches; light brownish gray (10YR 6/2) very gravelly sandy loam, grayish brown (10YR 5/2) moist; massive; soft, friable, slightly sticky and nonplastic; few very fine roots; 45 percent gravel and 5 percent cobbles; slightly acid; abrupt irregular boundary.

2R—47 inches; sedimentary rock.

Range in Characteristics

Thickness of the mixed volcanic ash: 10 to 22 inches

Depth to bedrock: 40 to 60 inches

A horizon:

Value—4 to 6 dry, 3 to 5 moist

Chroma—2 or 3 dry or moist

Content of gravel—15 to 30 percent

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Content of cobbles—0 to 5 percent

Content of stones—0 to 5 percent

Bw horizon:

Value—5 or 6 dry, 4 or 5 moist

Chroma—3 or 4 dry or moist

Texture—gravelly, very gravelly, cobbly, or stony ashy sandy loam

Content of gravel—15 to 40 percent

Content of cobbles—0 to 15 percent

Content of stones—0 to 5 percent

2C horizon:

Value—5 to 7 dry, 4 to 6 moist

Chroma—2 to 4 dry or moist

Texture—very gravelly, very cobbly, cobbly, or stony sandy loam or very gravelly loamy sand below a depth of 40 inches

Content of gravel—20 to 55 percent

Content of cobbles—5 to 25 percent

Content of stones—0 to 15 percent

Vitrandid Humicryepts

Depth class: Moderately deep

Drainage class: Well drained

Landform: Mountains

Parent material: Mixed volcanic ash (7 to 25 inches thick) over residuum and colluvium derived from metamorphic, sedimentary, and volcanic rock

Slope range: 20 to 80 percent

Elevation: 6,600 to 7,800 feet

Mean annual precipitation: 30 to 35 inches

Mean annual air temperature: 35 to 40 degrees F

Frost-free period: 40 to 70 days

Taxonomic classification: Vitrandid Humicryepts

Reference Pedon

Vitrandid Humicryepts; classification was Vitrandid Dystrocryepts in the Okanogan National Forest Area, Washington, soil survey but was changed to Vitrandid Humicryepts in this survey due to changes in Soil Taxonomy; about 4 miles north-northwest of Harts Pass; about 2,000 feet east and 200 feet north of the southeast corner of section 27, T. 38 N., R. 17 E.; latitude 48 degrees 45 minutes 30 seconds north and longitude 120 degrees 43 minutes 38 seconds west; NAD 83.

A1—0 to 4 inches; very dark grayish brown (10YR 3/2) gravelly ashy sandy loam, very dark brown (10YR 2/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium roots; few very fine tubular pores; 15 percent gravel; moderately acid; clear smooth boundary.

A2—4 to 12 inches; very dark grayish brown (10YR 3/2) gravelly ashy sandy loam, very dark brown (10YR 2/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium roots; few very fine tubular pores; 15 percent gravel; moderately acid; clear smooth boundary.

Bw—12 to 20 inches; dark yellowish brown (10YR 4/4) very gravelly ashy sandy loam, dark yellowish brown (10YR 3/4) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; few very

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fine tubular pores; 40 percent gravel, 5 percent cobbles, and 5 percent stones; moderately acid; clear wavy boundary.

2C—20 to 31 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; few very fine tubular pores; 40 percent gravel and 15 percent cobbles; moderately acid.

2R—31 inches; sandstone.

Range in Characteristics

Thickness of the mixed volcanic ash: 7 to 25 inches

Depth to bedrock: 20 to 40 inches

Thickness of the umbric epipedon: 7 to 16 inches

A horizon:

Value—3 to 6 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Texture—gravelly ashy sandy loam, gravelly ashy fine sandy loam, stony ashy sandy loam, or stony ashy loam

Content of gravel—5 to 20 percent

Content of cobbles—0 to 10 percent

Content of stones—0 to 25 percent

Bw horizon:

Value—5 or 6 dry, 4 or 5 moist

Chroma—3 or 4 dry or moist

Texture—stony ashy loam, cobbly ashy loam, very gravelly ashy sandy loam, or very cobbly ashy sandy loam

Content of gravel—5 to 40 percent

Content of cobbles—5 to 30 percent

Content of stones—0 to 10 percent

2C horizon:

Hue—10YR or 2.5Y

Value—5 to 7 dry, 3 to 5 moist

Chroma—2 to 5 dry, 2 to 4 moist

Texture—cobbly sandy loam, very gravelly sandy loam, very cobbly sandy loam, or very stony coarse sandy loam

Content of gravel—10 to 40 percent

Content of cobbles—5 to 40 percent

Content of stones—0 to 20 percent

Vitrixerandic Haplocryepts

Depth class: Very deep

Drainage class: Moderately well drained

Landform: Outwash plains and outwash terraces of mountains

Parent material: Mixed volcanic ash (12 to 25 inches thick) over glacial till and glacial outwash

Slope range: 0 to 5 percent

Elevation: 3,900 to 4,400 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 37 to 42 degrees F

Frost-free period: 70 to 90 days

Taxonomic classification: Vitrixerandic Haplocryepts

Reference Pedon

Vitriixerandic Haplocryepts; classification was Vitrandic Eutrocryepts in the Okanogan National Forest Area, Washington, soil survey but was changed to Vitriixerandic Haplocryepts in this survey due to changes in Soil Taxonomy; about 5 miles northwest of Wauconda and 5 miles southwest of Bonaparte Lake; about 1,300 feet west and 1,500 feet north of the southeast corner of section 35, T. 38 N, R. 29 E.; latitude 48 degrees 44 minutes 41 seconds north and longitude 119 degrees 7 minutes 33 seconds west; NAD 83.

- Oe—0 to 1 inch; moderately decomposed mat of needles, twigs, and grass; abrupt smooth boundary.
- A—1 to 4 inches; light brownish gray (10YR 6/2) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and common medium roots; few fine pores; moderately acid; clear wavy boundary.
- Bw1—4 to 12 inches; light brownish gray (10YR 6/2) ashy fine sandy loam, dark grayish brown (10YR 4/2) moist; moderate fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine, fine, and coarse and many medium roots; few fine pores; slightly acid; gradual wavy boundary.
- Bw2—12 to 21 inches; light gray (10YR 7/2) ashy fine sandy loam, grayish brown (10YR 5/2) moist; moderate fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and common fine and medium roots; few fine pores; 5 percent gravel; slightly acid; clear wavy boundary.
- 2C1—21 to 28 inches; light gray (10YR 7/2) very gravelly fine sandy loam, light olive brown (2.5Y 5/2) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; few fine pores; 40 percent gravel; slightly acid; gradual wavy boundary.
- 2C2—28 to 42 inches; very pale brown (10YR 7/3) very gravelly sandy loam, light olive brown (2.5Y 5/3) moist, with thin lenses of fine sandy loam; common fine faint light yellowish brown (2.5Y 6/3) redoximorphic concentrations; massive; soft, very friable, nonsticky and nonplastic; 45 percent gravel and 5 percent cobbles; slightly acid; clear wavy boundary.
- 2Cg—42 to 60 inches; light gray (10YR 7/2) very gravelly sandy loam, light brownish gray (2.5Y 6/2) moist; many medium prominent yellowish brown (10YR 5/6) redoximorphic concentrations; massive; slightly hard, firm, nonsticky and nonplastic; 55 percent gravel; neutral.

Range in Characteristics

Thickness of the mixed volcanic ash: 12 to 25 inches

Depth to the glacial till or glacial outwash (2C horizon): 12 to 25 inches

Depth to the redoximorphic features: 25 to 40 inches

Depth to the redoximorphic features that have chroma of 2 or less: 35 to 50 inches

High water table: Present late in winter and in spring and summer

A horizon:

Chroma—2 or 3 dry or moist

Content of gravel—0 to 15 percent

Bw1 horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Content of gravel—0 to 15 percent

Bw2 horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

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Texture—ashy fine sandy loam, gravelly ashy sandy loam, or gravelly ashy fine sandy loam

Content of gravel—5 to 25 percent

Content of cobbles—0 to 10 percent

Content of stones—0 to 5 percent

2C horizon:

Hue—10YR or 2.5Y

Value—5 to 7 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Texture—very gravelly sandy loam, gravelly or very gravelly fine sandy loam, or very cobbly coarse sandy loam

Content of gravel—15 to 55 percent

Content of cobbles—0 to 20 percent

2Cg horizon:

Hue—10YR to 5Y

Value—7 or 8 dry

Chroma—2 or 3 dry or moist

Texture—gravelly loamy sand, very gravelly sandy loam, or very cobbly coarse sandy loam

Content of gravel—15 to 55 percent

Content of cobbles—0 to 20 percent

Wadams Series

Depth class: Very deep

Drainage class: Well drained

Landform: Mountains and hills

Parent material: Volcanic ash (24 to 36 inches thick) over glacial till

Slope range: 0 to 25 percent

Elevation: 1,900 to 3,000 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 110 to 140 days

Taxonomic classification: Ashy over sandy or sandy-skeletal, glassy over mixed, mesic Typic Vitrixerands

Typical Pedon

Wadams ashy sandy loam, 0 to 25 percent slopes, extremely stony; about 430 feet west and 120 feet south of the northeast corner of the northeast $\frac{1}{4}$ southeast $\frac{1}{4}$ southeast $\frac{1}{4}$ of section 30, T. 29 N., R. 23 E.; latitude 47 degrees 58 minutes 44 seconds north and longitude 120 degrees 0 minutes 2 seconds west; NAD 83.

Oi—0 to 1 inch; slightly decomposed mat of plant material; abrupt smooth boundary.

A—1 to 5 inches; gray (10YR 5/1) ashy sandy loam, very dark gray (10YR 3/1) moist; weak fine granular structure; soft, very friable, slightly sticky and nonplastic; weakly smeary; many very fine, fine, and medium roots; many very fine and fine and common medium tubular pores; 2 percent gravel and 3 percent pumice paragravel; neutral; abrupt smooth boundary.

Bw1—5 to 24 inches; pale brown (10YR 6/3) ashy sandy loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, friable, slightly sticky and nonplastic; weakly smeary; common very fine and fine roots; common very

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fine, fine, and medium tubular pores; 2 percent gravel and 8 percent pumice paragravel; neutral; clear smooth boundary.

Bw2—24 to 32 inches; light brownish gray (10YR 6/2) paragravelly ashy sandy loam, dark grayish brown (10YR 4/2) moist; weak medium prismatic structure parting to weak fine subangular blocky; soft, friable, slightly sticky and nonplastic; weakly smeary; common very fine and fine roots; common very fine, fine, and medium tubular pores; 5 percent gravel and 15 percent pumice paragravel; neutral; clear smooth boundary.

2C1—32 to 45 inches; light gray (10YR 7/2) cobbly loamy sand, grayish brown (10YR 5/2) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; few medium tubular pores; 5 percent gravel, 10 percent cobbles, 5 percent stones, and 20 percent pumice paragravel; neutral; clear smooth boundary.

2C2—45 to 60 inches; light gray (2.5Y 7/2) very stony loamy sand, grayish brown (2.5Y 5/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; few medium tubular pores; 15 percent gravel, 10 percent cobbles, 10 percent stones, and 10 percent pumice paragravel; neutral.

Range in Characteristics

Thickness of the volcanic ash and pumice and depth to the glacial till (2C horizon):
24 to 36 inches

A horizon:

Content of gravel—0 to 5 percent

Content of pumice paragravel—0 to 15 percent

Bw horizon:

Texture—paragravelly ashy fine sandy loam, ashy sandy loam, or paragravelly ashy sandy loam

Content of gravel—0 to 10 percent

Content of pumice paragravel—0 to 35 percent

2C horizon:

Texture—cobbly fine sandy loam, cobbly loamy sand, or very stony loamy sand

Content of gravel—0 to 15 percent

Content of cobbles—10 to 20 percent

Content of stones—0 to 20 percent

Content of pumice paragravel—0 to 20 percent

Wagberg Series

Depth class: Very deep

Drainage class: Well drained

Landform: Mountains

Parent material: Mixed volcanic ash (7 to 14 inches thick) over glacial till

Slope range: 5 to 90 percent

Elevation: 2,000 to 3,700 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 45 to 52 degrees F

Frost-free period: 110 to 140 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Vitrandic Haploxerolls

Typical Pedon

Wagberg ashy sandy loam; Okanogan National Forest Area, Washington; about 4.5 miles west of the intersection of State Highway 20 and the Bonaparte Lake road; about

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1,700 feet south and 1,200 feet west of the northeast corner of section 16, T. 37 N., R. 29 E.; latitude 48 degrees 10 minutes 9 seconds north and longitude 119 degrees 42 minutes 27 seconds west; NAD 83.

- A—0 to 10 inches; grayish brown (10YR 5/2) ashy sandy loam, very dark grayish brown (10YR 3/2) moist; weak very fine granular structure; soft, very friable, slightly sticky and nonplastic; many very fine and fine roots; common medium tubular pores; 5 percent gravel; neutral; clear smooth boundary.
- Bw1—10 to 14 inches; pale brown (10YR 6/3) gravelly ashy sandy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common medium irregular and tubular pores; 15 percent gravel and 5 percent cobbles; slightly acid; gradual wavy boundary.
- 2Bw2—14 to 24 inches; very pale brown (10YR 7/3) very gravelly sandy loam, brown (10YR 5/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common medium irregular and tubular pores; 30 percent gravel and 10 percent cobbles; slightly acid; gradual wavy boundary.
- 2C1—24 to 35 inches; light gray (10YR 7/2) very gravelly sandy loam, grayish brown (10YR 5/2) moist; massive; slightly hard, very friable, nonsticky and nonplastic; common fine and very fine roots; common medium irregular pores; 40 percent gravel and 10 percent cobbles; slightly acid; gradual wavy boundary.
- 2C2—35 to 60 inches; light brownish gray (2.5Y 6/2) very gravelly loamy sand, dark grayish brown (2.5Y 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; common medium irregular pores; 40 percent gravel and 10 percent cobbles; neutral.

Range in Characteristics

Thickness of the mixed volcanic ash: 7 to 14 inches

Thickness of the mollic epipedon: 10 to 18 inches

A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Texture—ashy sandy loam or stony ashy sandy loam

Content of gravel—0 to 15 percent

Content of cobbles—0 to 5 percent

Content of stones—0 to 15 percent

Bw horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Texture—gravelly ashy sandy loam or gravelly ashy fine sandy loam

Content of gravel—15 to 30 percent

Content of cobbles—0 to 10 percent

2Bw horizon:

Hue—10YR or 2.5Y

Value—5 to 7 dry, 4 or 5 moist

Chroma—2 to 4 dry or moist

Texture—very gravelly sandy loam or very cobbly sandy loam

Content of gravel—15 to 35 percent

Content of cobbles—5 to 20 percent

2C horizon:

Hue—10YR or 2.5Y

Value—6 or 7 dry, 4 or 5 moist

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Chroma—2 or 3 dry or moist
Texture—very gravelly sandy loam, very cobbly coarse sandy loam, very cobbly sandy loam, or very gravelly loamy sand
Content of gravel—30 to 50 percent
Content of cobbles—10 to 20 percent

Wapal Series

Depth class: Very deep
Drainage class: Somewhat excessively drained
Landform: Outwash terraces
Parent material: Mixed volcanic ash (10 to 20 inches thick) over glacial outwash
Slope range: 0 to 65 percent
Elevation: 2,200 to 5,500 feet
Mean annual precipitation: 18 to 24 inches
Mean annual air temperature: 40 to 45 degrees F
Frost-free period: 90 to 120 days

Taxonomic classification: Sandy-skeletal, isotic, frigid Vitrandic Haploxerepts

Typical Pedon

Wapal stony ashy coarse sandy loam; Okanogan National Forest Area, Washington; about 15 miles north of Winthrop; about 100 feet west and 1,350 feet south of the northeast corner of section 19, T. 37 N., R. 22 E.; latitude 48 degrees 4 minutes 40 seconds north and longitude 120 degrees 7 minutes 24 seconds west; NAD 83.

Oi—0 to 1 inch; slightly decomposed mat of needles and twigs; abrupt smooth boundary.

A—1 to 5 inches; brown (10YR 5/3) stony ashy coarse sandy loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and common medium and coarse roots; few fine irregular pores; 15 percent gravel and 5 percent stones; slightly acid; clear wavy boundary.

Bw—5 to 12 inches; pale brown (10YR 6/3) very gravelly ashy coarse sandy loam, brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium and coarse roots; few fine irregular pores; 35 percent gravel; slightly acid; clear wavy boundary.

2C1—12 to 33 inches; pale brown (10YR 6/3) extremely cobbly loamy coarse sand, brown (10YR 5/3) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; 40 percent gravel and 25 percent cobbles; slightly acid; gradual wavy boundary.

2C2—33 to 60 inches; very pale brown (10YR 7/3) very gravelly loamy coarse sand, brown (10YR 5/3) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; 40 percent gravel and 10 percent cobbles; neutral.

Range in Characteristics

Thickness of the mixed volcanic ash: 10 to 20 inches
Depth to the glacial outwash (2C horizon): 10 to 20 inches

A horizon:

Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—stony ashy coarse sandy loam or ashy coarse sandy loam
Content of gravel—0 to 25 percent
Content of cobbles—0 to 5 percent
Content of stones—0 to 15 percent

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Bw horizon:

Chroma—2 or 3 dry or moist

Texture—gravelly ashy coarse sandy loam, very gravelly ashy coarse sandy loam, or gravelly ashy sandy loam

Content of gravel—20 to 35 percent

Content of cobbles—0 to 5 percent

2C horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Texture—very gravelly or extremely cobbly loamy coarse sand, very gravelly or very cobbly loamy sand, or very gravelly or extremely cobbly sand

Content of gravel—30 to 60 percent

Content of cobbles—5 to 25 percent

Wellsfar Series

Depth class: Moderately deep

Drainage class: Well drained

Landform: Mountains

Parent material: Mixed volcanic ash (7 to 14 inches thick) over residuum and colluvium derived from granite

Slope range: 15 to 35 percent

Elevation: 5,300 to 6,200 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 35 to 39 degrees F

Frost-free season: 60 to 90 days

Taxonomic classification: Loamy-skeletal, isotic Vitrixerandic Haplocryepts

Typical Pedon

Wellsfar gravelly ashy sandy loam; Okanogan National Forest Area, Washington; about 14 miles west of Loomis; 2,600 feet west and 500 feet south of the northeast corner of section 33, T. 39 N., R. 23 E.; latitude 48 degrees 50 minutes 29 seconds north and longitude 118 degrees 30 minutes 12 seconds; NAD 83.

Oe—0 to 2 inches; moderately decomposed mat of needles and twigs; abrupt smooth boundary.

A—2 to 5 inches; pale brown (10YR 6/3) gravelly ashy sandy loam, brown to dark brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine, fine, medium, and coarse roots; common very fine and fine pores; 25 percent gravel and 5 percent cobbles; slightly acid; clear smooth boundary.

Bw1—5 to 10 inches; light yellowish brown (10YR 6/4) gravelly ashy sandy loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine, fine, medium, and coarse roots; common very fine and fine pores; 30 percent gravel; slightly acid; clear smooth boundary.

2Bw2—10 to 18 inches; light yellowish brown (10YR 6/4) very gravelly coarse sandy loam, yellowish brown (10YR 5/4) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium roots; few fine pores; 40 percent gravel; moderately acid; clear wavy boundary.

2C—18 to 27 inches; very pale brown (10YR 7/4) very gravelly coarse sandy loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, very friable, nonsticky

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and nonplastic; few very fine and fine roots; 50 percent gravel and 5 percent cobbles; strongly acid; clear wavy boundary.
2Cr—27 inches; weathered granite.

Range in Characteristics

Thickness of the mixed volcanic ash: 7 to 14 inches

Depth to bedrock: 20 to 40 inches

A horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Content of gravel—15 to 30 percent

Content of cobbles—0 to 5 percent

Bw1 horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Content of gravel—15 to 30 percent

Content of cobbles—0 to 5 percent

2Bw2 horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—3 to 6 dry or moist

Texture—very gravelly sandy loam or very gravelly coarse sandy loam

Content of gravel—35 to 50 percent

Content of cobbles—0 to 5 percent

2C horizon:

Value—5 to 7 dry, 4 to 6 moist

Chroma—3 to 6 dry or moist

Texture—very gravelly coarse sandy loam or very cobbly sandy loam

Content of gravel—35 to 55 percent

Content of cobbles—0 to 20 percent

Wenner Series

Depth class: Very deep

Drainage class: Well drained

Landform: Hills

Parent material: Mixed volcanic ash (10 to 18 inches thick) over glacial till

Slope range: 15 to 35 percent

Elevation: 2,700 to 3,100 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 110 to 140 days

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Vitrandic Argixerolls

Typical Pedon

Wenner ashy loam; Okanogan National Forest Area, Washington; about 1,500 feet east and 1,900 feet south of the northwest corner of section 31, T. 33 N., R. 23 E.; latitude 48 degrees 19 minutes 4 seconds north and longitude 120 degrees 0 minutes 24 seconds west; NAD 83.

A1—0 to 5 inches; dark grayish brown (10YR 4/2) ashy loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and common medium and

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- coarse roots; many very fine irregular and common very fine tubular pores; 10 percent gravel; neutral; clear smooth boundary.
- A2—5 to 12 inches; dark grayish brown (10YR 4/2) ashy loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium and coarse roots; many very fine irregular and common very fine tubular pores; 15 percent gravel; neutral; clear wavy boundary.
- AB—12 to 18 inches; grayish brown (10YR 5/2) gravelly ashy sandy loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; many very fine and fine and few medium and coarse roots; many very fine irregular and common very fine tubular pores; 15 percent gravel and 5 percent cobbles; neutral; clear wavy boundary.
- 2Bt1—18 to 25 inches; grayish brown (10YR 5/2) gravelly clay loam, dark grayish brown (10YR 4/2) moist; moderate fine and medium subangular blocky structure; hard, firm, slightly sticky and moderately plastic; common very fine and fine roots; common very fine tubular pores; common distinct clay films on faces of peds and in pores; 20 percent gravel; neutral; clear wavy boundary.
- 2Bt2—25 to 33 inches; brown (10YR 5/3) gravelly clay loam, dark brown (10YR 4/3) moist; moderate medium angular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine and fine roots; common very fine tubular pores; common distinct clay films on faces of peds and in pores and few distinct clay films on rock fragments; 25 percent gravel and 5 percent cobbles; neutral; clear wavy boundary.
- 2Bt3—33 to 60 inches; brown (10YR 5/3) gravelly clay loam, dark brown (10YR 4/3) moist; moderate medium angular blocky structure; very hard, firm, moderately sticky and moderately plastic; few very fine roots; common very fine tubular pores; common distinct clay films on faces of peds and in pores; 25 percent gravel and 5 percent cobbles; neutral.

Range in Characteristics

Thickness of the mixed volcanic ash and depth to the argillic horizon: 10 to 18 inches

Thickness of the mollic epipedon: 10 to 18 inches

A horizon:

Value—4 or 5 dry

Content of gravel—0 to 15 percent

AB horizon:

Value—3 or 4 dry, 2 or 3 moist

Chroma—2 or 3 dry

Texture—gravelly ashy sandy loam or gravelly ashy loam

Content of gravel—5 to 20 percent

Content of cobbles—0 to 5 percent

2Bt horizon:

Chroma—2 or 3 dry or moist

Texture—gravelly clay loam or gravelly sandy clay loam

Content of gravel—15 to 25 percent

Content of cobbles—0 to 5 percent

Wilder Series

Depth class: Very deep

Drainage class: Well drained

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Landform: Mountains

Parent material: Mixed volcanic ash (14 to 20 inches thick) over glaciofluvial deposits

Slope range: 35 to 65 percent

Elevation: 2,500 to 3,400 feet

Mean annual precipitation: 17 to 20 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Sandy, isotic, frigid Vitrandic Haploxerolls

Typical Pedon

Wilder ashy sandy loam; Okanogan National Forest Area, Washington; about 4 miles west of Conconully; about 1,300 feet west and 2,600 feet south of the northeast corner of section 5, T. 35 N., R. 24 E.; latitude 48 degrees 33 minutes 42 seconds north and longitude 119 degrees 50 minutes 47 seconds west; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of needles and grass; abrupt smooth boundary.

A1—1 to 7 inches; grayish brown (10YR 5/2) ashy sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure parting to moderate fine and medium granular; soft, very friable, nonsticky and nonplastic; many very fine and few fine roots; common fine irregular pores; 2 percent gravel; neutral; clear smooth boundary.

A2—7 to 11 inches; grayish brown (10YR 5/2) ashy sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and few fine roots; common fine irregular pores; 2 percent gravel; neutral; clear smooth boundary.

Bw—11 to 16 inches; yellowish brown (10YR 5/4) ashy sandy loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and few fine roots; common irregular pores; 7 percent gravel; neutral; clear smooth boundary.

2BC—16 to 22 inches; pale brown (10YR 6/3) loamy sand, dark grayish brown (10YR 4/2) moist; single grain; loose, nonsticky and nonplastic; common very fine and few fine roots; common fine and medium irregular pores; 10 percent gravel; neutral; gradual smooth boundary.

2C1—22 to 40 inches; pale brown (10YR 6/3) gravelly loamy sand, dark grayish brown (10YR 4/2) moist; single grain; loose, nonsticky and nonplastic; few fine and very fine roots; common fine and medium irregular pores; 15 percent gravel; neutral; gradual smooth boundary.

2C2—40 to 60 inches; pale brown (10YR 6/3) sand, dark grayish brown (10YR 4/2) moist; single grain; loose, nonsticky and nonplastic; few very fine, fine, and medium roots; common medium irregular pores; 5 percent gravel; neutral.

Range in Characteristics

Thickness of the mixed volcanic ash: 14 to 20 inches

Thickness of the mollic epipedon: 10 to 20 inches

A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 to 3 dry or moist

Content of gravel—0 to 10 percent

Bw horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—ashy sandy loam or ashy fine sandy loam

Content of gravel—0 to 10 percent

2BC and 2C horizons:

Value—6 or 7 dry, 4 to 6 moist

Chroma—2 to 4 dry or moist

Texture—sand, loamy sand, loamy coarse sand, gravelly loamy sand, or gravelly loamy coarse sand

Content of gravel—0 to 25 percent

Wilma Series

Depth class: Moderately deep

Drainage class: Well drained

Landform: Mountains

Parent material: Volcanic ash (10 to 14 inches thick) over residuum and colluvium derived from granitic rock

Slope range: 15 to 65 percent

Elevation: 2,000 to 5,500 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 40 to 44 degrees F

Average frost-free season: 90 to 120 days

Taxonomic classification: Loamy-skeletal, isotic, frigid Andic Haploxerepts

Typical Pedon

Wilma gravelly ashy fine sandy loam; Okanogan National Forest Area, Washington; about 7 miles southeast of Oroville; 700 feet west and 2,300 feet south of the northeast corner of section 4, T. 39 N., R. 28 E.; latitude 48 degrees 53 minutes 56 seconds north and longitude 119 degrees 18 minutes 0 seconds west; NAD 83.

Oi—0 to 1 inch; slightly decomposed mat of needles, twigs, and grass; abrupt smooth boundary.

A—1 to 7 inches; pale brown (10YR 6/3) gravelly ashy fine sandy loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; moderately smeary; common very fine and fine roots; common fine and medium tubular pores; 15 percent gravel; slightly acid; clear smooth boundary.

Bw—7 to 13 inches; pale brown (10YR 6/3) gravelly ashy fine sandy loam, brown (10YR 4/3) moist; soft, very friable, nonsticky and nonplastic; moderately smeary; common fine and few medium roots; common fine and medium tubular pores; 20 percent gravel and 5 percent cobbles; slightly acid; gradual wavy boundary.

2BC—13 to 18 inches; light yellowish brown (10YR 6/4) very gravelly fine sandy loam, brown (10YR 5/3) moist; weak fine and medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common fine roots; common fine tubular pores; 25 percent gravel, 10 percent cobbles, and 5 percent stones; slightly acid; gradual wavy boundary.

2C—18 to 29 inches; light yellowish brown (2.5Y 6/3) extremely gravelly coarse sandy loam, dark grayish brown (2.5Y 4/2) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few fine roots; few tubular pores; 40 percent gravel, 15 percent cobbles, and 5 percent stones; abrupt wavy boundary.

2R—29 inches; granite.

Range in Characteristics

Thickness of the volcanic ash: 10 to 14 inches

Depth to bedrock: 20 to 40 inches

A horizon:

Value—3 or 4 moist

Chroma—2 or 3 dry or moist

Content of gravel—10 to 15 percent

Content of cobbles—0 to 5 percent

Content of stones—0 to 5 percent

Bw horizon:

Value—3 or 4 moist

Chroma—2 to 4 dry or moist

Content of gravel—10 to 25 percent

Content of cobbles—0 to 5 percent

Content of stones—0 to 5 percent

2BC horizon:

Value—5 or 6 dry, 4 or 5 moist

Chroma—2 to 4 dry or moist

Texture—very gravelly fine sandy loam, very cobbly sandy loam, very gravelly sandy loam, or very cobbly fine sandy loam

Content of gravel—25 to 35 percent

Content of cobbles—10 to 20 percent

Content of stones—0 to 5 percent

2C horizon:

Hue—10YR or 2.5Y

Value—5 or 6 dry, 4 or 5 moist

Chroma—2 to 4 dry or moist

Texture—very gravelly sandy loam, very cobbly coarse sandy loam, or extremely gravelly coarse sandy loam

Content of gravel—25 to 40 percent

Content of cobbles—10 to 20 percent

Content of stones—0 to 5 percent

Winsand Series

Depth class: Deep

Drainage class: Well drained

Landform: Mountains

Parent material: Mixed volcanic ash (7 to 14 inches thick) over colluvium and residuum derived from sedimentary rock

Slope range: 35 to 65 percent

Elevation: 4,800 to 5,800 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 37 to 42 degrees F

Frost-free season: 70 to 90 days

Taxonomic classification: Loamy-skeletal, isotic Vitrixerandic Haplocryepts

Typical Pedon

Winsand gravelly ashy sandy loam; Okanogan National Forest Area, Washington; about 5 miles north of Mazama; about 500 feet west and 1,900 feet north of the

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southeast corner of section 36, T. 37 N., R. 19 E.; latitude 48 degrees 39 minutes 40 seconds north and longitude 120 degrees 24 minutes 43 seconds west; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of needles and twigs; abrupt smooth boundary.

A—1 to 6 inches; brown (10YR 4/3) gravelly ashy sandy loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium and coarse roots; common fine irregular pores; 15 percent gravel; neutral; clear smooth boundary.

Bw—6 to 13 inches; pale brown (10YR 6/3) gravelly ashy sandy loam, brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium and coarse roots; common fine irregular pores; 20 percent gravel; slightly acid; clear smooth boundary.

2C1—13 to 25 inches; pale brown (10YR 6/3) very cobbly sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, slightly sticky and nonplastic; common very fine and fine roots; few fine irregular pores; 25 percent gravel and 20 percent cobbles; slightly acid; clear wavy boundary.

2C2—25 to 44 inches; light yellowish brown (10YR 6/4) very cobbly sandy loam, yellowish brown (10YR 5/4) moist; massive; soft, friable, slightly sticky and slightly plastic; few very fine and fine roots; few very fine irregular pores; 25 percent gravel, 20 percent cobbles, and 5 percent stones; slightly acid; gradual wavy boundary.

2R—44 inches; sandstone.

Range in Characteristics

Thickness of the mixed volcanic ash: 7 to 14 inches

Depth to bedrock: 40 to 60 inches

A horizon:

Value—4 or 5 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Content of gravel—15 to 20 percent

Bw horizon:

Value—3 or 4 moist

Texture—gravelly ashy sandy loam or very gravelly ashy sandy loam

Content of gravel—15 to 30 percent

Content of cobbles—0 to 5 percent

2C horizon:

Chroma—3 or 4 dry or moist

Texture—very gravelly sandy loam or very cobbly sandy loam

Content of gravel—25 to 40 percent

Content of cobbles—10 to 30 percent

Content of stones—0 to 5 percent

Winthrop Series

Depth class: Very deep

Drainage class: Excessively drained

Landform: Outwash terraces

Parent material: Glacial outwash

Slope range: 0 to 45 percent

Elevation: 1,300 to 2,700 feet

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Mean annual precipitation: 11 to 15 inches

Mean annual air temperature: 45 to 50 degrees

Frost-free period: 110 to 140 days

Taxonomic classification: Sandy-skeletal, mixed, mesic Entic Ultic Haploxerolls

Typical Pedon

Winthrop gravelly loamy sand, 0 to 15 percent slopes; about 100 feet west and 50 feet north of the southeast corner of the northeast $\frac{1}{4}$ northeast $\frac{1}{4}$ of section 20, T. 33 N., R. 22 E.; latitude 48 degrees 21 minutes 1 second north and longitude 120 degrees 6 minutes 10 seconds west; NAD 83.

A1—0 to 5 inches; dark grayish brown (10YR 4/2) gravelly loamy sand, very dark brown (10YR 2/2) moist; single grain; loose, nonsticky and nonplastic; many fine and very fine roots; many medium and coarse interstitial pores; 20 percent gravel; neutral; abrupt smooth boundary.

A2—5 to 13 inches; grayish brown (10YR 5/2) gravelly loamy sand, very dark grayish brown (10YR 3/2) moist; single grain; loose, nonsticky and nonplastic; many fine and very fine roots; many medium and coarse interstitial pores; 20 percent gravel and 5 percent stones; neutral; abrupt smooth boundary.

C1—13 to 25 inches; brown (10YR 5/3) very gravelly loamy sand, dark brown (10YR 3/3) moist; single grain; loose, nonsticky and nonplastic; common fine roots; many medium and coarse interstitial pores; 50 percent gravel; neutral; abrupt smooth boundary.

C2—25 to 60 inches; multicolored very gravelly sand; single grain; loose, nonsticky and nonplastic; few fine roots; many medium and coarse interstitial pores; 50 percent gravel; neutral.

Range in Characteristics

Thickness of the mollic epipedon: 8 to 15 inches

A1 horizon:

Value—3 or 4 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Texture—loamy sand or gravelly loamy sand

Content of gravel—0 to 30 percent

Content of cobbles—0 to 5 percent

A2 horizon:

Value—3 to 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Texture—stony sandy loam or gravelly loamy sand

Content of gravel—15 to 30 percent

Content of cobbles—0 to 5 percent

Content of stones—0 to 15 percent

C horizon:

Hue—10YR or 2.5Y

Value—5 to 7 dry, 3 to 5 moist

Chroma—2 to 4 dry or moist

Texture—very gravelly loamy sand, very gravelly sand, or very gravelly coarse sand

Content of gravel—30 to 60 percent

Content of cobbles—0 to 15 percent

Content of stones—0 to 5 percent

Wynhoff Series

Depth class: Moderately deep

Drainage class: Well drained

Landform: Mountains and hills

Parent material: Residuum and colluvium derived from granite and metasedimentary rock

Slope range: 15 to 90 percent

Elevation: 2,500 to 4,700 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 45 to 52 degrees F

Frost-free period: 110 to 140 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Typic Haploxerolls

Typical Pedon

Wynhoff gravelly sandy loam; Okanogan National Forest Area, Washington; about 2 miles north of Conconully; about 2,200 feet east and 300 feet south of the northwest corner of section 25, T. 36 N., R. 24 E.; latitude 48 degrees 35 minutes 46 seconds north and longitude 119 degrees 46 minutes 1 second west; NAD 83.

A1—0 to 5 inches; dark grayish brown (10YR 4/2) gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine, common medium, and few coarse roots; common fine irregular pores; 15 percent gravel and 5 percent cobbles; neutral; gradual wavy boundary.

A2—5 to 9 inches; dark grayish brown (10YR 4/2) gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and common medium roots; common fine irregular pores; 20 percent gravel and 5 percent cobbles; neutral; clear smooth boundary.

Bw—9 to 18 inches; brown (10YR 5/3) very gravelly sandy loam, dark grayish brown (10YR 4/2) moist; weak fine and medium subangular blocky structure; soft, friable, slightly sticky and slightly plastic; many very fine and fine and few medium and coarse roots; common fine irregular pores; 35 percent gravel and 5 percent cobbles; neutral; clear wavy boundary.

C—18 to 24 inches; yellowish brown (10YR 5/4) extremely gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; massive; soft, friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; 50 percent gravel, 10 percent cobbles, and 5 percent stones; neutral; clear wavy boundary.

R—24 inches; metasedimentary rock.

Range in Characteristics

Thickness of the mollic epipedon: 9 to 15 inches

Depth to bedrock: 20 to 40 inches

A horizon:

Value—4 or 5 dry

Chroma—2 or 3 dry or moist

Content of gravel—15 to 30 percent

Content of cobbles—0 to 5 percent

Bw horizon:

Value—4 or 5 dry, 3 or 4 moist
Chroma—3 or 4 dry, 2 or 3 moist
Texture—very gravelly sandy loam or very cobbly sandy loam
Content of gravel—20 to 45 percent
Content of cobbles—5 to 20 percent

C horizon:

Hue—10YR or 2.5Y
Value—5 or 6 dry, 4 or 5 moist
Chroma—3 or 4 dry or moist
Texture—extremely gravelly sandy loam, very cobbly sandy loam, or extremely cobbly sandy loam
Content of gravel—35 to 60 percent
Content of cobbles—10 to 20 percent
Content of stones—0 to 5 percent

Xerofluvents

Depth class: Very deep

Drainage class: Somewhat poorly drained and moderately well drained

Landform: Flood plains

Parent material: alluvium

Slope range: 0 to 3 percent

Elevation: 800 to 4,200 feet

Mean annual precipitation: 12 to 20 inches

Mean annual air temperature: 42 to 47 degrees F

Frost-free period: 90 to 140 days

Taxonomic classification: Xerofluvents

Reference Pedon

Xerofluvents in an area of Synarep-Colville-Xerofluvents complex, 0 to 3 percent slopes; about 660 feet west and 900 feet south of the east $\frac{1}{4}$ corner of section 34, T. 36 N., R. 27 E.; latitude 48 degrees 34 minutes 22 seconds north and longitude 119 degrees 26 minutes 18 seconds west; NAD 83.

A—0 to 8 inches; grayish brown (10YR 5/2) sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common fine irregular pores; slightly acid; abrupt wavy boundary.

AC—8 to 30 inches; grayish brown (10YR 5/2) sandy loam, dark grayish brown (10YR 4/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine roots; few fine tubular pores; 5 percent gravel; slightly acid; clear wavy boundary.

C—30 to 60 inches; stratified light yellowish brown (2.5Y 6/3) loamy sand, olive brown (2.5Y 4/3) moist, and multicolored sand; single grain; loose, nonsticky and nonplastic; few very fine roots; many fine and medium interstitial pores; neutral.

Range in Characteristics

Depth to the sandy substratum (C horizon): 8 to 60 inches

High water table: Present in winter and spring

Flooding: Present in spring

A and AC horizons:

Value—3 to 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Content of gravel—0 to 10 percent

C horizon:

Hue—10YR or 2.5Y

Value—5 to 7 dry, 3 to 6 moist

Chroma—1 to 4 dry, 2 to 6 moist

Texture—loamy sand or sand

Content of gravel—0 to 10 percent

Yellcreek Series

Depth class: Very deep

Drainage class: Well drained

Landform: Mountains

Parent material: Mixed volcanic ash (7 to 25 inches thick) over colluvium derived from volcanic and sedimentary rock

Slope range: 35 to 65 percent

Elevation: 2,300 to 4,500 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 40 to 44 degrees F

Frost-free period: 90 to 120 days

Taxonomic classification: Loamy-skeletal, isotic, frigid Vitrandic Haploxerolls

Typical Pedon

Yellcreek gravelly ashy sandy loam; Okanogan National Forest Area, Washington; about 2 miles south-southeast of Mazama; about 2,200 feet east and 500 feet south of the northwest corner of section 5, T. 36 N., R. 19 E.; latitude 48 degrees 38 minutes 50 seconds north and longitude 120 degrees 30 minutes 12 seconds west; NAD 83.

Oe—0 to 1 inch; moderately decomposed mat of needles and twigs; abrupt smooth boundary.

A1—1 to 6 inches; very dark grayish brown (10YR 3/2) gravelly ashy sandy loam, black (10YR 2/1) moist; weak fine and medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common very fine and fine tubular pores; 30 percent gravel; neutral; clear wavy boundary.

A2—6 to 13 inches; grayish brown (10YR 5/2) very gravelly ashy sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and common medium and coarse roots; common very fine and fine tubular pores; 40 percent gravel; neutral; gradual wavy boundary.

Bw—13 to 26 inches; light brownish gray (10YR 6/2) very gravelly ashy sandy loam, dark grayish brown (10YR 4/2) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium and coarse roots; common fine irregular pores; 40 percent gravel and 5 percent cobbles; neutral; gradual wavy boundary.

2C1—26 to 36 inches; light brownish gray (10YR 6/2) extremely gravelly sandy loam, grayish brown (10YR 5/2) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; few fine irregular pores; 60 percent gravel and 10 percent cobbles; slightly acid; gradual wavy boundary.

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2C2—36 to 60 inches; pinkish gray (7.5YR 6/2) extremely gravelly sandy loam, brown (7.5YR 5/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; few fine irregular pores; 70 percent gravel and 10 percent cobbles; slightly acid.

Range in Characteristics

Thickness of the mixed volcanic ash: 7 to 25 inches

Thickness of the mollic epipedon: 7 to 15 inches

A horizon:

Value—3 to 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Content of gravel—20 to 50 percent

Bw horizon:

Chroma—2 or 3 dry or moist

Content of gravel—30 to 40 percent

Content of cobbles—0 to 10 percent

2C horizon:

Hue—10YR or 7.5YR

Value—5 or 6 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Texture—very gravelly, very cobbly, or extremely gravelly sandy loam

Content of gravel—30 to 70 percent

Content of cobbles—10 to 20 percent

Content of stones—0 to 5 percent

Formation of the Soils

Soil is the portion of the earth's surface that supports or is capable of supporting plant growth. It consists of unconsolidated, or loose, mineral and organic material as well as living organisms. The nature of the soil at a given site is the result of the interaction of five general factors—parent material, climate, living organisms, topography, and time. All of these factors interact to form soils. Differences among soils are the result of variations in one or more of these factors.

In this section, each soil-forming factor is discussed separately. These factors, however, interact to create the soil-forming processes that result in a soil profile. These processes can be grouped into three general types—additions, removals, and transformations. An example of an addition is the accumulation of organic matter in the surface layer of a soil that formed under grass and shrub vegetation, such as in the Wynhoff, Swakane, and Vanbrunt soils. An example of a removal is the leaching of soluble salts and other substances in solution from the soil profile, such as clay being moved by water and redeposited lower in the profile, forming an argillic horizon. Nicmar, Rendovy, and Sycreek soils have an argillic horizon. An example of a transformation is the reduction of iron under water-saturated conditions, resulting in gleying, or the gray color, of many wet soils. Colville soils, Cryaquolls, and Longswamp soils exhibit concentrations of iron and gleying.

Parent Material

Parent material is the unconsolidated mineral and organic material that is acted on by soil-forming processes. The physical and chemical properties of parent material have important effects on the formation of soils.

The soils in this survey area formed from a wide variety of parent material, including residuum and colluvium derived from granitic, metamorphic, sedimentary, metasedimentary, and volcanic rock; glacial deposits of till, outwash, glaciofluvial sediment, and glaciolacustrine sediment; volcanic ash and pumice; loess; alluvium; and decomposing plant material. Many of the soils formed in more than one kind of parent material. An example is the Manley series, which formed in volcanic ash over glacial till.

Residuum and Colluvium Derived from Bedrock

Five main groups of rock are in the survey area. They are granitic, metamorphic, sedimentary, metasedimentary, and volcanic rock. Soils that formed in these rock types typically are associated with ridges, shoulders, and upper backslopes where glacial till has not been deposited over the bedrock.

Granitic rock, including granodiorite, quartz monzonite, quartz diorite, and granitic gneiss, is relatively extensive in the survey area. East of the Okanogan River, many of the areas are intrusive plutons that have pushed up through the metamorphic core complex. These different granitic rocks occur in a complex, intricate pattern but behave similarly in terms of soil formation.

In glaciated areas, the granitic rock has been scoured and abraded by glacial ice, which removed the weathered material, exposing hard, relatively unweathered rock. The soils are dominantly 10 to 60 inches deep, are in the loamy-skeletal family, and have gravel- to boulder-sized rock fragments. Brevco, Devore, Swakane, and Vanbrunt soils are examples.

In areas where the glaciation was not as extensive, the granitic rock commonly is highly weathered and the soils are 10 to 60 inches deep to a paralithic contact. The soils are in the sandy-skeletal or loamy-skeletal family with dominantly gravel-sized rock fragments. Wellsfar soils are an example.

Metamorphic rock, which includes gneiss and orthogneiss, is massive and relatively resistant to weathering. Soils that formed in material derived from gneiss have a high content of angular rock fragments and a lithic contact. The soils are 10 to 60 inches deep to bedrock. Storer soils are an example.

Metasedimentary rock, which includes metamorphic rock and some schist, has layered bedding planes and is less resistant to weathering. Soils that formed in material derived from this type of rock have rock fragments in the profile and are more weathered and easily broken. The soils are 10 to 60 inches deep to bedrock and are in the loamy-skeletal family. Finney and Rufus soils are examples.

Sedimentary rock in the survey area is mostly confined to a major subsidence feature known as the Methow-Pasayten graben (Barksdale, 1975). This rock includes arkose sandstone, shale, and conglomerate of the Goat Peak, Panther Creek, Harts Pass, Virginian Ridge, and Winthrop Sandstone Formations. Soils that formed in arkose sandstone tend to be more resistant to weathering, have angular rock fragments, and have a lithic contact with bedrock. Radercreek, Winsand, and Santop soils are examples. Soils that formed in shale have a higher content of clay and have channery rock fragments throughout. The soils are 10 to 40 inches deep to bedrock and are in the loamy-skeletal family.

Volcanic rock in the survey area includes andesite flows, breccia, rhyolite, and tuff of the Newby Group and Midnight Peak Formation and rhyolite flows, andesite, dacite, tuff, and breccia of the Klondike Mountain and Sanpoil Volcanic Formations. Soils that formed in material derived from these rocks are 4 to 40 inches deep to bedrock. They are dominantly in the loamy-skeletal family and are associated with areas of Rock outcrop. Baldknob, Midpeak, and Thout soils are examples.

Glacial Deposits

During the Pleistocene, the Okanogan Lobe of the Cordilleran ice sheet covered most of the survey area, except for some of the highest peaks. Glacial drift that consists largely of till on footslopes and lower to middle backslopes and outwash gravel on valley floors and terraces is dominant in the survey area. The till consists of sand, silt, clay, and rock fragments of various sizes that have been ground up, carried, and deposited by glacial ice. The mineralogy of the till is commonly similar to that of the local bedrock. For example, soils that formed in till derived from granitic rock have a substratum of very gravelly sandy loam and have very little clay in the profile. Soils that formed in till derived from sedimentary and volcanic rock have more clay and in some areas have formed an argillic horizon. The substratum of most of these soils tends to be compacted and has a high bulk density due to the weight of the glacial ice. Most of the soils that formed in glacial till have a mantle of volcanic ash and some pumice. Manley, Nevine, and Newhorn soils are examples of soils that formed in granitic till with a mantle of volcanic ash.

Glacial outwash from melting glaciers is on valley floors and terraces and on kames along drainageways. Outwash consists mainly of sorted and stratified sand, gravel, and cobbles. Some terraces are composed mainly of nongravelly, coarse-loamy material that has been termed glaciofluvial deposits in the survey. Most of the soils

that formed in this material have a mantle of volcanic ash that varies in thickness. Goddard, Granflat, Parmenter, Pogue, Sitdown, and Wapal soils are examples of soils that formed in sandy-skeletal glacial outwash. Cashmere, Cashmont, Stapaloo, and Wilder soils are examples of soils that formed in coarse-loamy and sandy glaciofluvial material.

Glaciolacustrine sediment is of limited extent in the survey area. Small glacial lakes formed when glaciers dammed small side drainageways. Glaciolacustrine sediment consists of stratified silt, clay, and sand and is in complex with glacial till. Mobu and Tonasket soils formed in stratified glaciolacustrine sediment.

Volcanic Ash and Pumice

Two major eruptions in the Cascade Mountains deposited volcanic ash over most of the survey area. These were the eruptions of Glacier Peak in the North Cascades about 12,000 years ago and Mount Mazama (Crater Lake) in the southern Oregon Cascades about 6,600 years ago. The eruptions of Glacier Peak deposited pumice and ash in a plume that covered an area in the southern part of the forest east of the ridge along the Chelan County line. This coarser ash has texture of ashy sandy loam or ashy loamy sand and becomes thinner rapidly moving eastward. The eastern side of the survey area has been covered with volcanic ash from Mount Mazama. This ash is finer and has texture of ashy fine sandy loam or ashy silt loam in some areas.

The physical characteristics of volcanic ash from the Mount Mazama eruptions include low bulk density (0.65 to 0.90 grams per cubic centimeter), a dominance of silt, very fine sand, and fine sand particles, weak structural development, and relatively high available water capacity. Chemical properties include high ratios of 15-bar water content and cation-exchange capacity to measured clay.

On northerly aspects at elevations of more than about 2,000 feet, the ash forms a discrete mantle over a variety of types of parent material. Nevine, Manley, and Wilma soils are examples. On southerly aspects at elevations of less than 2,000 feet, the ash commonly occurs as a component of the surface layer of the soil and is mixed with loess or the underlying parent material. Merkel, Republic, Brevco, and Coxit soils are examples.

Alluvium

The major streams and many of the secondary streams in the survey area formed flood plains and stream terraces composed of recent alluvium. The characteristics of the alluvium depend on the velocity and volume of the floodwater and on the characteristics of the soils and geology of the adjacent uplands. Because of variations in the velocity of the floodwater during deposition, soils that formed in alluvium commonly have a profile that consists of stratified sandy loam, loamy sand, and sand. Boesel, Muckamuck, and Synarep soils and Aquandic Xerofluvents formed in alluvial deposits. Alluvial fans are common where relatively steep-sided drainageways emerge onto nearly level valley bottoms or terraces. Jimbluff soils are an example of soils that formed on alluvial fans. They are in the loamy-skeletal particle-size class family.

Organic Material

The organic soils in the survey area are on valley bottoms and drainage bottoms and in drainage basins. The parent material consists of water-tolerant plants in various stages of decomposition. Organic soils commonly contain thin strata of volcanic ash and overlie alluvium, till, or outwash. Haplosaprists and Cryohemists are examples. Histic Cryaquepts are an example of organic soils that have a thin organic layer over alluvium or till.

Climate

Precipitation and temperature are the primary climatic factors affecting soil formation. The physical, chemical, and biological processes of soil formation are all dependent on temperature and moisture. These processes include weathering of minerals, production and decomposition of organic matter, erosion of soils, and movement of minerals and nutrients in and out of soils. The rate at which these processes occur is influenced by soil temperature and moisture.

The climate in the survey area is strongly influenced by the rainshadow effect of the Cascades Mountains. On the west side of the survey area near the crest of the Cascade Mountains, the mean annual precipitation is about 90 inches. Near the city of Winthrop, the mean annual precipitation is only about 11 inches. Temperatures are lower in the mountains and higher in the valleys. The mean annual air temperature ranges from about 35 degrees F in the mountains to about 52 degrees in the valleys. Generally, the temperature decreases and the precipitation increases with increasing elevation.

Five broad climatic zones are recognized in the survey area. These zones are defined in terms of soil moisture regime, soil temperature regime, and the associated vegetation.

Zone 1.—The warmest and driest zone in the survey area includes soils that have an aridic moisture regime and a mesic temperature regime. The mean annual precipitation is 10 to 12 inches. Elevation generally ranges from 700 feet to 3,000 feet. The mean annual air temperature is 48 to 52 degrees, and the frost-free period is 140 to 190 days. The vegetation is shrub steppe. Soils in this zone have a mollic epipedon and may have an accumulation of carbonates in the lower part of the profile. Most soils have a well developed cambic horizon. Pogue, Cashmere, and Cashmont soils are examples.

Zone 2.—This zone is slightly more moist than zone 1. The mean annual precipitation is 11 to 16 inches. The soils have a xeric moisture regime and a mesic temperature regime. Elevation generally ranges from 1,200 to 4,000 feet. The mean annual air temperature is 46 to 50 degrees F, and the frost-free period is 110 to 140 days. The vegetation is dominantly bunchgrass/shrub with widely spaced ponderosa pine trees. Soils in this zone have a well developed mollic epipedon, and most have a well developed cambic horizon. Conconully soils are an example.

Zone 3.—This zone supports a vegetative mix of grassland and forestland. The mean annual precipitation is 14 to 20 inches. The soils have a xeric moisture regime and a mesic temperature regime. The mean annual air temperature is 45 to 50 degrees F, and the frost-free period is 110 to 140 days. Elevation generally ranges from 1,500 to 4,600 feet. The vegetation is dominantly ponderosa pine with Douglas-fir in microsites and an understory of grasses, forbs, and shrubs. Most of the soils in this zone have a well developed cambic horizon and a mollic epipedon. Donovan, Peka, and Vanbrunt soils are examples.

Zone 4.—This zone is slightly cooler than zone 3. The mean annual precipitation is 18 to 25 inches. The soils have a xeric moisture regime and a frigid temperature regime. Elevation generally ranges from 2,000 to 5,500 feet. The mean annual air temperature is 39 to 45 degrees F, and the frost-free period is 90 to 120 days. The vegetation is dominantly Douglas-fir, western larch, and ponderosa pine with an understory of grasses, forbs, and shrubs. Most of the soils in this zone have a well developed cambic horizon and an ochric epipedon. Merkel, Nevine, and Longort soils are examples.

Zone 5.—The mean annual precipitation in this zone is 25 to 35 inches. The soils have a xeric moisture regime and a cryic temperature regime. Elevation ranges from 3,400 to 7,800 feet. The mean annual air temperature is 35 to 43 degrees F,

and the frost-free period is 40 to 90 days. The vegetation is dominantly subalpine fir, Engelmann spruce, and lodgepole pine with an understory of shrubs and forbs. Most of the soils in this zone have a well developed cambic horizon and an ochric epipedon. Myerscreek and Manley soils are examples.

Living Organisms

Vegetation, microorganisms, and animals, including humans, influence the physical and chemical processes of soil formation.

Vegetation is the primary source of organic matter. The accumulation and decomposition of organic matter are responsible for the development of a dark A horizon in most rangeland soils and in some forested soils at lower elevations. Earthworms, rodents, insects, and other burrowing animals incorporate, mix, and consume organic matter. Organic matter enhances the fertility of soils by promoting better structure and stability, which are important for the movement of air and water. The available water capacity and cation-exchange capacity, or nutrient supplying potential, are increased by the addition of organic matter. Plant roots improve aeration and permeability by improving the porosity of soils.

Microorganisms decompose organic matter and are involved in the transformation of certain compounds and molecules within the soil. The elements involved include nitrogen, phosphorous, sulfur, and iron. Nitrogen mineralization and the fixation of atmospheric nitrogen involve microorganisms and provide nutrients for plant growth.

Human activities, such as timber harvesting and farming, can strongly influence soil formation or degradation. Logging operations mix the duff (O horizons) into the mineral surface layer, producing soils that have a thicker, darker colored surface layer. Soils can be compacted, displaced, and puddled by logging equipment and farm implements, which can degrade soil structure, porosity, and permeability.

Topography

Topography, or relief, affects soil formation in several ways. Slope orientation, or aspect, affects the amount of solar radiation received at a given site. Solar radiation influences soil temperature and the rate of evapotranspiration. South-facing slopes receive more solar radiation than do north-facing slopes and are therefore warmer and drier. West- and east-facing slopes receive essentially the same amount of sun. West-facing slopes, however, receive the sun later in the day, after the earth has warmed up and begun to radiate heat. Therefore, they tend to be warmer and drier than east-facing slopes. Soils on north aspects typically have a denser plant cover and a higher content of organic matter than do soils on south-facing slopes; thus, they are better protected from erosion. This protection results in increased soil depth and, in drier areas, a thicker mantle of volcanic ash. On south aspects, the soils have sparser vegetation and are subject to a higher rate of erosion, resulting in shallower soils and more mixing of the volcanic ash mantle with the underlying parent material.

In mountainous areas, the soils on ridges, shoulders, and upper backslopes tend to be shallower to bedrock than are the soils on lower backslopes and footslopes. They are shallower because erosion and colluvial action, such as soil creep and landslides, move soil farther downslope. Steepness of slope has a strong influence on soil formation. Soils on steep slopes commonly have minimal profile development because the rate of removal of soil material by water erosion and mass movement is nearly as great as the rate of soil development. With sufficient time, soils in more stable, gently sloping to steep areas exhibit more soil development. The rate of erosion in such areas is slower than the rate of soil formation.

Time

The weathering of rock and minerals and the development of soil horizons are dependent on time. The longer a soil has been exposed to the soil-forming factors and processes discussed in this section, the more pronounced the soil development.

Few of the soils in the survey area show a strong degree of development because the parent material is young. Many of the soils have developed in glacial deposits. These deposits are about 12,000 to 14,000 years old. In addition, volcanic ash from Mount Mazama and Glacier Peak was deposited on the glacial deposits and other nonglacial material. The ash deposits are about 6,600 to 12,000 years old; consequently, the soil parent material is relatively young and soil formation processes have had little time to act on the soil. Most of the soils have only been in place long enough to exhibit andic soil properties and the development of a mollic epipedon and a cambic horizon.

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Glossary

Many of the terms relating to landforms, geology, and geomorphology are defined in more detail in the "National Soil Survey Handbook" (available in local offices of the Natural Resources Conservation Service or on the Internet).

ABC soil. A soil having an A, a B, and a C horizon.

Ablation till. Loose, relatively permeable earthy material deposited during the downwasting of nearly static glacial ice, either contained within or accumulated on the surface of the glacier.

Abrupt textural change. A soil horizon boundary or thin transitional zone characterized by a considerable increase in clay that occurs at the contact between a surface layer, subsurface layer, subsoil, or substratum.

AC soil. A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Albic horizon. An eluvial horizon that is at least 1 centimeter thick or more. The color of the soil material is largely determined by the color of primary sand and silt particles rather than by the color of their coatings (Soil Survey Staff, 1999).

Alkali (sodic) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Alluvial cone. A semiconical type of alluvial fan having very steep slopes. It is higher, narrower, and steeper than a fan and is composed of coarser and thicker layers of material deposited by a combination of alluvial episodes and (to a much lesser degree) landslides (debris flow). The coarsest materials tend to be concentrated at the apex of the cone.

Alluvial fan. A low, outspread mass of loose materials and/or rock material, commonly with gentle slopes. It is shaped like an open fan or a segment of a cone. The material was deposited by a stream at the place where it issues from a narrow mountain valley or upland valley or where a tributary stream is near or at its junction with the main stream. The fan is steepest near its apex, which points upstream, and slopes gently and convexly outward (downstream) with a gradual decrease in gradient.

Alluvium. Unconsolidated material, such as gravel, sand, silt, clay, and various mixtures of these, deposited on land by running water.

Alpha, alpha-dipyridyl. A compound that when dissolved in ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction implies reducing conditions and the likely presence of redoximorphic features.

Alpine. Characteristic of or resembling the European Alps, or any lofty mountain or mountain system, especially one so modified by intense glacial erosion as to

contain cirques, horns, etc. Sometimes used to designate areas above or near timberline.

Amphibolite. A rock consisting largely of hornblende.

Andesite. A fine-grained volcanic rock consisting mainly of plagioclase feldspar with small amounts of pyroxene, hornblende, or biotite. It is dark colored, mainly shades of gray or green.

Andic soil properties. A collection of physical and chemical properties that define the criteria for the Andisol order (Soil Survey Staff, 1999).

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Anticline. A unit of folded strata that is a convex upland. In a single anticline, beds forming the opposite limbs of the fold dip away from its axial plane.

Apite. Light-colored, finely grained granite made up of quartz and feldspar.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay (Soil Survey Staff, 1999).

Aridic. A soil moisture regime common to a climate that lacks soil moisture available for plant growth during the growing season. The soils are dry for more than 50 percent of the growing season (Soil Survey Staff, 1999).

Arkose. Sandstone containing unaltered feldspar; usually formed in mountainous regions from weathered granite.

Ash (volcanic). Unconsolidated, pyroclastic material less than 2 millimeters in all dimensions; commonly called volcanic ash.

Ashy (family particle-size class). A substitute class term used for the family particle-size in mineral soils (Soil Survey Staff, 1999).

Ashy (textural modifier; for example, ashy sandy loam). A term used to describe material in which the fine-earth fraction has 30 percent or more particles that are 0.02 to 2.0 millimeters in diameter. Of this, 5 percent or more is volcanic glass and the ammonium oxalate extractable aluminum plus ½ the ammonium oxalate extractable iron times 60 added to the percentage of volcanic glass are equal to or more than 30.

Aspect. The direction toward which a slope faces. Also called slope aspect.

Aspect, north. All compass directions with a northerly aspect, including west-northwest, northwest, north-northwest, north, north-northeast, northeast, and east-northeast. North aspects have less solar radiation than south aspects and consequently are cooler and more moist.

Aspect, south. All compass directions with a southerly aspect, including east-southeast, southeast, south-southeast, south, south-southwest, southwest, and west-southwest. South aspects have more solar radiation than north aspects and consequently are warmer and more droughty.

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

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

Very low	0 to 3
Low	3 to 6
Moderate.....	6 to 9
High	9 to 12
Very high.....	more than 12

- Avalanche chute.** The central channel-like corridor, scar, or depression along which an avalanche has moved. It may take the form of an open path in a forest, with bent and broken trees, or an eroded surface marked by pits, scratches, and grooves.
- Backslope.** The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.
- Backswamp.** A flood-plain landform. Extensive, marshy or swampy, depressed areas of flood plains between natural levees and valley sides or terraces.
- Badland.** A landscape that is intricately dissected and characterized by a very fine drainage network with high drainage densities and short, steep slopes and narrow interfluves. Badlands develop on surfaces that have little or no vegetative cover overlying unconsolidated or poorly cemented materials (clays, silts, or sandstones) with, in some cases, soluble minerals, such as gypsum or halite.
- Basal area.** The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.
- Basalt.** A fine-grained, dark-colored extrusive igneous rock composed primarily of calcic plagioclase and pyroxene, with or without olivine.
- Base saturation.** The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.
- Base slope** (geomorphology). A geomorphic component of hills consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).
- Basin.** A low area in the earth's crust, of tectonic origin, in which sediment has accumulated.
- Batholith.** A large, domed mass of intrusive igneous rock such as granite.
- Bedding plane.** A planar or nearly planar bedding surface that visibly separates each successive layer of stratified sediment or rock (of the same or different lithology) from the preceding or following layer; a plane of deposition. It commonly marks a change in the circumstances of deposition and may show a parting, a color difference, a change in particle size, or various combinations of these. The term is commonly applied to any bedding surface, even one that is conspicuously bent or deformed by folding.
- Bedding system.** A drainage system made by plowing, grading, or otherwise shaping the surface of a flat field. It consists of a series of low ridges separated by shallow, parallel dead furrows.
- Bedrock.** The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.
- Bedrock-controlled topography.** A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.
- Bench terrace.** A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.
- Bisequum.** Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.
- Blowout.** A saucer-, cup-, or trough-shaped depression formed by wind erosion on a preexisting dune or other sand deposit, especially in an area of shifting sand or loose soil or where protective vegetation is disturbed or destroyed; the adjoining accumulation of sand derived from the depression, where recognizable, is commonly included. Blowouts are commonly small.

- Bottom land.** An informal term loosely applied to various portions of a flood plain.
- Boulders.** Rock fragments larger than 2 feet (60 centimeters) in diameter.
- Breaks.** A landscape or tract of steep, rough or broken land dissected by ravines and gullies and marking a sudden change in topography.
- Breast height.** An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.
- Breccia.** Coarse grained, clastic rock made up of angular broken rock fragments that are held together by mineral cement or are in a fine-grained matrix.
- Brush management.** Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.
- Bulk density.** The mass of soil per unit bulk volume. Moist bulk density refers to the oven-dry weight of a given volume of soil with moisture content at or near field moisture capacity.
- Butte.** An isolated, generally flat-topped hill or mountain with relatively steep slopes and talus or precipitous cliffs and characterized by summit width that is less than the height of bounding escarpments; commonly topped by a caprock of resistant material and representing an erosion remnant carved from flat-lying rocks.
- Cable yarding.** A method of moving felled trees to a nearby central area for transport to a processing facility. Most cable yarding systems involve use of a drum, a pole, and wire cables in an arrangement similar to that of a rod and reel used for fishing. To reduce friction and soil disturbance, felled trees generally are reeled in while one end is lifted or the entire log is suspended.
- Calcareous soil.** A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.
- Calcic horizon.** A subsurface horizon that has an accumulation of calcium carbonate or of calcium and magnesium carbonate (Soil Survey Staff, 1999).
- Calcium carbonate equivalent.** The quantity of carbonates (CO₃) in the soil, expressed as CaCO₃ and as a percentage by weight of the fraction less than 2 millimeters in size.
- Caliche.** A general term for a prominent zone of secondary carbonate accumulation in surficial materials in warm, subhumid to arid areas. Caliche is formed by both geologic and pedologic processes. Finely crystalline calcium carbonate forms a nearly continuous surface-coating and void-filling medium in geologic (parent) materials. Cementation ranges from weak in nonindurated forms to very strong in indurated forms. Other minerals (e.g., carbonates, silicate, and sulfate) may occur as accessory cements. Most petrocalcic horizons and some calcic horizons are caliche.
- Cambic horizon.** A mineral soil horizon that is loamy very fine sand or finer textured and has soil structure rather than rock structure. The cambic horizon contains some weatherable minerals, and it is characterized by alterations or removals as indicated by redoximorphic features or by stronger chroma or redder hue than that of the underlying horizons (Soil Survey Staff, 1999).
- Canopy.** The leafy crown of trees or shrubs. (See Crown.)
- Canyon.** A long, deep, narrow valley with high, precipitous walls in an area of high local relief.
- Canyonland (general landscape).** A deeply dissected landscape composed dominantly of relatively narrow flood plains or valley floors, commonly with considerable outcroppings of bedrock on steep slopes, ledges, or cliffs and with broad summits or interfluves.

- Capillary water.** Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.
- Carbonates.** Chemical compounds containing the carbonate ion CO_3 in combination with bases such as calcium, magnesium, potassium, and sodium.
- Catena.** A sequence, or "chain," of soils on a landscape that formed in similar kinds of parent material and under similar climatic conditions but that have different characteristics as a result of differences in relief and drainage.
- Cation.** An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.
- Cation-exchange capacity.** The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.
- Catsteps.** See Terracettes.
- Cement rock.** Shaly limestone used in the manufacture of cement.
- Channery soil material.** Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.
- Chemical treatment.** Control of unwanted vegetation through the use of chemicals.
- Chiseling.** Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.
- Cinder.** A glassy vesicular pyroclastic volcanic fragment that is 2 millimeters or more in all dimensions and is strongly cemented or has a stronger degree of cementation.
- Cirque.** A steep-walled, semicircular or crescent-shaped, half-bowl-like recess or hollow, commonly situated at the head of a glaciated mountain valley or high on the side of a mountain. It was produced by the erosive activity of a mountain glacier. It commonly contains a small round lake (tarn).
- Clastic.** Pertaining to rock or sediment composed mainly of fragments derived from pre-existing rock or minerals and moved from their place of origin.
- Clay.** As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.
- Clay depletions.** See Redoximorphic features.
- Clay film.** A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.
- Claypan.** A dense, compact subsoil layer that contains much more clay than the overlying materials, from which it is separated by a sharply defined boundary. The layer restricts the downward movement of water through the soil. A claypan is commonly hard when dry and plastic and sticky when wet.
- Climax forest stage.** The culminating forest succession stage. Overstory vegetation is dominated by trees that are climax for the site. Vertical depth of the understory and overstory canopies is at a maximum. Seedlings to maximum-size, mature trees are present in varying amounts, resulting in an uneven-aged stand.
- Climax plant community.** The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.
- Climax tree.** The most competitive tree capable of growing on a particular site.
- Coarse textured soil.** Sand or loamy sand.
- Coarse-loamy.** A loamy particle-size class that is 15 percent or more fine sand or coarser, including fragments as much as 3 inches in diameter, and is less than 18 percent clay in the fine-earth fraction.

- Coarse-silty.** A loamy particle-size class that is less than 15 percent fine sand or coarser, including fragments as much as 3 inches in diameter, and is less than 18 percent clay in the fine-earth fraction.
- Cobble (or cobblestone).** A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.
- Cobbly soil material.** Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.
- COLE (coefficient of linear extensibility).** See Linear extensibility.
- Colluvium.** Unconsolidated, unsorted earth material being transported or deposited on side slopes and/or at the base of slopes by mass movement (for example, direct gravitational action) and by local, unconcentrated runoff.
- Compaction.** The increase in soil bulk density as a result of applied loads or pressure. Compaction reduces porosity, water infiltration, and root penetration.
- Complex slope.** Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.
- Complex, soil.** A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.
- Concretions.** See Redoximorphic features.
- Conglomerate.** A coarse grained, clastic sedimentary rock composed of rounded or subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.
- Coniferous.** Pertaining to plants of the *Coniferales* order of the *Gymnospermae* subdivision. Coniferous plants have cone fruit and are commonly, but not always, evergreen. Examples include ponderosa pine, Douglas-fir, and western larch.
- Conservation cropping system.** Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.
- Conservation tillage.** A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.
- Consistence, soil.** Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."
- Continental glaciation.** Refers to the glaciers that covered much of North America during the Ice Age, as opposed to contemporary glaciers associated with mountains.
- Contour stripcropping.** Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.
- Control section.** The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

- Coprogenous earth (sedimentary peat).** A type of limnic layer composed predominantly of fecal material derived from aquatic animals.
- Cordilleran ice sheet.** The glacial ice sheet that covered much of the northern half of North America, from the eastern face of the Rocky Mountains to the Pacific Ocean, during the Pleistocene.
- Corrosion** (geomorphology). A process of erosion whereby rocks and soil are removed or worn away by natural chemical processes, especially by the solvent action of running water, but also by other reactions, such as hydrolysis, hydration, carbonation, and oxidation.
- Corrosion** (soil survey interpretations). Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.
- Coulee.** A dry or intermittent stream valley, especially a long, steep-walled gorge representing a channeled scabland overflow channel that carried meltwater from the glacial Lake Missoula floods.
- Cover crop.** A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.
- Crop residue management.** Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.
- Cropping system.** Growing crops according to a planned system of rotation and management practices.
- Cross-slope farming.** Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.
- Crown.** The upper part of a tree or shrub, including the living branches and their foliage.
- Cryic.** A soil temperature regime in which the mean annual soil temperature at a depth of 20 inches ranges from 33 to 46 degrees F. The mean summer soil temperature is less than 47 degrees for soils that have an O horizon, and it is less than 59 degrees for soils that do not have an O horizon.
- Cryoturbate.** A mass of soil or other unconsolidated earthy material moved or disturbed by frost action. It is typically coarser than the underlying material.
- Culmination of the mean annual increment (CMAI).** The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.
- Cutbanks cave** (in tables). The walls of excavations tend to cave in or slough.
- Decreasers.** The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.
- Deferred grazing.** Postponing grazing or resting grazing land for a prescribed period.
- Delta.** A body of alluvium having a surface that is fan shaped and nearly flat; deposited at or near the mouth of a river or stream where it enters a body of relatively quiet water, generally a sea or lake.
- Dense layer** (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.
- Densic contact.** A boundary between soil and coherent underlying material that restricts the penetration of roots, is not cemented, and is typically referred to as dense glacial till and as a Cd horizon.
- Depth, soil.** Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately

deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Desert pavement. A natural, residual concentration or layer of wind-polished, closely packed gravel, boulders, and other rock fragments mantling a desert surface.

It forms where wind action and sheetwash have removed all smaller particles or where rock fragments have migrated upward through sediments to the surface.

It typically protects the finer grained underlying material from further erosion.

Diagnostic horizons. Combinations of specific soil characteristics that are indicative of certain classes of soils. Those that occur at the soil surface are called epipedons, and those that occur below the soil surface are called diagnostic subsurface horizons.

Diamict. A nonsorted or poorly sorted, unconsolidated deposit that contains a wide range of particle sizes, commonly from clay to cobble- or boulder-sized, rounded and/or angular fragments with a clayey, silty, or sandy matrix, depending on the local source bedrock.

Diatomaceous earth. A geologic deposit of fine, grayish siliceous material composed chiefly or entirely of the remains of diatoms.

Dike. An intrusion of rock that cuts across the bedding or foliation of the pre-existing rock.

Diorite. A coarse-grained igneous rock consisting mainly of plagioclase but with smaller amounts of hornblende, biotite, and pyroxene. Quartz is absent or sparse. See Quartz diorite.

Dip slope. A slope of the land surface, roughly determined by and approximately conforming to the dip of the underlying bedrock.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Divided-slope farming. A form of field stripcropping in which crops are grown in a systematic arrangement of two strips, or bands, across the slope to reduce the hazard of water erosion. One strip is in a close-growing crop that provides protection from erosion, and the other strip is in a crop that provides less protection from erosion. This practice is used where slopes are not long enough to permit a full stripcropping pattern to be used.

Dolomite. A sedimentary rock consisting mainly of the mineral dolomite, which is a carbonate of magnesium.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained*, *somewhat excessively drained*, *well drained*, *moderately well drained*, *somewhat poorly drained*, *poorly drained*, and *very poorly drained*. These classes are defined in the “Soil Survey Manual.”

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

Drainageway. A general term for a course or channel along which water moves in draining an area. A term restricted to relatively small, linear depressions that at some time move concentrated water and either do not have a defined channel or have only a small defined channel.

Draw. A small stream valley that generally is shallower and more open than a ravine or gulch and that has a broader bottom. The present stream channel may appear inadequate to have cut the drainageway that it occupies.

Drift. A general term applied to all mineral material (clay, silt, sand, gravel, and boulders) transported by a glacier and deposited directly by or from the ice or transported by running water emanating from a glacier. Drift includes unstratified material (till) that forms moraines and stratified deposits that form outwash plains,

eskers, kames, varves, and glaciofluvial sediments. The term is generally applied to Pleistocene glacial deposits in areas that no longer contain glaciers.

Duff. A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

Dune. A low mound, ridge, bank, or hill of loose, windblown granular material (generally sand), either barren and capable of movement from place to place or covered and stabilized with vegetation but retaining its characteristic shape.

Durinodes. Nodules that are weakly cemented to indurated with silica oxide (SiO₂).

Duripan. A subsurface soil horizon that is cemented by illuvial silica, commonly opal or microcrystalline forms of silica, to the degree that less than 50 percent of the volume of air-dry fragments will slake in water or hydrochloric acid.

Earthy fill. See Mine spoil.

Ecological site. An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.

Effervescence. The gaseous response exhibited as bubbles on the soil ped when drops of dilute (1:10) hydrochloric acid (HCl) are applied. This response typically indicates the presence of calcium carbonates (CaCO₃).

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Eolian deposit. Sand-, silt-, or clay-sized clastic material transported and deposited primarily by wind, commonly in the form of a dune or a sheet of sand or loess.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erratic. Refers to a rock fragment transported by glacial ice or floating ice that is different from the bedrock in the area in which it is deposited.

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

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

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Erosion pavement. A surficial lag concentration or layer of gravel and other rock fragments that remains on the soil surface after sheet or rill erosion or wind has removed the finer soil particles and that tends to protect the underlying soil from further erosion.

Erosion surface. A land surface shaped by the action of erosion, especially by running water.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion

or faulting. Most commonly applied to cliffs produced by differential erosion.

Synonym: scarp.

- Esker.** A long, narrow, sinuous, steep-sided ridge of stratified sand and gravel deposited as the bed of a stream flowing in an ice tunnel within or below the ice (subglacial) or between ice walls on top of the ice of a wasting glacier and left behind as high ground when the ice melted. Eskers range in length from less than a kilometer to more than 160 kilometers and in height from 3 to 30 meters.
- Extrusive rock.** Igneous rock derived from deep-seated molten matter (magma) deposited and cooled on the earth's surface.
- Fallow.** Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.
- Fan remnant.** A general term for landforms that are the remaining parts of older fan landforms, such as alluvial fans, that have been either dissected or partially buried.
- Fault.** A fracture or fracture zone of the earth with displacement along one side in respect to the other.
- Fertility, soil.** The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.
- Fibric soil material (peat).** The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.
- Field moisture capacity.** The moisture content of a soil, expressed as a percentage of the oven-dry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity*, *normal moisture capacity*, or *capillary capacity*.
- Fill slope.** A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.
- Fine textured soil.** Sandy clay, silty clay, or clay.
- Fine-loamy.** A loamy particle-size class that is 15 percent or more fine sand or coarser, including fragments as much as 3 inches in diameter, and is 18 to 34 percent clay in the fine-earth fraction.
- Fine-silty.** A loamy particle-size class that is less than 15 percent fine sand or coarser, including fragments as much as 3 inches in diameter, and is 18 to 34 percent clay in the fine-earth fraction.
- Firebreak.** An area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.
- First bottom.** An obsolete, informal term loosely applied to the lowest flood-plain steps that are subject to regular flooding.
- Flaggy soil material.** Material that has, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.
- Flagstone.** A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.
- Flood plain.** The nearly level plain that borders a stream and is subject to flooding unless protected artificially.
- Flood-plain landforms.** A variety of constructional and erosional features produced by stream channel migration and flooding. Examples include backswamps, flood-plain splays, meanders, meander belts, meander scrolls, oxbow lakes, and natural levees.

- Flood-plain splay.** A fan-shaped deposit or other outspread deposit formed where an overloaded stream breaks through a levee (natural or artificial) and deposits its material (commonly coarse grained) on the flood plain.
- Flood-plain step.** An essentially flat, terrace-like alluvial surface within a valley that is frequently covered by floodwater from the present stream; any approximately horizontal surface still actively modified by fluvial scour and/or deposition. May occur individually or as a series of steps.
- Fluvial.** Of or pertaining to rivers or streams; produced by stream or river action.
- Foliated.** Refers to metamorphic rock that exhibits parallel structure or layering.
- Foothills.** A region of steeply sloping hills that fringes a mountain range or high-plateau escarpment. The hills have relief of as much as 1,000 feet (300 meters).
- Footslope.** The concave surface at the base of a hillslope. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).
- Forb.** Any herbaceous plant not a grass or a sedge.
- Forest cover.** All trees and other woody plants (underbrush) covering the ground in a forest.
- Forest type.** A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.
- Forestland.** Land on which the historic vegetation was dominated by a 25 percent overstory canopy cover of trees, as determined by crown perimeter-vertical projection. A tree is defined as a woody-stemmed plant that can grow to 4 meters (about 13 feet) in height at maturity.
- Fragipan.** A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.
- Fragmental.** A particle-size class used to classify mineral soils that have less than 10 percent by volume fine-earth soil material.
- Frigid.** A soil temperature regime in which the mean annual soil temperature at a depth of 20 inches ranges from 33 to 46 degrees F. The mean summer soil temperature is more than 47 degrees for soils that have an O horizon. The difference between the mean winter soil temperature and the mean summer soil temperature is more than 9 degrees F.
- Genesis, soil.** The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.
- Geomorphic surface.** A mappable area of the earth's surface that has a common history; the area is of similar age and is formed by a set of processes during an episode of landscape evolution.
- Glaciofluvial deposits.** Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur in the form of outwash plains, valley trains, deltas, kames, eskers, and kame terraces.
- Glaciolacustrine deposits.** Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial meltwater. Many deposits are bedded or laminated.
- Gleyed soil.** Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.
- Graben.** An elongated, relatively depressed unit or block of the earth's crust that is bounded by faults on its long sides.

- Graded stripcropping.** Growing crops in strips that grade toward a protected waterway.
- Granite.** A coarse-grained igneous rock consisting mainly of quartz and feldspar, with more orthoclase than plagioclase. See Granodiorite.
- Granitic.** Term generally applied to granite or granitelike rock. It is used when referring to granite, granodiorite, quartz monzonite, quartz diorite, diorite, and granitic gneiss.
- Granitic gneiss.** A crystalline, banded metamorphic rock of granitic composition.
- Granodiorite.** A coarse-grained igneous rock consisting mainly of quartz and feldspar, with more plagioclase than orthoclase. See Granite.
- Grassed waterway.** A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.
- Gravel.** Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.
- Gravelly soil material.** Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.
- Graywacke.** An indurated sedimentary rock that consists mainly of sand-sized grains but contains fragments of feldspar, quartz, and ferromagnesian minerals.
- Grazing system, planned.** A system for managing rangeland in which three or more fields are alternately grazed and then rested in a planned sequence for a period of years.
- Green manure crop (agronomy).** A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.
- Ground water.** Water filling all the unblocked pores of the material below the water table.
- Grus.** The fundamental products of *in situ* granular disintegration of granite and granitic rock, dominated by intercrystal disintegration.
- Gully.** A small channel with steep sides caused by erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.
- Gypsum.** A mineral consisting of hydrous calcium sulfate.
- Habitat type.** The collective area occupied by a single plant association. It is defined and described on the basis of the vegetation and its associated environment.
- Hard bedrock.** Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.
- Hard to reclaim (in tables).** Reclamation is difficult after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.
- Hardpan.** A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.
- Head slope (geomorphology).** A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.
- Hemic soil material (mucky peat).** Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.
- High-residue crops.** Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next

crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill. A generic term for an elevated area of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline. Slopes are generally more than 15 percent. The distinction between a hill and a mountain is arbitrary and may depend on local usage.

Hillslope. A generic term for the steeper part of a hill between its summit and the drainage line, valley flat, or depression floor at the base of a hill.

Histic epipedon. A thin, organic soil horizon that is saturated with water at some time during the year unless it is artificially drained. This horizon is at or near the surface of a mineral soil. It contains more than 12 percent organic carbon (Soil Survey Staff, 1999).

Historic climax plant community. The plant community that was best adapted to the unique combination of factors associated with the ecological site. It was in a natural dynamic equilibrium with the historic biotic, abiotic, and climatic factors on its ecological site in North America at the time of European immigration and settlement.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

L horizon.—A layer of organic and mineral limnic materials, including coprogenous earth (sedimentary peat), diatomaceous earth, and marl.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Consolidated bedrock beneath the soil that has an extremely weakly cemented to moderately cemented rupture-resistance class.

R horizon.—Consolidated bedrock beneath the soil that has a strongly cemented or stronger rupture-resistance class.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential.

The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties include depth to a seasonal high water table, the infiltration rate, and depth to a layer that significantly restricts

the downward movement of water. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Igneous rock. Rock that was formed by cooling and solidification of magma and that has not been changed appreciably by weathering since its formation. Major varieties include plutonic and volcanic rock (e.g., andesite, basalt, and granite).

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Increasesers. Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasesers commonly are the shorter plants and the less palatable to livestock.

Indurated. Refers to having a hard, brittle consistency as a result of particles being held together by cementing substances such as silica, calcium carbonate, and iron. An indurated layer can be broken by a sharp blow of a hammer.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Interfluve. A landform composed of the relatively undissected upland or ridge between two adjacent valleys containing streams flowing in the same general direction. An elevated area between two drainageways that sheds water to those drainageways.

Interfluve (geomorphology). A geomorphic component of hills consisting of the uppermost, comparatively level or gently sloping area of a hill; shoulders of backwearing hillslopes can narrow the upland or can merge, resulting in a strongly convex shape.

Intermittent stream. A stream, or reach of a stream, that does not flow year-round but that is commonly dry for 3 or more months out of 12 and whose channel is generally below the local water table. It flows only during wet periods or when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Intermontane basin. A generic term for a wide structural depression between mountain ranges that is partly filled with alluvium.

Intrusive rock. Igneous rock derived from molten matter (magmas) that invaded pre-existing rock and cooled below the surface of the earth.

Invaders. On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

Iron depletions. See Redoximorphic features.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements.

Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

Kame. A low mound, knob, hummock, or short irregular ridge composed of stratified sand and gravel deposited by a subglacial stream as a fan or delta at the margin of a melting glacier; by a supraglacial stream in a low place or hole on the surface of the glacier; or as a ponded deposit on the surface or at the margin of stagnant ice.

Kettle. A steep-sided, usually basin- or bowl-shaped hole or depression, commonly without surface drainage in glacial-drift deposits, often containing water.

Knoll. A small, low, rounded hill rising above adjacent landforms.

Ksat. See Saturated hydraulic conductivity.

Lacustrine deposit. Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Lake plain. A nearly level surface marking the floor of an extinct lake filled by well sorted, generally fine textured, stratified deposits, commonly containing varves.

Lake terrace. A narrow shelf, partly cut and partly built, produced along a lakeshore in front of a scarp line of low cliffs and later exposed when the water level falls.

Lamella. A thin, discontinuous or continuous, generally horizontal layer of fine material (especially clay and iron oxides) that has been pedogenically concentrated (illuviated) within a coarser (e.g., sandy), eluviated layer.

Landform. Any physical, recognizable form or feature on the earth's surface that has a characteristic shape and range in composition and is produced by natural causes; it can span a wide range in size. Landforms provide an empirical description of similar portions of the earth's surface.

Landscape (soils). An assemblage, group, or family of spatially related, natural landforms over a relatively large area; the land surface which the eye can comprehend in a single view.

Landslide. A general, encompassing term for most types of mass movement landforms and processes involving the downslope transport and outward deposition of soil and rock materials caused by gravitational forces; the movement may or may not involve saturated materials. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

- Leaching.** The removal of soluble material from soil or other material by percolating water.
- Leeward.** Being in or facing the direction toward which the wind is blowing.
- Limestone.** Sedimentary rock consisting mainly of calcium carbonate (CaCO₃).
- Linear extensibility.** Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $\frac{1}{3}$ - or $\frac{1}{10}$ -bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.
- Liquid limit.** The moisture content at which the soil passes from a plastic to a liquid state.
- Lithic contact.** A boundary between soil and coherent underlying material, typically bedrock. The bedrock has a cementation class of strongly cemented or stronger and is typically referred to as an R horizon.
- Lithologic discontinuity.** A significant change in particle-size distribution or mineralogy that indicates a difference in the material from which the soil horizons have formed.
- Loam.** Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.
- Loamy-skeletal.** A particle-size class in which rock fragments 2 millimeters in diameter or larger make up 35 percent or more by volume. The fine-earth fraction is loamy.
- Loess.** Material transported and deposited by wind and consisting dominantly of silt-sized particles.
- Longshore drift.** Material (such as sand or gravel) that is moved parallel to and near a shore.
- Low strength.** The soil is not strong enough to support loads.
- Low-residue crops.** Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.
- Major Land Resource Area (MLRA).** A broad geographic land area characterized by a particular pattern of soils, geology, climate, water resources, and land use. An area is typically continuous, but small separate areas can occur.
- Mass movement.** A generic term for the dislodgment and downslope transport of soil and rock material as a unit under direct gravitational stress.
- Masses.** See Redoximorphic features.
- Mature forest stage.** A forest successional stage in which the most shade-tolerant adapted tree species are well represented (more than 50 percent composition) and are dominant in the middle to upper canopy layers. Trees generally are more than 9 inches in diameter at breast height, and the canopy cover is more than 25 percent.
- Meander belt.** The zone within which migration of a meandering channel occurs; the flood-plain area included between two imaginary lines drawn tangential to the outer bends of active channel loops.
- Meander scar.** A crescent-shaped, concave or linear mark on the face of a bluff or valley wall, produced by the lateral erosion of a meandering stream that impinged upon and undercut the bluff.
- Meander scroll.** One of a series of long, parallel, close-fitting, crescent-shaped ridges and troughs formed along the inner bank of a stream meander as the channel migrated laterally down-valley and toward the outer bank.

- Mechanical treatment.** Use of mechanical equipment for seeding, brush management, and other management practices.
- Medial** (family particle-size class). A substitute class term used for the family particle-size class in mineral soils (Soil Survey Staff, 1999).
- Medial** (textural modifier, such as medial loam). A USDA textural modifier used in conjunction with a USDA mineral soil texture to indicate unique physical and chemical properties. The properties are defined in Soil Taxonomy and are typically low bulk density, high content of iron and aluminum, and high retention of phosphate (Soil Survey Staff, 1999).
- Medium textured soil.** Very fine sandy loam, loam, silt loam, or silt.
- Mesa.** A broad, nearly flat topped and commonly isolated landmass bounded by steep slopes or precipitous cliffs and capped by layers of resistant, nearly horizontal rocky material. The summit width is characteristically greater than the height of the bounding escarpments.
- Mesic.** A soil temperature regime in which the mean annual temperature at a depth of 20 inches ranges from 47 to 58 degrees F. The difference between the mean winter soil temperature and the mean summer soil temperature is more than 9 degrees F.
- Metamorphic rock.** Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement at depth in the earth's crust. Nearly all such rocks are crystalline.
- Microclimate.** The climate of a small distinct area, as of a forest or city, or a confined space, as of a building or greenhouse.
- Mine spoil.** An accumulation of displaced earthy material, rock, or other waste material removed during mining or excavation. Also called earthy fill.
- Mineral soil.** Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.
- Minimum tillage.** Only the tillage essential to crop production and prevention of soil damage.
- Miscellaneous area.** A kind of map unit component that has little or no natural soil and supports little or no vegetation.
- Moderately coarse textured soil.** Coarse sandy loam, sandy loam, or fine sandy loam.
- Moderately fine textured soil.** Clay loam, sandy clay loam, or silty clay loam.
- Moisture control section.** The layer within a soil profile used to determine the soil moisture regime. The upper boundary is the depth to which a dry soil is moistened by 1 inch of water in 24 hours. The lower boundary is the depth to which a dry soil is moistened by 3 inches of water in 48 hours.
- Mollic epipedon.** A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil (Soil Survey Staff, 1999).
- Moraine.** In terms of glacial geology, a mound, ridge, or other topographically distinct accumulation of unsorted, unstratified drift, predominantly till, deposited primarily by the direct action of glacial ice in a variety of landforms. Also, a general term for a landform composed mainly of till (except for kame moraines, which are composed mainly of stratified outwash) that has been deposited by a glacier. Some types of moraines are disintegration, end, ground, kame, lateral, recessional, and terminal.
- Morphology, soil.** The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.
- Mottling, soil.** Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few*, *common*, and *many*;

size—*fine, medium, and coarse*; and contrast—*faint, distinct, and prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Mountain. A generic term for an elevated area of the land surface, rising more than 1,000 feet (300 meters) above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides. A mountain can occur as a single, isolated mass or in a group forming a chain or range. Mountains are formed primarily by tectonic activity and/or volcanic action but can also be formed by differential erosion.

Mountain valleys. Any small, externally drained depression floored with either till or alluvium, that occurs on a mountain or within mountains. See intermontane basins.

Muck. Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Mucky peat. A USDA texture associated with organic soils that meet the degree of organic matter decomposition associated with hemic soil material.

Mudstone. A blocky or massive, fine grained sedimentary rock in which the proportions of clay and silt are approximately equal. Also, a general term for such material as clay, silt, claystone, siltstone, shale, and argillite and that should be used only when the amounts of clay and silt are not known or cannot be precisely identified.

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Natric horizon. A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil (Soil Survey Staff, 1999).

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. See Redoximorphic features.

Nose slope (geomorphology). A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent. Nose slopes consist dominantly of colluvium and slope-wash sediments (for example, slope alluvium).

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Ochric epipedon. A surface horizon of mineral soil that is too light in color, too high in chroma, too low in organic carbon, or too thin to be a mollic, umbric, or histic epipedon (Soil Survey Staff, 1999).

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low.....	1.0 to 2.0 percent
Moderate.....	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high.....	more than 8.0 percent

Orogenic. Of or pertaining to the process of mountain formation.

Outwash. Stratified and sorted sediment (mainly sand and gravel) removed or “washed out” from a glacier by meltwater streams and deposited in front of or beyond the end moraine or the margin of a glacier. The coarser material is deposited nearer to the ice.

- Outwash plain.** An extensive lowland area of coarse textured glaciofluvial material. An outwash plain is commonly smooth; where pitted, it generally is low in relief.
- Outwash terrace.** A valley train deposit extending along a valley downstream from an outwash plain or terminal moraine; a flat-topped bank of outwash with an abrupt outer face.
- Overstory.** The trees in a forest stand that form the upper crown cover. See Understory.
- Paleoterrace.** An erosional remnant of a terrace that retains the surface form and alluvial deposits of its origin but was not emplaced by, and commonly does not grade to, a present-day stream or drainage network.
- Pan.** A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan*, *fragipan*, *claypan*, *plowpan*, and *traffic pan*.
- Paralithic contact.** A boundary between soil and coherent underlying material that can be dug with difficulty with a spade. It is referred to as weathered bedrock, has a cementation class of moderately cemented or weaker, and is typically referred to as a Cr horizon.
- Pararock fragments.** Fragments of rock that are 2 millimeters in diameter or more (e.g., paragravel, paracobble, or parastone). Pararock fragments have a moderately cemented to extremely weakly cemented rupture-resistance class.
- Parent material.** The unconsolidated organic and mineral material in which soil forms.
- Peat.** Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)
- Ped.** An individual natural soil aggregate, such as a granule, a prism, or a block.
- Pedisediment.** A layer of sediment, eroded from the shoulder and backslope of an erosional slope, that lies on and is being (or was) transported across a gently sloping erosional surface at the foot of a receding hill or mountain slope.
- Pedologic.** Of or pertaining to the processes of soil formation.
- Pedon.** The smallest volume that can be called “a soil.” A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.
- Percolation.** The movement of water through the soil.
- Permeability.** The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as “saturated hydraulic conductivity,” which is defined in the “Soil Survey Manual” and in this glossary. Terms describing permeability, measured in inches per hour, are as follows:
- | | |
|-----------------------|------------------------|
| Impermeable..... | less than 0.0015 inch |
| Very slow | 0.0015 to 0.06 inch |
| Slow | 0.06 to 0.2 inch |
| Moderately slow..... | 0.2 to 0.6 inch |
| Moderate..... | 0.6 inch to 2.0 inches |
| Moderately rapid..... | 2.0 to 6.0 inches |
| Rapid | 6.0 to 20 inches |
| Very rapid..... | more than 20 inches |
- See “Saturated hydraulic conductivity” for conversions of inches per hour to micrometers per second.
- Perudic.** A soil moisture regime common to a climate having moisture throughout the year. The soil moisture control section never becomes dry throughout its thickness during any time of the year (Soil Survey Staff, 1999).
- pH value.** A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)
- Phase, soil.** A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

- Phyllite.** A fine-textured, foliated metamorphic rock that is intermediate in metamorphic grade between slate and schist. Mica crystals impart a silky sheen to the cleavage surfaces.
- Piping** (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.
- Pitting** (in tables). Pits caused by melting around ice. They form on the soil after plant cover is removed.
- Placic horizon.** A thin (less than 1 inch thick), black to dark reddish colored horizon that is cemented by iron (or iron and manganese) and organic matter (Soil Survey Staff, 1999).
- Plant association.** A kind of climax plant community consisting of stands with essentially the same dominant species in corresponding layers.
- Plant community.** An assemblage of plants living together, reflecting no particular ecological status; a vegetative complex unique in its combination of plants.
- Plastic limit.** The moisture content at which a soil changes from semisolid to plastic.
- Plasticity index.** The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.
- Plateau** (geomorphology). A comparatively flat area of great extent and elevation; specifically, an extensive land region that is considerably elevated (more than 100 meters) above the adjacent lower lying terrain, is commonly limited on at least one side by an abrupt descent, and has a flat or nearly level surface. A comparatively large part of a plateau surface is near summit level.
- Playa.** The generally dry and nearly level lake plain that occupies the lowest parts of closed depressions, such as those on intermontane basin floors. Temporary flooding occurs primarily in response to precipitation and runoff. Playa deposits are fine grained and may or may not have a high water table and saline conditions.
- Pleistocene.** The epoch of geologic time from approximately 10,000 to 2 million years ago. The earlier of the two epochs comprising the Quaternary period. Also called the Glacial epoch.
- Plinthite.** The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents. It commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on repeated wetting and drying, especially if it is exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade. It is a form of laterite.
- Plowpan.** A compacted layer formed in the soil directly below the plowed layer.
- Pole stage.** A forest successional stage in which the vegetation of a stand is dominantly a moderately dense to very dense overstory of trees that have minimal vertical crown depth. The trees generally range from about 5 to 9 inches in diameter at breast height, and the canopy cover normally exceeds 35 percent.
- Ponding.** Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.
- Poorly graded.** Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.
- Pore linings.** See Redoximorphic features.
- Potential native plant community.** See Climax plant community.
- Potential rooting depth (effective rooting depth).** Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.
- Prescribed burning.** Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

- Productivity, soil.** The capability of a soil for producing a specified plant or sequence of plants under specific management.
- Profile, soil.** A vertical section of the soil extending through all its horizons and into the parent material.
- Proper grazing use.** Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.
- Pumice.** A light-colored, vesicular, glassy pararock fragment. The fragments are more than 2 millimeters in diameter and commonly have the composition of rhyolite. Pumice commonly has a specific gravity of less than 1.0 and is thereby sufficiently buoyant to float on water.
- Pyroclastic.** Pertaining to fragmental material produced by commonly explosive, aerial ejection of clastic particles from a volcanic vent.
- Quartz diorite.** A coarse-grained igneous rock consisting mainly of plagioclase with smaller amounts of quartz, hornblende, and biotite. (See Granodiorite.)
- Quartz latite.** A fine-grained volcanic rock consisting mainly of quartz, plagioclase, and orthoclase with minor amounts of biotite and hornblende. Phenocrysts are common. This rock is the extrusive equivalent of quartz monzonite.
- Quartz monzonite.** A coarse-grained igneous rock consisting mainly of plagioclase, orthoclase, and quartz with minor amounts of biotite and hornblende. (See Granite and Granodiorite.)
- Quartzite.** A nonfoliated metamorphic rock consisting mainly of quartz sand cemented with quartz.
- Quaternary.** The period of the Cenozoic era of geologic time, extending from the end of the Tertiary (about 2 million years ago) to the present and comprising two epochs, the Pleistocene (Ice Age) and the Holocene (Recent).
- Rangeland.** Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.
- Reaction, soil.** A measure of acidity or alkalinity of a soil, expressed as pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid.....	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid.....	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline.....	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline.....	9.1 and higher

Redoximorphic concentrations. See Redoximorphic features.

Redoximorphic depletions. See Redoximorphic features.

Redoximorphic features. Redoximorphic features are associated with wetness and result from alternating periods of reduction and oxidation of iron and manganese compounds in the soil. Reduction occurs during saturation with water, and oxidation occurs when the soil is not saturated. Characteristic color patterns are created by these processes. The reduced iron and manganese ions may be removed from a soil if vertical or lateral fluxes of water occur, in which

case there is no iron or manganese precipitation in that soil. Wherever the iron and manganese are oxidized and precipitated, they form either soft masses or hard concretions or nodules. Movement of iron and manganese as a result of redoximorphic processes in a soil may result in redoximorphic features that are defined as follows:

1. Redoximorphic concentrations.—These are zones of apparent accumulation of iron-manganese oxides, including:
 - A. Nodules and concretions, which are cemented bodies that can be removed from the soil intact. Concretions are distinguished from nodules on the basis of internal organization. A concretion typically has concentric layers that are visible to the naked eye. Nodules do not have visible organized internal structure; *and*
 - B. Masses, which are noncemented concentrations of substances within the soil matrix; *and*
 - C. Pore linings, i.e., zones of accumulation along pores that may be either coatings on pore surfaces or impregnations from the matrix adjacent to the pores.
2. Redoximorphic depletions.—These are zones of low chroma (chroma less than that of the matrix) where either iron-manganese oxides alone or both iron-manganese oxides and clay have been stripped out, including:
 - A. Iron depletions, i.e., zones that contain low amounts of iron and manganese oxides but have a clay content similar to that of the adjacent matrix; *and*
 - B. Clay depletions, i.e., zones that contain low amounts of iron, manganese, and clay (often referred to as silt coatings or skeletalans).
3. Reduced matrix.—This is a soil matrix that has low chroma *in situ* but undergoes a change in hue or chroma within 30 minutes after the soil material has been exposed to air.

Reduced matrix. See Redoximorphic features.

Regolith. All unconsolidated earth materials above the solid bedrock. It includes material weathered in place from all kinds of bedrock and alluvial, glacial, eolian, lacustrine, and pyroclastic deposits.

Relief. The relative difference in elevation between the upland summits and the lowlands or valleys of a given region.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as bedrock disintegrated in place.

Restrictive feature. A nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly reduce the movement of water and/or air through the soil or that otherwise provide an unfavorable root environment.

Rhyodacite. A fine-grained volcanic rock consisting mainly of quartz and feldspar, with more plagioclase than orthoclase. Phenocrysts are common. Rhyodacite is the extrusive equivalent of granodiorite.

Rill. A very small, steep-sided channel resulting from erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. A rill generally is not an obstacle to wheeled vehicles and is shallow enough to be smoothed over by ordinary tillage.

Riparian. Refers to areas adjacent to water or wetlands; vegetation is dependent on water or use and management directly impacts the water or wetlands.

Riser. The vertical or steep side slope (e.g., escarpment) of terraces, flood-plain steps, or other stepped landforms; commonly a recurring part of a series of natural, steplike landforms, such as successive stream terraces.

Riverwash. Unstable areas of sandy, silty, clayey, gravelly and cobbly sediments. These areas are flooded, washed and reworked by rivers so frequently that they support little or no vegetation; see National Soil Survey Handbook

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments that are 2 millimeters in diameter or more (i.e., gravel, cobbles, stones, and boulders). Rock fragments have a strongly cemented or stronger rupture-resistance class.

Rock outcrop. Exposures of bare bedrock.

Rubble land. Areas that consist of cobbles, stones, and boulders, commonly at the base of mountains.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Saline soil. A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Sandy. A particle-size class in which the texture of the fine-earth fraction is sand or loamy sand but not loamy very fine sand or very fine sand; it is less than 35 percent rock fragments by volume.

Sandy-skeletal. A particle-size class that is 35 percent or more by volume rock fragments 2 millimeters in diameter or larger. The fine-earth fraction is sandy.

Sapling/pole stage. A forest successional stage in which the vegetation of a stand is dominantly saplings and pole-sized trees (generally 2 to 9 inches in diameter at breast height). The canopy cover and understory production are intermediate between the herbaceous or shrub stage and the pole stage.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Saturated hydraulic conductivity (Ksat). The ease with which pores of a saturated soil transmit water. Formally, the proportionality coefficient that expresses the relationship of the rate of water movement to hydraulic gradient in Darcy's Law, a law that describes the rate of water movement through porous media. Commonly abbreviated as "Ksat." Terms describing saturated hydraulic conductivity are *very high*, 100 or more micrometers per second (14.17 or more inches per hour); *high*, 10 to 100 micrometers per second (1.417 to 14.17 inches per hour); *moderately high*, 1 to 10 micrometers per second (0.1417 inch to 1.417 inches per hour); *moderately low*, 0.1 to 1 micrometer per second (0.01417 to 0.1417 inch per hour); *low*, 0.01 to 0.1 micrometer per second (0.001417 to 0.01417 inch per hour); and *very low*, less than 0.01 micrometer per second (less than 0.001417 inch per hour). To convert inches per hour to micrometers per second, multiply inches per hour by 7.0572. To convert micrometers per second to inches per hour, multiply micrometers per second by 0.1417.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Scarification. The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

Schist. A medium- to coarse-grained foliated metamorphic rock in which the platy minerals are clearly visible. Micaceous minerals commonly are present.

- Secondary carbonates and silica.** Calcium carbonate and silica weathered from the soil matrix in upper soil horizons and then transported and deposited in the lower horizons by water moving through the soil profile.
- Sedimentary rock.** A consolidated deposit of clastic particles, chemical precipitates, or organic remains accumulated at or near the surface of the earth under normal low temperature and pressure conditions. Sedimentary rocks include consolidated equivalents of alluvium, colluvium, drift, and eolian, lacustrine, and marine deposits. Examples are sandstone, siltstone, mudstone, claystone, shale, conglomerate, limestone, dolomite, and coal.
- Sequum.** A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)
- Series, soil.** A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.
- Shale.** Sedimentary rock that formed by the hardening of a deposit of clay, silty clay, or silty clay loam and that has a tendency to split into thin layers.
- Sheet erosion.** The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.
- Shoulder.** The convex, erosional surface near the top of a hillslope. A shoulder is a transition from summit to backslope.
- Shrink-swell** (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.
- Shrub-coppice dune.** A small, streamlined dune that forms around brush and clump vegetation.
- Side slope** (geomorphology). A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel. Side slopes are dominantly colluvium and slope-wash sediments.
- Silica.** A combination of silicon and oxygen. The mineral form is called quartz.
- Silica-sesquioxide ratio.** The ratio of the number of molecules of silica to the number of molecules of alumina and iron oxide. The more highly weathered soils or their clay fractions in warm-temperate, humid regions, and especially those in the tropics, generally have a low ratio.
- Silt.** As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.
- Siltstone.** An indurated silt having the texture and composition of shale but lacking its fine lamination or fissility; a massive mudstone in which silt predominates over clay.
- Similar soils.** Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.
- Site index.** A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.
- Slate.** A fine-grained metamorphic rock that exhibits strong cleavage or layering.
- Slickensides** (pedogenic). Grooved, striated, and/or glossy (shiny) slip faces on structural peds, such as wedges; produced by shrink-swell processes, most commonly in soils that have a high content of expansive clays.
- Slope.** The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slope alluvium. Sediment gradually transported down the slopes of mountains or hills primarily by nonchannel alluvial processes (i.e., slope-wash processes) and characterized by particle sorting. Lateral particle sorting is evident on long slopes. In a profile sequence, sediments may be distinguished by differences in size and/or specific gravity of rock fragments and may be separated by stone lines. Burnished peds and sorting of rounded or subrounded pebbles or cobbles distinguish these materials from unsorted colluvial deposits.

Slow refill (in tables). The slow filling of ponds, resulting from restricted water transmission in the soil.

Slow water movement (in tables). Restricted downward movement of water through the soil. See Saturated hydraulic conductivity.

Slump. A mass movement process characterized by a landslide involving shearing and rotary movement of a generally independent mass of rock or earth along a curved slip surface. The mass (slump) has its axis parallel to the slope from which it descends. A slump surface commonly exhibits a reversed slope facing uphill.

Sodic (alkali) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Sodicity. The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium adsorption ratio (SAR) of a saturation extract, or the ratio of Na^+ to $\text{Ca}^{++} + \text{Mg}^{++}$. The degrees of sodicity and their respective ratios are:

Slight.....	less than 13:1
Moderate.....	13-30:1
Strong	more than 30:1

Sodium adsorption ratio (SAR). A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief and by the passage of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay.....	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Spodic horizon. An illuvial horizon that is 85 percent or more spodic material. This layer is dominated by active amorphous material that is illuvial and is composed of organic matter and aluminum, with or without iron (Soil Survey Staff, 1999).

Stone line. In a vertical cross section, a line formed by scattered fragments or a discrete layer of angular and subangular rock fragments (commonly a gravel- or

cobble-sized lag concentration) that formerly was draped across a topographic surface and was later buried by additional sediments. A stone line generally caps material that was subject to weathering, soil formation, and erosion before burial. Many stone lines seem to be buried erosion pavements, originally formed by sheet and rill erosion across the land surface.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stoniness (or boulderiness). The relative proportion of larger rock fragments on the surface layer. Used as map unit phase designation for soils containing sufficient amounts of stones and boulders to impose important restrictions on use and management. These phases should not be confused with the use of fragments as textural modifiers. The four phases recognized in this survey are:

Stony (or bouldery).—The areas have enough stones and boulders at or near the surface to be a continuing nuisance during operations that mix the surface layer, but they do not make most such operations impractical. Conventional, wheeled vehicles can move with reasonable freedom over the area. Rocks may damage both the equipment that mixes the soil and the vehicles that move on the surface. Large rock fragments cover about 0.01 to 0.1 percent of the surface.

Very stony (or very bouldery).—The areas have so many stones and boulders at or near the surface that operations that mix the surface layer either require heavy equipment or use of implements that can operate between the larger ones. Tillage with conventionally powered farm equipment is impractical. Wheeled tractors and vehicles with high clearance can operate on carefully chosen routes over and around stones and boulders. Large rock fragments cover about 0.1 to 3 percent of the surface.

Extremely stony (or extremely bouldery).—The areas have so many stones and boulders at or near the surface that wheeled powered equipment, other than some special types, can operate only along selected routes. Tracked vehicles can be used in most places, although some routes have to be cleared. Large rock fragments cover about 3 to 15 percent of the surface.

Rubbly and very rubbly.—The areas have so many stones and boulders at or near the surface that tracked vehicles cannot be used in most places. Large rock fragments cover about 15 to 90 percent of the surface.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Strath terrace. A type of stream terrace; formed as an erosional surface cut on bedrock and thinly mantled with stream deposits (alluvium).

Stream terrace. One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel, originally formed near the level of the stream; represents the remnants of an abandoned flood plain, stream bed, or valley floor produced during a former state of fluvial erosion or deposition.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

- Subaqueous.** Refers to conditions and processes, features, or deposits that exist in or under water, especially fresh water, as in a lake or stream.
- Subduction.** The process of one lithospheric plate descending beneath another.
- Subsoil.** Technically, the B horizon; roughly, the part of the solum below plow depth.
- Subsoiling.** Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.
- Substratum.** The part of the soil below the solum.
- Subsurface layer.** Any surface soil horizon (A, E, AB, or EB) below the surface layer.
- Summer fallow.** The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.
- Summit.** The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.
- Surface layer.** The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."
- Surface soil.** The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.
- Tailings.** Areas of washed ore left in uneven piles after placer mining activities such as sluicing, hydraulicing, or dredging.
- Talus.** Rock fragments of any size or shape (commonly coarse and angular) derived from and lying at the base of a cliff or very steep rock slope. The accumulated mass of such loose broken rock formed chiefly by falling, rolling, or sliding.
- Taxadjuncts.** Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.
- Tectonic.** Pertaining to the forces involved in, or the resulting structures of, deformation of the earth's crust.
- Terminal moraine.** An end moraine that marks the farthest advance of a glacier. It typically has the form of a massive arcuate or concentric ridge, or complex of ridges, and is underlain by till and other types of drift.
- Terrace (conservation).** An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.
- Terrace.** (geomorphology). A steplike surface, bordering a valley floor or shoreline, that represents the former position of a flood plain, lake, or seashore. The term is usually applied both to the relatively flat summit surface (tread) that was cut or built by stream or wave action and to the steeper descending slope (scarp or riser) that has graded to a lower base level of erosion.
- Terracettes.** Small, irregular steplike forms on steep hillslopes, especially in pasture, formed by creep or erosion of surficial materials that may be induced or enhanced by trampling of livestock, such as sheep or cattle.
- Terrane.** A group of related rocks and the area in which they are exposed at the earth's surface.

- Tertiary.** The period of geologic time from approximately 2 to 63 million years ago (radiometric dates). The earlier of the two geologic periods comprising the Cenozoic era.
- Texture, soil.** The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."
- Thin layer** (in tables). Otherwise suitable soil material that is too thin for the specified use.
- Thrust fault.** A fault with a dip of 45 degrees or less on which the hanging wall appears to have moved upward relative to the footwall.
- Till.** Dominantly unsorted and nonstratified drift, generally unconsolidated and deposited directly by a glacier without subsequent reworking by meltwater, and consisting of a heterogeneous mixture of clay, silt, sand, gravel, stones, and boulders; rock fragments of various lithologies are embedded within a finer matrix that can range from clay to sandy loam.
- Till plain.** An extensive area of level to gently undulating soils underlain predominantly by till and bounded at the distal end by subordinate recessional or end moraines.
- Tilth, soil.** The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.
- Toeslope.** The gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.
- Topsoil.** The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.
- Trace elements.** Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.
- Tread.** The flat to gently sloping, topmost, laterally extensive slope of terraces, flood-plain steps, or other stepped landforms; commonly a recurring part of a series of natural steplike landforms, such as successive stream terraces.
- Tuff.** A generic term for any consolidated or cemented deposit that is 50 percent or more volcanic ash.
- Udic.** A soil moisture regime common to a climate that has moisture throughout the year. The soil moisture control section is dry for less than 45 consecutive days during the 4 months following the summer solstice (Soil Survey Staff, 1999).
- Umbric epipedon.** A thick, dark-colored, humus-rich surface horizon that has low base saturation and pedogenic soil structure. It may include the upper part of the subsoil (Soil Survey Staff, 1999).
- Understory.** Plants in a forest community that grow to a height of 4.5 feet or less.
- Upland.** An informal, general term for the higher ground of a region, in contrast with a low-lying adjacent area, such as a valley or plain, or for land at a higher elevation than the flood plain or low stream terrace; land above the footslope zone of the hillslope continuum.
- Valley fill.** The unconsolidated sediment deposited by any agent (water, wind, ice, or mass wasting) so as to fill or partly fill a valley.
- Variation.** Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.
- Varve.** A sedimentary layer or a lamina or sequence of laminae deposited in a body of still water within a year. Specifically, a thin pair of graded glaciolacustrine layers

seasonally deposited, usually by meltwater streams, in a glacial lake or other body of still water in front of a glacier.

Water bars. Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Weathering. All physical disintegration, chemical decomposition, and biologically induced changes in rocks or other deposits at or near the earth's surface by atmospheric or biologic agents or by circulating surface waters but involving essentially no transport of the altered material.

Welded tuff. A glass-rich rock that has been indurated by the welding together of its glass shards under the combined action of the heat retained by particles, the weight of overlying material, and hot gasses.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an oven-dry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow. The uprooting and tipping over of trees by the wind.

Xeric. A soil moisture regime common to a climate having moist winters and dry summers. The soils are dry in the moisture control section for more than 45 consecutive days during the 4 months following the summer solstice and are moist for more than 45 consecutive days during the 4 months following the winter solstice (Soil Survey Staff, 1999).

Young forest stage. A forest successional stage in which the overstory vegetation of a stand is dominantly shade-intolerant successional trees. Trees generally are more than 9 inches in diameter at breast height, and the canopy cover exceeds 25 percent. Shade-tolerant climax tree species can be absent to nearly well represented (less than 50 percent).

Tables

Table 1.--Temperature and Precipitation

(Recorded in the period 1971 to 2000 at Mazama [5133], Omak 2 NW [6123], and Winthrop 1 WSW [9376], Washington)

Month	Temperature						Precipitation					
	Average daily maximum	Average daily minimum	Average daily	2 years in 10 will have--		Average number of growing degree days*	Average	2 years in 10 will have--		Average number of days with 0.10 inch or more	Average snowfall	
				Maximum temperature higher than--	Minimum temperature lower than--			Less than--	More than--			
	° F	° F	° F	° F	° F	Units	In	In	In		In	
MAZAMA												
January	28.8	13.1	21.0	49	-20	0	3.72	1.75	5.60	8	34.6	
February	36.2	17.9	27.0	50	-12	0	2.69	1.37	4.00	7	21.2	
March	46.2	24.8	35.5	64	3	18	1.68	0.77	2.44	4	7.4	
April	57.6	31.3	44.4	79	18	154	1.03	0.40	1.64	3	0.3	
May	66.7	39.7	53.2	88	26	407	1.05	0.40	1.68	3	0.0	
June	73.7	46.3	60.0	92	32	596	1.06	0.36	1.64	3	0.0	
July	81.8	51.1	66.4	100	35	808	0.84	0.21	1.45	2	0.0	
August	82.0	50.9	66.5	99	35	817	0.79	0.14	1.45	2	0.0	
September	72.7	41.6	57.1	92	25	513	0.83	0.13	1.53	2	0.0	
October	56.6	31.6	44.1	78	16	161	1.48	0.38	2.52	4	1.9	
November	37.5	24.0	30.8	55	-0	8	3.50	1.53	5.22	9	16.5	
December	27.5	14.2	20.8	44	-17	0	4.02	2.04	5.84	9	37.8	
Yearly:	---	---	---	---	---	---	---	---	---	---	---	
Average	55.6	32.2	43.9	---	---	---	---	---	---	---	---	
Extreme	103.0	-30.0	---	101	-24	---	---	---	---	---	---	
Total	---	---	---	---	---	3,482	22.69	17.46	27.25	56	119.7	

Average number of days per year with at least 1 inch of snow on the ground: 136

Table 1.--Temperature and Precipitation--Continued

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average daily	2 years in 10 will have--		Average number of growing degree days*	Average	2 years in 10 will have--		Average number of days with 0.10 inch or more	Average snowfall
				Maximum temperature higher than--	Minimum temperature lower than--			Less than--	More than--		
° <i>F</i>	° <i>F</i>	° <i>F</i>	° <i>F</i>	° <i>F</i>	<i>Units</i>	<i>In</i>	<i>In</i>	<i>In</i>	<i>In</i>		
OMAK 2 NW											
January	28.8	15.1	21.9	48	-13	2	0.94	0.47	1.42	4	21.6
February	37.9	22.8	30.4	56	-6	4	1.18	0.47	1.86	5	3.3
March	50.9	29.5	40.2	69	12	77	0.97	0.40	1.58	3	1.1
April	62.0	36.5	49.2	81	21	271	1.12	0.32	1.99	3	0.0
May	71.0	44.4	57.7	90	29	536	1.06	0.39	1.67	2	0.0
June	78.1	50.2	64.2	96	34	676	1.25	0.42	2.06	3	0.0
July	85.7	56.4	71.0	102	40	889	0.96	0.04	1.65	1	0.0
August	84.7	55.8	70.3	102	40	902	0.67	0.09	1.11	1	0.0
September	75.1	46.3	60.7	91	29	609	0.60	0.06	0.98	1	0.0
October	60.6	35.1	47.8	81	18	239	0.82	0.21	1.44	2	0.0
November	41.4	27.5	34.4	60	7	22	1.31	0.59	1.97	6	2.1
December	32.7	19.8	26.3	52	-2	1	1.84	0.65	2.93	7	7.2
Yearly:											
Average	59.1	36.6	47.8	---	---	---	---	---	---	---	---
Extreme	106	-17.0	---	103	-11	---	---	---	---	---	---
Total	---	---	---	---	---	4,230	12.72	6.90	14.17	38	35.4

Average number of days per year with at least 1 inch of snow on the ground: 34

Table 1.--Temperature and Precipitation--Continued

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average daily	2 years in 10 will have--		Average number of growing degree days*	Average	2 years in 10 will have--		Average number of days with 0.10 inch or more	Average snowfall
				Maximum temperature higher than--	Minimum temperature lower than--			Less than--	More than--		
°F	°F	°F	°F	°F	Units	In	In	In		In	
WINTHROP 1 WSW											
January	29.7	12.6	21.1	48	-20	0	2.01	0.90	3.11	6	17.0
February	38.3	17.6	28.0	53	-12	1	1.47	0.75	2.18	4	9.1
March	50.5	25.1	37.8	68	4	39	1.01	0.28	1.69	3	3.6
April	62.2	31.5	46.9	81	19	215	0.78	0.28	1.23	2	0.1
May	71.0	38.9	55.0	91	25	463	1.05	0.38	1.63	3	0.0
June	77.9	45.2	61.6	95	32	647	1.09	0.43	1.61	2	0.0
July	85.5	49.0	67.2	101	36	838	0.81	0.17	1.32	2	0.0
August	85.8	48.5	67.2	100	35	832	0.72	0.14	1.22	1	0.0
September	77.0	39.7	58.3	93	25	548	0.59	0.05	1.02	1	0.0
October	62.4	30.6	46.5	81	15	217	0.84	0.20	1.38	2	0.9
November	40.9	24.0	32.5	60	-0	17	1.95	0.81	3.09	6	8.4
December	29.1	13.8	21.4	46	-17	0	2.52	1.04	3.84	7	23.3
Yearly:											
Average	59.2	31.4	45.3	---	---	---	---	---	---	---	---
Extreme	104.0	-30.0	---	101	-24	---	---	---	---	---	---
Total	---	---	---	---	---	3,818	14.85	11.51	17.13	39	62.4

Average number of days per year with at least 1 inch of snow on the ground: 110

*A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (Threshold: 40 degrees F).

Soil Survey of Okanogan County Area, Washington

Table 2.--Freeze Dates in Spring and Fall

(Recorded in the period 1971 to 2000 at Mazama [5133], Omak 2 NW [6123], and Winthrop 1 WSW [9376], Washington)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
MAZAMA			
Last freezing temperature in spring:			
1 year in 10 later than-----	April 24	June 4	June 21
2 years in 10 later than----	April 19	May 26	June 12
5 years in 10 later than----	April 10	May 8	May 27
First freezing temperature in fall:			
1 year in 10 earlier than---	September 29	September 17	September 3
2 years in 10 earlier than--	October 5	September 21	September 9
5 years in 10 earlier than--	October 16	September 30	September 19
 OMAK 2 NW			
Last freezing temperature in spring:			
1 year in 10 later than-----	April 25	May 7	May 29
2 years in 10 later than----	April 15	April 30	May 21
5 years in 10 later than----	March 28	April 17	May 7
First freezing temperature in fall:			
1 year in 10 earlier than---	October 8	September 26	September 12
2 years in 10 earlier than--	October 13	October 1	September 18
5 years in 10 earlier than--	October 21	October 10	September 29

Soil Survey of Okanogan County Area, Washington

Table 2.--Freeze Dates in Spring and Fall--Continued

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
WINTHROP 1 WSW			
Last freezing temperature in spring:			
1 year in 10 later than-----	May 5	May 21	June 16
2 years in 10 later than----	April 29	May 15	June 9
5 years in 10 later than----	April 16	May 4	May 25
First freezing temperature in fall:			
1 year in 10 earlier than---	September 27	September 16	September 2
2 years in 10 earlier than--	October 2	September 21	September 7
5 years in 10 earlier than--	October 11	September 30	September 16

Soil Survey of Okanogan County Area, Washington

Table 3.--Growing Season

(Recorded in the period 1971 to 2000 at
Mazama [5133], Omak 2 NW [6123], and
Winthrop 1 WSW [9376], Washington)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
MAZAMA			
9 years in 10	165	108	85
8 years in 10	173	121	95
5 years in 10	189	145	115
2 years in 10	205	169	135
1 year in 10	214	181	145
OMAK 2 NW			
9 years in 10	166	137	108
8 years in 10	180	150	120
5 years in 10	207	175	141
2 years in 10	233	199	162
1 year in 10	247	212	174
WINTHROP 1 WSW			
9 years in 10	151	124	91
8 years in 10	160	133	98
5 years in 10	176	150	113
2 years in 10	192	167	128
1 year in 10	200	177	136

Soil Survey of Okanogan County Area, Washington

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
200	Aeneas fine sandy loam, 0 to 3 percent slopes-----	1,910	0.2
201	Aeneas fine sandy loam, 3 to 8 percent slopes-----	1,030	*
202	Aits ashy loam, 15 to 35 percent slopes-----	30	*
203	Andic Dystricroypts-Rock outcrop-Rubble land complex, 35 to 90 percent slopes-----	2,100	0.2
204	Andic Dystricroypts-Vitrandid Humicryepts complex, 20 to 80 percent slopes-----	310	*
205	Aquandic Endoaquolls, 0 to 5 percent slopes-----	585	*
206	Aquandic Endoaquolls-Haplosaprists, 0 to 10 percent slopes-----	2,200	0.2
207	Aquandic Xerofluvents, 0 to 5 percent slopes-----	915	*
208	Badland-----	2,825	0.2
209	Baldknob-Rock outcrop complex, 35 to 90 percent slopes-----	1,310	0.1
210	Baldknob-Rubble land-Thout complex, 35 to 90 percent slopes-----	1,800	0.1
211	Baldknob-Thout-Nicmar complex, 15 to 65 percent slopes-----	3,500	0.3
212	Bearspring gravelly ashy sandy loam, 35 to 65 percent slopes-----	40	*
213	Bluebuck stony ashy sandy loam, 35 to 65 percent slopes-----	280	*
214	Boesel fine sandy loam, 0 to 3 percent slopes-----	3,230	0.3
215	Boesel-Muckamuck complex, 0 to 5 percent slopes-----	725	*
216	Borgeau-Johntom-Rock outcrop complex, 35 to 65 percent slopes-----	8,800	0.7
217	Borgeau-Nicmar-Johntom complex, 15 to 35 percent slopes-----	1,640	0.1
218	Borgeau-Peka complex, 15 to 35 percent slopes-----	3,150	0.3
219	Brevco-Lithic Haploxerepts-Pebcreek complex, 15 to 90 percent slopes-----	1,620	0.1
220	Brevco-Lithic Haploxerepts-Rock outcrop complex, 15 to 35 percent slopes	280	*
221	Brevco-Lithic Haploxerepts-Rock outcrop complex, 35 to 65 percent slopes	5,420	0.4
222	Brevco-Lithic Haploxerepts-Rock outcrop complex, dry, 35 to 65 percent slopes-----	400	*
223	Burnscreek stony sandy loam, 3 to 30 percent slopes-----	200	*
224	Cashmere fine sandy loam, 0 to 3 percent slopes-----	6,300	0.5
225	Cashmere fine sandy loam, 3 to 8 percent slopes-----	4,034	0.3
226	Cashmere fine sandy loam, 8 to 15 percent slopes-----	1,410	0.1
227	Cashmere fine sandy loam, 15 to 25 percent slopes-----	625	*
228	Cashmont sandy loam, 0 to 3 percent slopes-----	800	*
229	Cashmont sandy loam, 3 to 8 percent slopes-----	4,320	0.4
230	Cashmont sandy loam, 8 to 15 percent slopes-----	4,480	0.4
231	Cashmont sandy loam, 15 to 25 percent slopes-----	1,220	*
232	Cashmont gravelly sandy loam, 0 to 8 percent slopes-----	610	*
233	Cashmont sandy loam, 0 to 25 percent slopes, extremely stony-----	10,990	0.9
234	Cashmont sandy loam, 25 to 45 percent slopes, extremely stony-----	11,665	1.0
235	Cassal ashy loam, 5 to 25 percent slopes-----	300	*
236	Chesaw gravelly sandy loam, 15 to 45 percent slopes-----	1,860	0.2
237	Chesaw gravelly sandy loam, 15 to 45 percent slopes, extremely stony-----	715	*
238	Chesaw-Bong complex, 3 to 15 percent slopes-----	1,020	*
239	Chesaw-Bong complex, 15 to 35 percent slopes-----	1,600	0.1
240	Chesaw-Bong complex, 35 to 65 percent slopes-----	335	*
241	Chewack-Sitdown-Rock outcrop complex, 35 to 65 percent slopes-----	300	*
242	Chumstick-Mineral-Rock outcrop complex, 15 to 35 percent slopes-----	6,480	0.5
243	Chumstick-Mineral-Rock outcrop complex, 35 to 65 percent slopes-----	1,205	*
244	Chumstick-Rock outcrop complex, 35 to 65 percent slopes-----	125	*
245	Colville silt loam, 0 to 3 percent slopes-----	10,965	0.9
246	Colville silt loam, moderately wet, 0 to 3 percent slopes-----	2,110	0.2
247	Conconully gravelly ashy loam, 0 to 8 percent slopes-----	10,975	0.9
248	Conconully gravelly ashy loam, 8 to 15 percent slopes-----	14,630	1.2
249	Conconully gravelly ashy loam, 15 to 25 percent slopes-----	8,630	0.7
250	Conconully gravelly ashy loam, 0 to 25 percent slopes, extremely stony---	44,770	3.7
251	Conconully gravelly ashy loam, 25 to 65 percent slopes, extremely stony--	22,920	1.9
252	Conconully-Donavan complex, 15 to 65 percent slopes-----	1,200	*
253	Coxit-Pelican complex, 15 to 35 percent slopes-----	2,630	0.2
254	Crocamp-Burget complex, 15 to 35 percent slopes-----	1,960	0.2
255	Crocamp-Burget complex, 35 to 65 percent slopes-----	3,750	0.3
256	Crocamp-Lithic Humicryepts-Rock outcrop complex, 35 to 90 percent slopes	820	*
257	Cubhill-Johntom complex, 15 to 35 percent slopes-----	1,455	0.1

See footnote at end of table.

Soil Survey of Okanogan County Area, Washington

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
258	Dams-----	5	*
259	Devore-Rock outcrop complex, warm, 35 to 65 percent slopes-----	160	*
260	Devore-Treebutte-Rock outcrop complex, 15 to 35 percent slopes-----	1,130	*
261	Devore-Treebutte-Rock outcrop complex, 35 to 65 percent slopes-----	225	*
262	Disautel silt loam, 0 to 8 percent slopes-----	1,275	0.1
263	Disautel silt loam, 8 to 15 percent slopes-----	1,910	0.2
264	Disautel silt loam, 0 to 25 percent slopes, extremely stony-----	3,425	0.3
265	Disautel silt loam, 25 to 65 percent slopes, extremely stony-----	1,790	0.1
266	Disautel cobbly silt loam, 8 to 45 percent slopes, eroded-----	2,640	0.2
267	Donavan ashy loam, 3 to 15 percent slopes-----	1,230	0.1
268	Donavan ashy loam, 8 to 25 percent slopes-----	5,480	0.4
269	Donavan ashy loam, 30 to 65 percent slopes-----	2,770	0.2
270	Donavan ashy loam, 0 to 25 percent slopes, extremely stony-----	6,065	0.5
271	Donavan ashy loam, 25 to 65 percent slopes, extremely stony-----	3,760	0.3
272	Donavan-Rock outcrop complex, 20 to 40 percent slopes-----	22,115	1.8
273	Entiat sandy loam, 25 to 65 percent slopes-----	570	*
274	Ewall loamy fine sand, 0 to 15 percent slopes-----	11,845	1.0
275	Ewall loamy fine sand, 15 to 25 percent slopes-----	2,420	0.2
276	Ewall loamy fine sand, 25 to 45 percent slopes-----	1,490	0.1
277	Farway gravelly ashy sandy loam, 15 to 35 percent slopes-----	250	*
278	Finney-Myerscreek complex, 15 to 35 percent slopes-----	110	*
279	Goddard-Lithic Haploxerepts complex, 0 to 15 percent slopes-----	665	*
280	Goddard-Parmenter complex, 0 to 15 percent slopes-----	6,890	0.6
281	Goddard-Parmenter complex, 15 to 35 percent slopes-----	415	*
282	Granflat gravelly ashy sandy loam, warm, 0 to 10 percent slopes-----	15	*
283	Haley ashy fine sandy loam, 0 to 8 percent slopes-----	3,320	0.3
284	Haley ashy fine sandy loam, 8 to 25 percent slopes-----	1,040	*
285	Haploxerandic Haplocryepts-Cryaquolls complex, 0 to 35 percent slopes----	270	*
286	Havillah ashy silt loam, 0 to 8 percent slopes-----	2,850	0.2
287	Havillah ashy silt loam, 8 to 15 percent slopes-----	2,175	0.2
288	Havillah ashy silt loam, 15 to 25 percent slopes-----	1,510	0.1
289	Havillah ashy silt loam, 15 to 45 percent slopes, eroded-----	770	*
290	Havillah ashy silt loam, 15 to 45 percent slopes, extremely stony-----	810	*
291	Histic Cryaquepts-Cryohemists complex, 0 to 10 percent slopes-----	75	*
292	Histosols, ponded-----	1,005	*
293	Hodgson ashy silt loam, 3 to 15 percent slopes-----	1,840	0.2
294	Humic Vitricryands-Typic Humicryepts complex, 15 to 35 percent slopes----	100	*
295	Hunters ashy silt loam, 0 to 8 percent slopes-----	1,990	0.2
296	Hunters ashy silt loam, 8 to 15 percent slopes-----	845	*
297	Hunters ashy silt loam, 8 to 25 percent slopes, eroded-----	680	*
298	Jimbluff ashy sandy loam, 15 to 35 percent slopes-----	310	*
299	Jimbluff gravelly ashy sandy loam, 5 to 25 percent slopes-----	660	*
300	Johntom-Borgeau-Rock outcrop complex, 15 to 35 percent slopes-----	5,650	0.5
301	Johntom-Foggydew-Rock outcrop complex, 35 to 75 percent slopes-----	6,300	0.5
302	Johntom-Rock outcrop complex, 15 to 35 percent slopes-----	370	*
303	Johntom-Rock outcrop complex, 35 to 65 percent slopes-----	50	*
304	Karamin ashy fine sandy loam, 0 to 20 percent slopes-----	770	*
305	Kartar ashy sandy loam, 3 to 15 percent slopes-----	4,870	0.4
306	Kartar ashy sandy loam, 15 to 25 percent slopes-----	1,275	0.1
307	Kartar ashy sandy loam, cool, 15 to 45 percent slopes-----	6,770	0.6
308	Kartar ashy fine sandy loam, 0 to 8 percent slopes-----	130	*
309	Kartar ashy fine sandy loam, 8 to 25 percent slopes-----	1,030	*
310	Kartar ashy fine sandy loam, 25 to 45 percent slopes-----	780	*
311	Kartar cobbly ashy sandy loam, 0 to 25 percent slopes, extremely stony---	9,810	0.8
312	Kartar cobbly ashy sandy loam, 25 to 65 percent slopes, extremely stony--	15,400	1.3
313	Karu gravelly ashy sandy loam, 35 to 65 percent slopes-----	230	*
314	Karu stony ashy sandy loam, 35 to 65 percent slopes-----	400	*
315	Koepke ashy silt loam, 0 to 8 percent slopes-----	3,940	0.3
316	Koepke ashy silt loam, 8 to 15 percent slopes-----	8,000	0.7
317	Koepke ashy silt loam, 15 to 25 percent slopes-----	5,840	0.5
318	Koepke ashy silt loam, 25 to 45 percent slopes-----	3,100	0.3

See footnote at end of table.

Soil Survey of Okanogan County Area, Washington

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
319	Koepke complex, 3 to 15 percent slopes-----	240	*
320	Koepke complex, 15 to 35 percent slopes-----	420	*
321	Koepke complex, 35 to 65 percent slopes-----	330	*
322	Lani ashy sandy loam, 0 to 25 percent slopes-----	2,160	0.2
323	Lani ashy sandy loam, 25 to 65 percent slopes-----	1,490	0.1
324	Lani ashy sandy loam, 0 to 25 percent slopes, extremely stony-----	1,300	0.1
325	Lani ashy sandy loam, 25 to 65 percent slopes, extremely stony-----	2,960	0.2
326	Leavenworth silt loam, 0 to 3 percent slopes-----	2,390	0.2
327	Leftcreek-Rock outcrop complex, 35 to 65 percent slopes-----	1,880	0.2
328	Leiko ashy sandy loam, 0 to 3 percent slopes-----	1,570	0.1
329	Leiko ashy sandy loam, 3 to 15 percent slopes-----	2,730	0.2
330	Leiko ashy sandy loam, 15 to 35 percent slopes-----	1,230	0.1
331	Leiko ashy sandy loam, 0 to 25 percent slopes, extremely stony-----	4,255	0.3
332	Leiko ashy sandy loam, 25 to 45 percent slopes, extremely stony-----	2,830	0.2
333	Leiko cobbly ashy coarse sandy loam, 15 to 35 percent slopes-----	530	*
334	Leiko ashy sandy loam, 3 to 15 percent slopes, extremely stony-----	785	*
335	Leiko-Rock outcrop complex, 35 to 65 percent slopes-----	50	*
336	Lekrem-Chumstick-Rock outcrop complex, 35 to 65 percent slopes-----	35	*
337	Lithic Humicrypts-Rock outcrop complex, 35 to 65 percent slopes-----	110	*
338	Lithic Haploxerepts-Cashmont complex, 15 to 45 percent slopes-----	22,715	1.9
339	Lithic Haploxerepts-Conconully complex, 15 to 45 percent slopes-----	57,780	4.7
340	Lithic Haploxerepts-Donavan-Rock outcrop complex, 15 to 45 percent slopes	34,635	2.8
341	Lithic Haploxerepts-Kartar complex, 15 to 90 percent slopes-----	10,780	0.9
342	Lithic Haploxerepts-Molson complex, 15 to 45 percent slopes-----	30,385	2.5
343	Lithic Haploxerepts-Newbon complex, 15 to 45 percent slopes-----	6,270	0.5
344	Lithic Haploxerepts-Nighthawk complex, 15 to 45 percent slopes-----	7,200	0.6
345	Lithic Haploxerepts-Republic complex, 15 to 45 percent slopes-----	1,040	*
346	Lithic Haploxerepts-Rock outcrop complex, 15 to 90 percent slopes-----	905	*
347	Lithic Haploxerepts-Vallan complex, 15 to 45 percent slopes-----	21,240	1.7
348	Lithic Haploxerepts-Wilma-Rock outcrop complex, 35 to 65 percent slopes--	1,275	0.1
349	Longort gravelly ashy sandy loam, 15 to 35 percent slopes-----	280	*
350	Longort-Santop complex, 35 to 65 percent slopes-----	790	*
351	Longswamp ashy loam, 15 to 35 percent slopes-----	440	*
352	Louplop-Stepstone complex, 3 to 15 percent slopes-----	2,700	0.2
353	Louplop-Stepstone complex, 15 to 35 percent slopes-----	1,725	0.1
354	Manley ashy fine sandy loam, 0 to 15 percent slopes-----	35	*
355	Manley ashy fine sandy loam, 15 to 35 percent slopes-----	895	*
356	Manley-Devore complex, 15 to 35 percent slopes-----	150	*
357	Manley-Devore complex, 35 to 65 percent slopes-----	65	*
358	Mansonia-Swakane-Rock outcrop complex, 8 to 45 percent slopes-----	990	*
359	Merkel ashy sandy loam, 5 to 15 percent slopes-----	3,200	0.3
360	Merkel ashy sandy loam, 15 to 35 percent slopes-----	16,820	1.4
361	Merkel cobbly ashy sandy loam, 35 to 65 percent slopes-----	4,320	0.4
362	Merkel-Lithic Haploxerepts-Rock outcrop complex, 15 to 35 percent slopes	7,920	0.6
363	Merkel-Wilma complex, 35 to 65 percent slopes-----	2,440	0.2
364	Midpeak-Johntom-Rock outcrop complex, 35 to 65 percent slopes-----	230	*
365	Mineral-Rock outcrop complex, 5 to 20 percent slopes-----	10	*
366	Mineral-Rock outcrop complex, 20 to 40 percent slopes-----	280	*
367	Mires ashy loam, 0 to 8 percent slopes-----	2,485	0.2
368	Mires gravelly ashy loam, 3 to 25 percent slopes-----	1,665	0.1
369	Mires gravelly ashy sandy loam, 25 to 45 percent slopes-----	545	*
370	Mires ashy sandy loam, 3 to 15 percent slopes, stony-----	1,500	0.1
371	Mires ashy sandy loam, 15 to 65 percent slopes, extremely stony-----	1,090	*
372	Mires-Leiko complex, 15 to 35 percent slopes-----	505	*
373	Mobu silt loam, 3 to 8 percent slopes-----	3,065	0.3
374	Mobu silt loam, 8 to 15 percent slopes-----	1,155	*
375	Mobu silt loam, 25 to 45 percent slopes-----	920	*
376	Mobu silt loam, 8 to 25 percent slopes, eroded-----	1,275	0.1
377	Molson ashy silt loam, 0 to 8 percent slopes-----	5,665	0.5
378	Molson ashy silt loam, 8 to 15 percent slopes-----	10,635	0.9
379	Molson ashy silt loam, 15 to 25 percent slopes-----	5,780	0.5

See footnote at end of table.

Soil Survey of Okanogan County Area, Washington

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
380	Molson ashy silt loam, 25 to 40 percent slopes-----	3,550	0.3
381	Molson ashy silt loam, 8 to 25 percent slopes, extremely stony-----	7,220	0.6
382	Molson ashy silt loam, 25 to 45 percent slopes, extremely stony-----	11,995	1.0
383	Molson gravelly ashy silt loam, 3 to 25 percent slopes-----	5,245	0.4
384	Muckamuck silt loam, 0 to 3 percent slopes-----	2,235	0.2
385	Myerscreek ashy fine sandy loam, 15 to 35 percent slopes-----	8,260	0.7
386	Myerscreek ashy fine sandy loam, 35 to 65 percent slopes-----	494	*
387	Myerscreek stony ashy fine sandy loam, 15 to 35 percent slopes-----	2,375	0.2
388	Myerscreek stony ashy fine sandy loam, 35 to 65 percent slopes-----	1,460	0.1
389	Myerscreek-Aquandic Dystrocryepts complex, 0 to 25 percent slopes-----	7,880	0.6
390	Myerscreek-Devore complex, 15 to 35 percent slopes-----	11,090	0.9
391	Myerscreek-Devore complex, 35 to 65 percent slopes-----	6,670	0.5
392	Myerscreek-Finney complex, 35 to 65 percent slopes-----	3,145	0.3
393	Myerscreek-Histic Cryaquepts-Cryohemists complex, 0 to 15 percent slopes	3,080	0.3
394	Myerscreek-Manley complex, 15 to 35 percent slopes-----	5,315	0.4
395	Myerscreek-Twenty mile complex, 15 to 35 percent slopes-----	4,530	0.4
396	Nahahum ashy loam, 15 to 35 percent slopes-----	30	*
397	Nahahum ashy loam, cool, 15 to 35 percent slopes-----	465	*
398	Nahahum-Coxit complex, 15 to 35 percent slopes-----	330	*
399	Nahahum-Coxit complex, 35 to 65 percent slopes-----	15	*
400	Nevine association, 5 to 20 percent slopes-----	920	*
401	Nevine association, 20 to 40 percent slopes-----	110	*
402	Nevine-Louploup complex, 3 to 15 percent slopes-----	16,890	1.4
403	Nevine-Louploup complex, 15 to 35 percent slopes-----	14,690	1.2
404	Nevine-Louploup complex, moist, 15 to 35 percent slopes-----	580	*
405	Nevine-Merkel complex, 15 to 35 percent slopes-----	16,940	1.4
406	Nevine-Merkel complex, 35 to 65 percent slopes-----	2,495	0.2
407	Nevine-Oxerine complex, 35 to 65 percent slopes-----	250	*
408	Nevine-Rock outcrop association, 20 to 40 percent slopes-----	330	*
409	Nevine-Rock outcrop association, 40 to 65 percent slopes-----	35	*
410	Nevine-Wilma complex, 15 to 35 percent slopes-----	7,200	0.6
411	Nevine-Wilma complex, 35 to 65 percent slopes-----	5,575	0.5
412	Nevine-Wilma-Rock outcrop complex, 15 to 35 percent slopes-----	13,360	1.1
413	Newbon loam, 15 to 25 percent slopes-----	1,070	*
414	Newbon gravelly loam, 0 to 8 percent slopes-----	4,010	0.3
415	Newbon gravelly loam, 8 to 25 percent slopes-----	10,950	0.9
416	Newbon gravelly loam, 25 to 45 percent north slopes-----	3,745	0.3
417	Newbon gravelly loam, 25 to 45 percent south slopes-----	22,715	1.9
418	Newbon gravelly loam, 0 to 45 percent slopes, extremely stony-----	5,000	0.4
419	Newbon very gravelly loam, 25 to 65 percent slopes, eroded-----	11,650	1.0
420	Newhorn ashy fine sandy loam, 15 to 35 percent slopes-----	3,400	0.3
421	Newhorn ashy fine sandy loam, moist, 15 to 35 percent slopes-----	2,080	0.2
422	Nicmar ashy loam, 15 to 35 percent slopes-----	600	*
423	Nicmar gravelly ashy loam, 15 to 35 percent slopes-----	680	*
424	Nicmar-Baldknob-Rock outcrop complex, 35 to 65 percent slopes-----	3,060	0.2
425	Nicmar-Santop complex, 35 to 65 percent slopes-----	210	*
426	Nighthawk loam, 3 to 8 percent slopes-----	1,785	0.1
427	Nighthawk loam, 8 to 15 percent slopes-----	5,360	0.4
428	Nighthawk loam, 15 to 25 percent slopes-----	2,180	0.2
429	Nighthawk gravelly loam, 8 to 25 percent slopes, extremely stony-----	4,380	0.4
430	Nighthawk gravelly loam, 25 to 65 percent slopes, extremely stony-----	11,550	0.9
431	Okanogan loam, 0 to 5 percent slopes-----	2,860	0.2
432	Okanogan loam, sandy substratum, 0 to 3 percent slopes-----	660	*
433	Owhi ashy fine sandy loam, 0 to 3 percent slopes-----	3,775	0.3
434	Owhi ashy fine sandy loam, 3 to 8 percent slopes-----	2,980	0.2
435	Owhi ashy fine sandy loam, 0 to 25 percent slopes, extremely stony-----	7,805	0.6
436	Owhi ashy fine sandy loam, 25 to 45 percent slopes, extremely stony-----	5,050	0.4
437	Owhi gravelly ashy fine sandy loam, 0 to 8 percent slopes-----	3,780	0.3
438	Owhi-Haley complex, 3 to 15 percent slopes-----	6,750	0.6
439	Owhi-Haley complex, 15 to 35 percent slopes-----	1,600	0.1
440	Owhi-Haley complex, 35 to 65 percent slopes-----	850	*

See footnote at end of table.

Soil Survey of Okanogan County Area, Washington

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
441	Oxerine ashy fine sandy loam, 35 to 65 percent slopes-----	5	*
442	Oxerine-Lithic Haploxerepts-Rock outcrop complex, 35 to 65 percent slopes	815	*
443	Oxerine-Nevine complex, 35 to 65 percent slopes-----	4,015	0.3
444	Oxerine-Rock outcrop complex, 35 to 65 percent slopes-----	105	*
445	Pebcreek stony ashy sandy loam, 15 to 35 percent slopes-----	1,190	*
446	Pebcreek-Brevco complex, 15 to 35 percent slopes-----	3,490	0.3
447	Pebcreek-Brevco complex, 35 to 65 percent slopes-----	2,135	0.2
448	Pebcreek-Lithic Haploxerepts-Rock outcrop complex, 35 to 65 percent slopes-----	2,035	0.2
449	Peka stony ashy sandy loam, 15 to 35 percent slopes-----	60	*
450	Peka-Donavan complex, 15 to 35 percent slopes-----	3,440	0.3
451	Peka-Swakane-Rock outcrop complex, 35 to 65 percent slopes-----	2,695	0.2
452	Pelican gravelly ashy loam, 35 to 65 percent slopes-----	2,145	0.2
453	Pettijohn-Mineral-Rock outcrop complex, 35 to 65 percent slopes-----	780	*
454	Pettijohn-Wilma complex, 35 to 65 percent slopes-----	130	*
455	Pogue fine sandy loam, 0 to 3 percent slopes-----	12,340	1.0
456	Pogue fine sandy loam, 3 to 8 percent slopes-----	6,810	0.6
457	Pogue fine sandy loam, 8 to 15 percent slopes-----	2,590	0.2
458	Pogue fine sandy loam, 15 to 25 percent slopes-----	1,135	*
459	Pogue gravelly fine sandy loam, 0 to 25 percent slopes, extremely stony--	9,555	0.8
460	Pogue gravelly fine sandy loam, 25 to 65 percent slopes, extremely stony	13,215	1.1
461	Pogue gravelly fine sandy loam, 0 to 8 percent slopes-----	3,260	0.3
462	Pogue gravelly fine sandy loam, 8 to 25 percent slopes-----	2,540	0.2
463	Radercreek-Santop complex, 35 to 65 percent slopes-----	1,110	*
464	Redpeak-Ontrail complex, 35 to 65 percent slopes-----	60	*
465	Rommel-Devore-Rock outcrop complex, 35 to 65 percent slopes-----	1,690	0.1
466	Rendovy-Goshawk complex, 35 to 65 percent slopes-----	80	*
467	Republic ashy loam, 3 to 15 percent slopes-----	4,795	0.4
468	Republic ashy loam, 15 to 30 percent slopes-----	3,160	0.3
469	Republic ashy loam, 30 to 65 percent slopes-----	120	*
470	Republic ashy loam, gravelly substratum, 0 to 8 percent slopes-----	600	*
471	Republic ashy loam, 15 to 45 percent slopes, extremely stony-----	2,570	0.2
472	Resner ashy fine sandy loam, 20 to 40 percent slopes-----	90	*
473	Resner-Sitdown complex, 0 to 15 percent slopes-----	1,350	0.1
474	Resner-Sitdown complex, 35 to 65 percent slopes-----	1,005	*
475	Riverwash-----	4,015	0.3
476	Rock outcrop-----	13,795	1.1
477	Rock outcrop-Donavan-Peka complex, 15 to 35 percent slopes-----	1,580	0.1
478	Rock outcrop-Lithic Haplocryepts-Rubble land complex, 35 to 90 percent slopes-----	4,646	0.4
479	Rock outcrop-Rubble land complex-----	3,575	0.3
480	Rufus-Wynhoff-Rock outcrop complex, 35 to 65 percent slopes-----	1,380	0.1
481	Rufus-Wynhoff-Rock outcrop complex, 50 to 90 percent slopes-----	1,510	0.1
482	Sacheen loamy sand, 35 to 65 percent slopes-----	220	*
483	Salcreek ashy loam, 15 to 35 percent slopes-----	20	*
484	Salcreek ashy loam, 35 to 65 percent slopes-----	50	*
485	Scheiner-Myerscreek complex, 35 to 65 percent slopes-----	210	*
486	Scoop gravelly ashy loam, 15 to 35 percent slopes-----	85	*
487	Setill-Johntom complex, 15 to 35 percent slopes-----	285	*
488	Shalrock-Johntom complex, 35 to 65 percent slopes-----	950	*
489	Shalrock-Rock outcrop complex, 15 to 35 percent slopes-----	160	*
490	Shalrock-Rock outcrop complex, 35 to 65 percent slopes-----	30	*
491	Sinlahekin-Peka-Hodgson association, 3 to 15 percent slopes-----	2,080	0.2
492	Sitdown stony ashy sandy loam, 0 to 15 percent slopes-----	390	*
493	Sitdown stony ashy sandy loam, 15 to 35 percent slopes-----	375	*
494	Sitdown-Rock outcrop complex, 35 to 65 percent slopes-----	620	*
495	Sitdown-Wellsfar-Rock outcrop complex, 15 to 35 percent slopes-----	1,385	0.1
496	Skaha gravelly loamy sand, 0 to 8 percent slopes-----	3,390	0.3
497	Skaha gravelly loamy sand, 8 to 25 percent slopes-----	1,030	*
498	Skaha gravelly loamy sand, 25 to 65 percent slopes-----	2,200	0.2
499	Smokejump-Jantill complex, 35 to 65 percent slopes-----	315	*

See footnote at end of table.

Soil Survey of Okanogan County Area, Washington

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
500	Smokejump-Rock outcrop complex, 35 to 65 percent slopes-----	1,395	0.1
501	Smokejump-Twentymile complex, 15 to 35 percent slopes-----	2,800	0.2
502	Stapaloop ashy fine sandy loam, 0 to 25 percent slopes-----	375	*
503	Stemilt-Midpeak complex, 35 to 65 percent slopes-----	250	*
504	Stepstone ashy fine sandy loam, 3 to 15 percent slopes-----	380	*
505	Stepstone ashy fine sandy loam, 15 to 35 percent slopes-----	2,025	0.2
506	Stepstone-Torboy complex, 0 to 15 percent slopes-----	490	*
507	Storer-Swakane-Rock outcrop complex, 35 to 75 percent slopes-----	735	*
508	Strat gravelly fine sandy loam, 0 to 10 percent slopes-----	5	*
509	Swakane-Peka-Rock outcrop complex, 15 to 35 percent slopes-----	2,890	0.2
510	Swakane-Rock outcrop complex, 35 to 75 percent slopes-----	670	*
511	Swakane-Rock outcrop-Peka complex, 35 to 65 percent slopes-----	100	*
512	Sycreek ashy loam, 5 to 35 percent slopes-----	535	*
513	Synarep-Colville-Xerofluvents complex, 0 to 3 percent slopes-----	6,510	0.5
514	Thout-Rock outcrop complex, cool, 35 to 65 percent slopes-----	250	*
515	Thow-Vingulch complex, 35 to 65 percent slopes-----	55	*
516	Thrapp-Aquandic Xerofluvents complex, 0 to 35 percent slopes-----	615	*
517	Thuso ashy loam, 3 to 15 percent slopes-----	570	*
518	Thuso ashy loam, 15 to 35 percent slopes-----	2,045	0.2
519	Thuso ashy sandy loam, 35 to 65 percent slopes-----	275	*
520	Thuso-Lithic Haploxerepts-Rock outcrop complex, 35 to 65 percent slopes--	3,325	0.3
521	Toats-Longswamp complex, 15 to 35 percent slopes-----	30	*
522	Tonasket silt loam, 0 to 3 percent slopes-----	2,060	0.2
523	Tonasket silt loam, 3 to 8 percent slopes-----	1,620	0.1
524	Tonasket silt loam, 8 to 15 percent slopes-----	1,660	0.1
525	Tonasket silt loam, 15 to 25 percent slopes-----	1,100	*
526	Tonasket silt loam, 25 to 45 percent slopes-----	1,275	0.1
527	Tonasket silt loam, 0 to 45 percent slopes, extremely stony-----	432	*
528	Twentymile stony ashy fine sandy loam, 15 to 35 percent slopes-----	605	*
529	Twentymile-Smokejump complex, 35 to 65 percent slopes-----	2,920	0.2
530	Vallan-Rock outcrop complex, 15 to 50 percent slopes-----	120	*
531	Vanbrunt-Swakane-Rock outcrop complex, 35 to 65 percent slopes-----	1,765	0.1
532	Verhart-Rock outcrop complex, cold, 35 to 65 percent slopes-----	5	*
533	Veridge-Farway complex, 35 to 65 percent slopes-----	120	*
534	Veridge-Farway complex, moist, 35 to 65 percent slopes-----	1,480	0.1
535	Veridge-Rock outcrop complex, 35 to 65 percent slopes-----	605	*
536	Vinegar ashy very fine sandy loam, 0 to 5 percent slopes-----	30	*
537	Vinegar-Thow complex, 15 to 35 percent slopes-----	145	*
538	Vingulch-Rock outcrop complex, 35 to 65 percent slopes-----	435	*
539	Vitrandic Humicryepts-Lithic Humicryepts complex, 35 to 70 percent slopes	160	*
540	Vitrandic Haploxerepts-Lithic Haploxerepts-Rock outcrop complex, dry, 15 to 90 percent slopes-----	1,105	*
541	Vitrixerandic Haplocryepts-Cryaquolls, 0 to 5 percent slopes-----	150	*
542	Wadams ashy sandy loam, 3 to 15 percent slopes-----	190	*
543	Wadams ashy sandy loam, 0 to 25 percent slopes, extremely stony-----	100	*
544	Wagberg stony ashy fine sandy loam, 5 to 30 percent slopes-----	965	*
545	Wagberg stony ashy fine sandy loam, 30 to 60 percent slopes-----	1,400	0.1
546	Wagberg-Lithic Ultic Haploxerolls-Rock outcrop complex, 35 to 90 percent slopes-----	390	*
547	Wagberg-Swakane complex, 15 to 35 percent slopes-----	225	*
548	Wagberg-Swakane-Rock outcrop complex, 35 to 65 percent slopes-----	260	*
549	Wagberg-Swakane-Rock outcrop complex, 45 to 90 percent slopes-----	595	*
550	Wapal ashy coarse sandy loam, 0 to 20 percent slopes-----	4,805	0.4
551	Wapal stony ashy coarse sandy loam, 0 to 15 percent slopes-----	1,020	*
552	Wapal stony ashy coarse sandy loam, 15 to 35 percent slopes-----	470	*
553	Wapal stony ashy coarse sandy loam, 35 to 65 percent slopes-----	310	*
554	Wapal-Brevco complex, 15 to 35 percent slopes-----	1,050	*
555	Wapal-Brevco complex, 35 to 65 percent slopes-----	195	*
556	Wapal-Rock outcrop complex, 35 to 65 percent slopes-----	1,850	0.2
557	Wapal-Sacheen complex, 35 to 65 percent slopes-----	690	*
558	Water-----	16,790	1.4

See footnote at end of table.

Soil Survey of Okanogan County Area, Washington

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
559	Wenner ashy loam, 15 to 35 percent slopes-----	20	*
560	Wilder-Republic complex, 35 to 65 percent slopes-----	45	*
561	Wilma-Lithic Haploxerepts-Rock outcrop complex, 15 to 35 percent slopes--	2,110	0.2
562	Wilma-Lithic Haploxerepts-Rock outcrop complex, 35 to 65 percent slopes--	1,660	0.1
563	Wilma-Rock outcrop complex, 35 to 65 percent slopes-----	70	*
564	Winsand-Verhart complex, 35 to 65 percent slopes-----	170	*
565	Winthrop gravelly loamy sand, 0 to 15 percent slopes-----	4,165	0.3
566	Winthrop loamy sand, 0 to 45 percent slopes, extremely stony-----	1,680	0.1
567	Wynhoff gravelly sandy loam, 35 to 65 percent slopes-----	1,840	0.2
568	Wynhoff-Lithic Haploxerepts-Rock outcrop complex, 15 to 35 percent slopes	20	*
569	Xerofluvents, wet, 0 to 3 percent slopes-----	1,005	*
570	Yellcreek-Midpeak-Rock outcrop complex, 35 to 65 percent slopes-----	10	*
	Total-----	1,225,141	100.0

* Less than 0.1 percent.

Soil Survey of Okanogan County Area, Washington

Table 5.--Land Capability Classification

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
200: Aeneas-----	3e	2e
201: Aeneas-----	3e	3e
202: Aits-----	6e	---
203: Andic Dystricryepts, forested-----	7e	---
Rock outcrop-----	8	---
Rubble land-----	8	---
204: Andic Dystricryepts, forested-----	7e	---
Vitrandic Humicryepts, nonforested-----	7e	---
205: Aquandic Endoaquolls-----	6w	---
206: Aquandic Endoaquolls-----	6w	---
Haplosaprists-----	6w	---
207: Aquandic Xerofluvents-----	3w	---
208: Badland-----	8	---
209: Baldknob-----	7e	---
Rock outcrop-----	8	---
210: Baldknob-----	7e	---
Rubble land-----	8	---
Thout-----	7e	---
211: Baldknob-----	7e	---
Thout-----	7e	---
Nicmar-----	7e	---
212: Bearspring-----	7e	---
213: Bluebuck-----	7e	---
214: Boesel-----	3w	3w

Soil Survey of Okanogan County Area, Washington

Table 5.--Land Capability Classification--Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
215:		
Boesel-----	3w	3w
Muckamuck-----	3w	3w
216:		
Borgeau-----	7e	---
Johntom-----	7e	---
Rock outcrop-----	8	---
217:		
Borgeau-----	6e	---
Nicmar-----	6e	---
Johntom-----	6e	---
218:		
Borgeau-----	6e	---
Peka, moist-----	6e	---
219:		
Brevco-----	7e	---
Lithic Haploxerepts, forested-----	7e	---
Pebcreek, dry-----	7e	---
220:		
Brevco, cool-----	6e	---
Lithic Haploxerepts, forested-----	6e	---
Rock outcrop-----	8	---
221:		
Brevco-----	7e	---
Lithic Haploxerepts, forested, moist-----	7e	---
Rock outcrop-----	8	---
222:		
Brevco, dry-----	7e	---
Lithic Haploxerepts, forested, dry-----	7e	---
Rock outcrop-----	8	---
223:		
Burnscreek-----	4e	---
224:		
Cashmere-----	3e	3e
225:		
Cashmere-----	3e	3e

Soil Survey of Okanogan County Area, Washington

Table 5.--Land Capability Classification--Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
226: Cashmere-----	3e	4e
227: Cashmere-----	4e	6e
228: Cashmont-----	3e	3e
229: Cashmont-----	3e	3e
230: Cashmont-----	3e	4e
231: Cashmont-----	4e	6e
232: Cashmont-----	3e	3e
233: Cashmont, extremely stony surface-----	7s	---
234: Cashmont, extremely stony surface-----	7e	---
235: Cassal-----	4e	---
236: Chesaw-----	7e	---
237: Chesaw, extremely stony surface-----	7e	---
238: Chesaw-----	4s	---
Bong-----	3e	---
239: Chesaw-----	7s	---
Bong-----	6e	---
240: Chesaw-----	7e	---
Bong-----	7e	---
241: Chewack-----	7e	---
Sitdown, cool-----	7e	---
Rock outcrop-----	8	---
242: Chumstick-----	6e	---
Mineral-----	6e	---

Soil Survey of Okanogan County Area, Washington

Table 5.--Land Capability Classification--Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
242: Rock outcrop-----	8	---
243: Chumstick-----	7e	---
Mineral-----	7e	---
Rock outcrop-----	8	---
244: Chumstick-----	7e	---
Rock outcrop-----	8	---
245: Colville, poorly drained-----	6w	6w
246: Colville, somewhat poorly drained-----	3w	3w
247: Conconully-----	3s	3e
248: Conconully-----	3e	4e
249: Conconully-----	4e	6e
250: Conconully, extremely stony surface-----	7s	---
251: Conconully, extremely stony surface-----	7s	---
252: Conconully-----	7e	---
Donavan-----	7e	---
253: Coxit-----	6e	---
Pelican-----	6e	---
254: Crocamp-----	7s	---
Burget-----	6e	---
255: Crocamp-----	7e	---
Burget-----	7e	---
256: Crocamp-----	7e	---
Lithic Humicryepts, nonforested, xeric-----	7e	---
Rock outcrop-----	8	---

Soil Survey of Okanogan County Area, Washington

Table 5.--Land Capability Classification--Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
257:		
Cubhill-----	6e	---
Johntom-----	6e	---
258:		
Dams-----	8	---
259:		
Devore, warm-----	7e	---
Rock outcrop-----	8	---
260:		
Devore-----	6e	---
Treebutte-----	6e	---
Rock outcrop-----	8	---
261:		
Devore-----	7e	---
Treebutte-----	7e	---
Rock outcrop-----	8	---
262:		
Disautel-----	3s	3e
263:		
Disautel-----	3e	4e
264:		
Disautel, extremely stony surface-----	7s	---
265:		
Disautel, extremely stony surface-----	7e	---
266:		
Disautel, eroded-----	7e	---
267:		
Donavan-----	3e	4e
268:		
Donavan-----	4e	---
269:		
Donavan-----	7e	---
270:		
Donavan, extremely stony surface-----	7s	---
271:		
Donavan, extremely stony surface-----	7e	---
272:		
Donavan, extremely stony surface-----	6e	---
Rock outcrop-----	8	---

Soil Survey of Okanogan County Area, Washington

Table 5.--Land Capability Classification--Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
273: Entiat-----	7e	---
274: Ewall-----	4s	4e
275: Ewall-----	4e	7s
276: Ewall-----	7e	---
277: Farway, moist-----	6e	---
278: Finney-----	6e	---
Myerscreek, moist-----	6e	---
279: Goddard-----	3e	---
Lithic Haploxerepts, forested-----	6e	---
280: Goddard-----	3e	---
Parmenter-----	3e	---
281: Goddard, warm-----	6e	---
Parmenter, dry-----	6e	---
282: Granflat-----	3e	---
283: Haley-----	2e	3e
284: Haley-----	4e	6e
285: Haploxerandic Haplocryepts, forested, till substratum-----	6e	---
Cryaquolls, poorly drained, till substratum-----	6w	---
286: Havillah-----	3s	3e
287: Havillah-----	3e	4e
288: Havillah-----	4e	6e
289: Havillah, eroded-----	7e	---

Soil Survey of Okanogan County Area, Washington

Table 5.--Land Capability Classification--Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
290: Havillah, extremely stony surface-----	7e	---
291: Histic Cryaquepts-----	6e	---
Cryochemists-----	6w	---
292: Histosols, ponded-----	5w	---
293: Hodgson-----	3e	4e
294: Humic Vitricryands, nonforested-----	6e	---
Typic Humicryepts, nonforested-----	6e	---
295: Hunters-----	3e	3e
296: Hunters-----	3e	4e
297: Hunters, eroded-----	4e	6e
298: Jimbluff-----	6e	---
299: Jimbluff-----	4s	---
300: Johntom-----	6e	---
Borgeau-----	6e	---
Rock outcrop-----	8	---
301: Johntom-----	7e	---
Foggydew-----	7e	---
Rock outcrop-----	8	---
302: Johntom-----	6e	---
Rock outcrop-----	8	---
303: Johntom-----	7e	---
Rock outcrop-----	8	---
304: Karamin-----	4e	6e

Soil Survey of Okanogan County Area, Washington

Table 5.--Land Capability Classification--Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
305: Kartar-----	3e	---
306: Kartar-----	4e	---
307: Kartar, cool-----	7e	---
308: Kartar-----	3e	---
309: Kartar-----	4e	---
310: Kartar-----	7e	---
311: Kartar, extremely stony surface-----	7s	---
312: Kartar, extremely stony surface-----	7e	---
313: Karu-----	7e	---
314: Karu-----	7e	---
315: Koepke-----	3s	3e
316: Koepke-----	3e	4e
317: Koepke-----	4e	6e
318: Koepke-----	7e	---
319: Koepke, well drained-----	3e	4e
Koepke, moderately well drained-----	3e	4e
320: Koepke, well drained-----	6e	---
Koepke, moderately well drained-----	6e	---
321: Koepke, well drained-----	7e	---
Koepke, moderately well drained-----	7e	---
322: Lani-----	4e	---
323: Lani-----	7e	---

Soil Survey of Okanogan County Area, Washington

Table 5.--Land Capability Classification--Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
324: Lani, extremely stony surface-----	7s	---
325: Lani, extremely stony surface-----	7e	---
326: Leavenworth-----	3w	3w
327: Leftcreek-----	7e	---
Rock outcrop-----	8	---
328: Leiko-----	4s	---
329: Leiko-----	4s	---
330: Leiko-----	6e	---
331: Leiko, extremely stony surface-----	7s	---
332: Leiko, extremely stony surface-----	7e	---
333: Leiko-----	6e	---
334: Leiko, extremely stony surface-----	7s	---
335: Leiko-----	7e	---
Rock outcrop-----	8	---
336: Lekrem, extremely stony surface-----	7e	---
Chumstick, moist-----	7e	---
Rock outcrop-----	8	---
337: Lithic Humicryepts, forested, udic-----	7e	---
Rock outcrop-----	8	---
338: Lithic Haploxerepts, range-----	7e	---
Cashmont, extremely stony surface-----	7e	---
339: Lithic Haploxerepts, range-----	7e	---
Conconully, extremely stony surface-----	7e	---

Soil Survey of Okanogan County Area, Washington

Table 5.--Land Capability Classification--Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
340:		
Lithic Haploxerepts, range-----	7e	---
Donavan, extremely stony surface-----	7e	---
Rock outcrop-----	8	---
341:		
Lithic Haploxerepts, range-----	7e	---
Kartar, extremely stony surface-----	7e	---
342:		
Lithic Haploxerepts, range-----	7e	---
Molson, extremely stony surface-----	7e	---
343:		
Lithic Haploxerepts, range-----	7e	---
Newbon, extremely stony surface-----	7e	---
344:		
Lithic Haploxerepts, range-----	7e	---
Nighthawk, extremely stony surface-----	7e	---
345:		
Lithic Haploxerepts, range-----	7e	---
Republic, extremely stony surface-----	7e	---
346:		
Lithic Haploxerepts, range, moist-----	7e	---
Rock outcrop-----	8	---
347:		
Lithic Haploxerepts, range-----	7e	---
Vallan-----	7e	---
348:		
Lithic Haploxerepts, forested-----	7e	---
Wilma, dry-----	7e	---
Rock outcrop-----	8	---
349:		
Longort-----	6e	---
350:		
Longort-----	7e	---
Santop-----	7e	---
351:		
Longswamp, warm-----	6e	---

Soil Survey of Okanogan County Area, Washington

Table 5.--Land Capability Classification--Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
352:		
Louploup-----	3e	---
Stepstone-----	3e	---
353:		
Louploup, dry-----	6e	---
Stepstone, dry-----	6e	---
354:		
Manley-----	6e	---
355:		
Manley-----	6e	---
356:		
Manley, warm-----	6e	---
Devore, warm-----	6e	---
357:		
Manley, warm-----	7e	---
Devore, warm-----	7e	---
358:		
Mansonia-----	7e	---
Swakane-----	7e	---
Rock outcrop-----	8	---
359:		
Merkel-----	3e	---
360:		
Merkel-----	6e	---
361:		
Merkel-----	7e	---
362:		
Merkel-----	6e	---
Lithic Haploxerepts, forested-----	6e	---
Rock outcrop-----	8	---
363:		
Merkel-----	7e	---
Wilma-----	7e	---
364:		
Midpeak-----	7e	---
Johntom-----	7e	---
Rock outcrop-----	8	---

Soil Survey of Okanogan County Area, Washington

Table 5.--Land Capability Classification--Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
365: Mineral, dry-----	4e	---
Rock outcrop-----	8	---
366: Mineral, dry-----	6e	---
Rock outcrop-----	8	---
367: Mires-----	3e	3e
368: Mires-----	4e	6e
369: Mires-----	7e	---
370: Mires, stony surface-----	4s	4e
371: Mires, extremely stony surface-----	7e	---
372: Mires-----	6e	---
Leiko-----	6e	---
373: Mobu-----	6s	6s
374: Mobu-----	6s	6s
375: Mobu-----	7e	---
376: Mobu, eroded-----	6s	---
377: Molson-----	3e	3e
378: Molson-----	3e	4e
379: Molson-----	4e	6e
380: Molson-----	6e	---
381: Molson, extremely stony surface-----	7s	---
382: Molson, extremely stony surface-----	7e	---
383: Molson-----	4e	6e

Soil Survey of Okanogan County Area, Washington

Table 5.--Land Capability Classification--Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
384: Muckamuck-----	3w	3w
385: Myerscreek, cool-----	6e	---
386: Myerscreek, moist-----	7e	---
387: Myerscreek, warm-----	6e	---
388: Myerscreek, warm-----	7e	---
389: Myerscreek, cool-----	6e	---
Aquandic Dystrocryepts, udic, forested-----	6e	---
390: Myerscreek, cool-----	6e	---
Devore-----	6e	---
391: Myerscreek, cool-----	7e	---
Devore-----	7e	---
392: Myerscreek, moist-----	7e	---
Finney-----	7e	---
393: Myerscreek, cool-----	6e	---
Histic Cryaquepts-----	6e	---
Cryohemists-----	6w	---
394: Myerscreek, moist-----	6e	---
Manley-----	6e	---
395: Myerscreek-----	7e	---
Twentymile-----	7e	---
396: Nahahum, moist-----	6e	---
397: Nahahum, cool-----	6e	---
398: Nahahum-----	6e	---
Coxit-----	6e	---

Soil Survey of Okanogan County Area, Washington

Table 5.--Land Capability Classification--Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
399:		
Nahahum-----	7e	---
Coxit-----	7e	---
400:		
Nevine-----	4e	---
Nevine, warm-----	4e	---
401:		
Nevine-----	6e	---
Nevine, warm-----	6e	---
402:		
Nevine, cool-----	3e	---
Louploup-----	3e	---
403:		
Nevine-----	6e	---
Louploup, dry-----	6e	---
404:		
Nevine, moist-----	6e	---
Louploup, moist-----	6e	---
405:		
Nevine-----	6e	---
Merkel-----	6e	---
406:		
Nevine-----	7e	---
Merkel-----	7e	---
407:		
Nevine-----	7e	---
Oxerine-----	7e	---
408:		
Nevine-----	6e	---
Nevine, warm-----	6e	---
Rock outcrop-----	8	---
409:		
Nevine-----	7e	---
Nevine, warm-----	7e	---
Rock outcrop-----	8	---
410:		
Nevine-----	6e	---

Soil Survey of Okanogan County Area, Washington

Table 5.--Land Capability Classification--Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
410: Wilma-----	6e	---
411: Nevine-----	7e	---
Wilma, dry-----	7e	---
412: Nevine-----	6e	---
Wilma-----	6e	---
Rock outcrop-----	8	---
413: Newbon-----	4e	6e
414: Newbon-----	2e	3e
415: Newbon-----	4e	6e
416: Newbon-----	7e	---
417: Newbon-----	7e	---
418: Newbon, extremely stony surface-----	7e	---
419: Newbon, eroded-----	7e	---
420: Newhorn-----	6e	---
421: Newhorn, moist-----	6e	---
422: Nicmar-----	6e	---
423: Nicmar-----	6e	---
424: Nicmar, warm-----	7e	---
Baldknob-----	7e	---
Rock outcrop-----	8	---
425: Nicmar-----	7e	---
Santop-----	7e	---
426: Nighthawk-----	3s	3e

Soil Survey of Okanogan County Area, Washington

Table 5.--Land Capability Classification--Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
427: Nighthawk-----	3e	4e
428: Nighthawk-----	4e	6e
429: Nighthawk, extremely stony surface-----	7s	---
430: Nighthawk, extremely stony surface-----	7e	---
431: Okanogan-----	3w	3w
432: Okanogan-----	3w	3w
433: Owhi-----	4s	4s
434: Owhi-----	4s	4s
435: Owhi, extremely stony surface-----	7s	---
436: Owhi, extremely stony surface-----	7e	---
437: Owhi-----	4s	4s
438: Owhi-----	4s	4s
Haley-----	3e	4e
439: Owhi-----	7s	---
Haley-----	6e	---
440: Owhi-----	7e	---
Haley-----	7e	---
441: Oxerine-----	7e	---
442: Oxerine, warm-----	7e	---
Lithic Haploxerepts, forested, cool-----	7e	---
Rock outcrop-----	8	---
443: Oxerine, warm-----	7e	---
Nevine, warm-----	7e	---

Soil Survey of Okanogan County Area, Washington

Table 5.--Land Capability Classification--Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
444: Oxerine, cool-----	7e	---
Rock outcrop-----	8	---
445: Pebcreek-----	6e	---
446: Pebcreek-----	6e	---
Brevco, cool-----	6e	---
447: Pebcreek-----	7e	---
Brevco, cool-----	7e	---
448: Pebcreek, dry-----	7e	---
Lithic Haploxerepts, forested, dry-----	7e	---
Rock outcrop-----	8	---
449: Peka-----	6e	---
450: Peka, moist-----	6e	---
Donavan-----	6e	---
451: Peka-----	7e	---
Swakane-----	7e	---
Rock outcrop-----	8	---
452: Pelican-----	7e	---
453: Pettijohn-----	7e	---
Mineral-----	7e	---
Rock outcrop-----	8	---
454: Pettijohn-----	7e	---
Wilma-----	7e	---
455: Pogue-----	3s	3s
456: Pogue-----	3s	3e

Soil Survey of Okanogan County Area, Washington

Table 5.--Land Capability Classification--Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
457: Pogue-----	3e	4e
458: Pogue-----	4e	6e
459: Pogue, extremely stony surface-----	7s	---
460: Pogue, extremely stony surface-----	7e	---
461: Pogue-----	3s	3e
462: Pogue-----	4e	6e
463: Radercreek-----	7e	---
Santop-----	7e	---
464: Redpeak-----	7e	---
Ontrail-----	7e	---
465: Rommel-----	7e	---
Devore, cold-----	7e	---
Rock outcrop-----	8	---
466: Rendovy-----	7e	---
Goshawk-----	7e	---
467: Republic-----	3e	---
468: Republic-----	4e	---
469: Republic-----	7e	---
470: Republic-----	3e	---
471: Republic, extremely stony surface-----	7e	---
472: Resner-----	6e	---
473: Resner, cool-----	7e	---
Sitdown, cold-----	7e	---

Soil Survey of Okanogan County Area, Washington

Table 5.--Land Capability Classification--Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
474:		
Resner-----	7e	---
Sitdown-----	7e	---
475:		
Riverwash-----	8	---
476:		
Rock outcrop-----	8	---
477:		
Rock outcrop-----	8	---
Donavan-----	6e	---
Peka-----	6e	---
478:		
Rock outcrop-----	8	---
Lithic Haplocryepts, xeric, forested-----	7e	---
Rubble land-----	8	---
479:		
Rock outcrop-----	8	---
Rubble land-----	8	---
480:		
Rufus-----	7e	---
Wynhoff-----	7e	---
Rock outcrop-----	8	---
481:		
Rufus-----	7e	---
Wynhoff-----	7e	---
Rock outcrop-----	8	---
482:		
Sacheen-----	7e	---
483:		
Salcreek-----	6e	---
484:		
Salcreek-----	7e	---
485:		
Scheiner-----	7e	---
Myerscreek-----	7e	---
486:		
Scoap-----	6e	---

Soil Survey of Okanogan County Area, Washington

Table 5.--Land Capability Classification--Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
487:		
Setill-----	6e	---
Johntom-----	6e	---
488:		
Shalrock, cool-----	7e	---
Johntom-----	7e	---
489:		
Shalrock-----	6e	---
Rock outcrop-----	8	---
490:		
Shalrock-----	7e	---
Rock outcrop-----	8	---
491:		
Sinlahekin-----	3e	4e
Peka-----	4s	4e
Hodgson-----	3e	4e
492:		
Sitdown, cool-----	6e	---
493:		
Sitdown, cool-----	6e	---
494:		
Sitdown-----	7e	---
Rock outcrop-----	8	---
495:		
Sitdown, cool-----	6e	---
Wellsfar-----	6e	---
Rock outcrop-----	8	---
496:		
Skaha-----	4s	4s
497:		
Skaha-----	4e	6e
498:		
Skaha-----	7e	---
499:		
Smokejump-----	7e	---
Jantill-----	7e	---
500:		
Smokejump-----	7e	---

Soil Survey of Okanogan County Area, Washington

Table 5.--Land Capability Classification--Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
500: Rock outcrop-----	8	---
501: Smokejump-----	6e	---
Twentymile-----	6e	---
502: Stapaloop-----	4e	---
503: Stemilt-----	7e	---
Midpeak-----	7e	---
504: Stepstone-----	3e	---
505: Stepstone, dry-----	6e	---
506: Stepstone-----	3e	---
Torboy-----	3e	---
507: Storer-----	7e	---
Swakane-----	7e	---
Rock outcrop-----	8	---
508: Strat-----	4s	4s
509: Swakane-----	6e	---
Peka, moist-----	7s	---
Rock outcrop-----	8	---
510: Swakane-----	7e	---
Rock outcrop-----	8	---
511: Swakane-----	7e	---
Rock outcrop-----	8	---
Peka, moist-----	7e	---
512: Sycreek-----	6e	---
513: Synarep-----	2e	2e

Soil Survey of Okanogan County Area, Washington

Table 5.--Land Capability Classification--Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
513: Colville, poorly drained-----	6w	6w
Xerofluvents-----	6w	6w
514: Thout-----	7e	---
Rock outcrop-----	8	---
515: Thow-----	7e	---
Vingulch-----	7e	---
516: Thrapp-----	6e	---
Aquandic Xerofluvents-----	3w	---
517: Thuso-----	3e	---
518: Thuso-----	6e	---
519: Thuso, cool-----	7e	---
520: Thuso-----	7e	---
Lithic Haploxerepts, range, moist-----	7e	---
Rock outcrop-----	8	---
521: Toats-----	6e	---
Longswamp-----	6e	---
522: Tonasket-----	3s	3s
523: Tonasket-----	3s	3e
524: Tonasket-----	3e	4e
525: Tonasket-----	4e	6e
526: Tonasket-----	7e	---
527: Tonasket, extremely stony surface-----	7e	---
528: Twentymile-----	6e	---

Soil Survey of Okanogan County Area, Washington

Table 5.--Land Capability Classification--Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
529:		
Twentymile-----	7e	---
Smokejump-----	7e	---
530:		
Vallan-----	7e	---
Rock outcrop-----	8	---
531:		
Vanbrunt-----	7e	---
Swakane-----	7e	---
Rock outcrop-----	8	---
532:		
Verhart, cold-----	7e	---
Rock outcrop-----	8	---
533:		
Veridge-----	7e	---
Farway-----	7e	---
534:		
Veridge, moist-----	7e	---
Farway, moist-----	7e	---
535:		
Veridge-----	7e	---
Rock outcrop-----	8	---
536:		
Vinegar-----	3e	---
537:		
Vinegar-----	6e	---
Thow-----	6e	---
538:		
Vingulch-----	7e	---
Rock outcrop-----	8	---
539:		
Vitrandid Humicryepts, nonforested-----	7e	---
Lithic Humicryepts, nonforested, udic-----	7e	---
540:		
Vitrandid Haploxerepts-----	7e	---
Lithic Haploxerepts, forested, dry-----	7e	---
Rock outcrop-----	8	---

Soil Survey of Okanogan County Area, Washington

Table 5.--Land Capability Classification--Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
541: Vitrixerandic Haplocryepts, forested----- Cryaquolls, somewhat poorly drained, till substratum-----	6e 6w	--- ---
542: Wadams-----	3e	4e
543: Wadams, extremely stony surface-----	7s	---
544: Wagberg-----	7s	---
545: Wagberg-----	7e	---
546: Wagberg, cool----- Lithic Ultic Haploxerolls----- Rock outcrop-----	7e 7e 8	--- --- ---
547: Wagberg----- Swakane-----	7s 6e	--- ---
548: Wagberg----- Swakane----- Rock outcrop-----	7e 7e 8	--- --- ---
549: Wagberg, extremely stony surface----- Swakane----- Rock outcrop-----	7e 7e 8	--- --- ---
550: Wapal, cool-----	4e	---
551: Wapal, cool-----	4s	---
552: Wapal, dry-----	6e	---
553: Wapal-----	7e	---
554: Wapal----- Brevco-----	6e 6e	--- ---

Soil Survey of Okanogan County Area, Washington

Table 5.--Land Capability Classification--Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
555:		
Wapal-----	7e	---
Brevco-----	7e	---
556:		
Wapal, dry-----	7e	---
Rock outcrop-----	8	---
557:		
Wapal, dry, warm-----	7e	---
Sacheen-----	7e	---
558:		
Water-----	8	---
559:		
Wenner-----	6e	---
560:		
Wilder-----	7e	---
Republic-----	7e	---
561:		
Wilma-----	6e	---
Lithic Haploxerepts, forested-----	6e	---
Rock outcrop-----	8	---
562:		
Wilma, moist-----	7e	---
Lithic Haploxerepts, forested-----	7e	---
Rock outcrop-----	8	---
563:		
Wilma, cool-----	7e	---
Rock outcrop-----	8	---
564:		
Winsand-----	7e	---
Verhart-----	7e	---
565:		
Winthrop-----	4s	4e
566:		
Winthrop, extremely stony surface-----	7e	---
567:		
Wynhoff-----	7e	---
568:		
Wynhoff-----	6e	---

Soil Survey of Okanogan County Area, Washington

Table 5.--Land Capability Classification--Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
568: Lithic Haploxerepts, range, moist-----	6e	---
Rock outcrop-----	8	---
569: Xerofluvents, wet-----	3w	3w
570: Yellcreek-----	7e	---
Midpeak-----	7e	---
Rock outcrop-----	8	---

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Table 6.--Prime and Other Important Farmland

(Only the soils considered prime or important farmland are listed. Urban or built-up areas of the soils listed are not considered prime or important farmland.)

Map symbol	Map unit name	Farmland classification
200	Aeneas fine sandy loam, 0 to 3 percent slopes-----	Prime farmland if irrigated
201	Aeneas fine sandy loam, 3 to 8 percent slopes-----	Prime farmland if irrigated
214	Boesel fine sandy loam, 0 to 3 percent slopes-----	Prime farmland if irrigated
215	Boesel-Muckamuck complex, 0 to 5 percent slopes-----	Prime farmland if irrigated
224	Cashmere fine sandy loam, 0 to 3 percent slopes-----	Prime farmland if irrigated
225	Cashmere fine sandy loam, 3 to 8 percent slopes-----	Farmland of statewide importance
226	Cashmere fine sandy loam, 8 to 15 percent slopes-----	Farmland of unique importance
227	Cashmere fine sandy loam, 15 to 25 percent slopes-----	Farmland of unique importance
228	Cashmont sandy loam, 0 to 3 percent slopes-----	Prime farmland if irrigated
229	Cashmont sandy loam, 3 to 8 percent slopes-----	Prime farmland if irrigated
230	Cashmont sandy loam, 8 to 15 percent slopes-----	Farmland of unique importance
231	Cashmont sandy loam, 15 to 25 percent slopes-----	Farmland of unique importance
232	Cashmont gravelly sandy loam, 0 to 8 percent slopes----	Prime farmland if irrigated
245	Colville silt loam, 0 to 3 percent slopes-----	Farmland of statewide importance
246	Colville silt loam, moderately wet, 0 to 3 percent slopes-----	Farmland of statewide importance
247	Conconully gravelly ashy loam, 0 to 8 percent slopes---	Prime farmland if irrigated
248	Conconully gravelly ashy loam, 8 to 15 percent slopes--	Farmland of unique importance
249	Conconully gravelly ashy loam, 15 to 25 percent slopes	Farmland of unique importance
262	Disautel silt loam, 0 to 8 percent slopes-----	Prime farmland if irrigated
263	Disautel silt loam, 8 to 15 percent slopes-----	Farmland of unique importance
268	Donavan ashy loam, 8 to 25 percent slopes-----	Farmland of unique importance
274	Ewall loamy fine sand, 0 to 15 percent slopes-----	Farmland of statewide importance
275	Ewall loamy fine sand, 15 to 25 percent slopes-----	Farmland of unique importance
283	Haley ashy fine sandy loam, 0 to 8 percent slopes-----	Prime farmland if irrigated
284	Haley ashy fine sandy loam, 8 to 25 percent slopes-----	Farmland of unique importance
286	Havillah ashy silt loam, 0 to 8 percent slopes-----	All areas are prime farmland
287	Havillah ashy silt loam, 8 to 15 percent slopes-----	Farmland of statewide importance
288	Havillah ashy silt loam, 15 to 25 percent slopes-----	Farmland of statewide importance
293	Hodgson ashy silt loam, 3 to 15 percent slopes-----	Farmland of statewide importance
295	Hunters ashy silt loam, 0 to 8 percent slopes-----	All areas are prime farmland
296	Hunters ashy silt loam, 8 to 15 percent slopes-----	Farmland of unique importance
297	Hunters ashy silt loam, 8 to 25 percent slopes, eroded	Farmland of unique importance
304	Karamin ashy fine sandy loam, 0 to 20 percent slopes---	Farmland of statewide importance
305	Kartar ashy sandy loam, 3 to 15 percent slopes-----	Farmland of statewide importance
306	Kartar ashy sandy loam, 15 to 25 percent slopes-----	Farmland of unique importance
308	Kartar ashy fine sandy loam, 0 to 8 percent slopes-----	Prime farmland if irrigated
309	Kartar ashy fine sandy loam, 8 to 25 percent slopes-----	Farmland of unique importance
315	Koepeke ashy silt loam, 0 to 8 percent slopes-----	All areas are prime farmland
316	Koepeke ashy silt loam, 8 to 15 percent slopes-----	Farmland of statewide importance
317	Koepeke ashy silt loam, 15 to 25 percent slopes-----	Farmland of statewide importance
319	Koepeke complex, 3 to 15 percent slopes-----	Farmland of statewide importance
320	Koepeke complex, 15 to 35 percent slopes-----	Farmland of statewide importance
322	Lani ashy sandy loam, 0 to 25 percent slopes-----	Farmland of statewide importance
326	Leavenworth silt loam, 0 to 3 percent slopes-----	Prime farmland if irrigated
328	Leiko ashy sandy loam, 0 to 3 percent slopes-----	Prime farmland if irrigated
367	Mires ashy loam, 0 to 8 percent slopes-----	Prime farmland if irrigated
368	Mires gravelly ashy loam, 3 to 25 percent slopes-----	Farmland of statewide importance
373	Mobu silt loam, 3 to 8 percent slopes-----	Farmland of statewide importance
374	Mobu silt loam, 8 to 15 percent slopes-----	Farmland of unique importance
376	Mobu silt loam, 8 to 25 percent slopes, eroded-----	Farmland of unique importance
377	Molson ashy silt loam, 0 to 8 percent slopes-----	All areas are prime farmland
378	Molson ashy silt loam, 8 to 15 percent slopes-----	Farmland of statewide importance
379	Molson ashy silt loam, 15 to 25 percent slopes-----	Farmland of statewide importance
383	Molson gravelly ashy silt loam, 3 to 25 percent slopes	Farmland of statewide importance
384	Muckamuck silt loam, 0 to 3 percent slopes-----	Prime farmland if irrigated
413	Newbon loam, 15 to 25 percent slopes-----	Farmland of unique importance
414	Newbon gravelly loam, 0 to 8 percent slopes-----	Prime farmland if irrigated
415	Newbon gravelly loam, 8 to 25 percent slopes-----	Farmland of unique importance
426	Nighthawk loam, 3 to 8 percent slopes-----	Farmland of unique importance

Soil Survey of Okanogan County Area, Washington

Table 6.--Prime and Other Important Farmland--Continued

Map symbol	Map unit name	Farmland classification
427	Nighthawk loam, 8 to 15 percent slopes-----	Farmland of unique importance
428	Nighthawk loam, 15 to 25 percent slopes-----	Farmland of unique importance
431	Okanogan loam, 0 to 5 percent slopes-----	Prime farmland if irrigated
432	Okanogan loam, sandy substratum, 0 to 3 percent slopes	Prime farmland if irrigated
433	Owhi ashy fine sandy loam, 0 to 3 percent slopes-----	Prime farmland if irrigated
434	Owhi ashy fine sandy loam, 3 to 8 percent slopes-----	Prime farmland if irrigated
437	Owhi gravelly ashy fine sandy loam, 0 to 8 percent slopes-----	Prime farmland if irrigated
438	Owhi-Haley complex, 3 to 15 percent slopes-----	Prime farmland if irrigated
455	Pogue fine sandy loam, 0 to 3 percent slopes-----	Prime farmland if irrigated
456	Pogue fine sandy loam, 3 to 8 percent slopes-----	Prime farmland if irrigated
457	Pogue fine sandy loam, 8 to 15 percent slopes-----	Farmland of unique importance
458	Pogue fine sandy loam, 15 to 25 percent slopes-----	Farmland of unique importance
461	Pogue gravelly fine sandy loam, 0 to 8 percent slopes--	Prime farmland if irrigated
462	Pogue gravelly fine sandy loam, 8 to 25 percent slopes	Farmland of unique importance
467	Republic ashy loam, 3 to 15 percent slopes-----	Farmland of statewide importance
468	Republic ashy loam, 15 to 30 percent slopes-----	Farmland of statewide importance
470	Republic ashy loam, gravelly substratum, 0 to 8 percent slopes-----	Prime farmland if irrigated
496	Skaha gravelly loamy sand, 0 to 8 percent slopes-----	Farmland of unique importance
497	Skaha gravelly loamy sand, 8 to 25 percent slopes-----	Farmland of unique importance
522	Tonasket silt loam, 0 to 3 percent slopes-----	Prime farmland if irrigated
523	Tonasket silt loam, 3 to 8 percent slopes-----	Farmland of statewide importance
524	Tonasket silt loam, 8 to 15 percent slopes-----	Farmland of unique importance
525	Tonasket silt loam, 15 to 25 percent slopes-----	Farmland of statewide importance
542	Wadams ashy sandy loam, 3 to 15 percent slopes-----	Farmland of statewide importance
565	Winthrop gravelly loamy sand, 0 to 15 percent slopes---	Farmland of statewide importance
569	Xerofluvents, wet, 0 to 3 percent slopes-----	Farmland of statewide importance

Table 7.--Engineering Properties

(Absence of an entry indicates that the data were not estimated.)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
200:												
Aeneas-----	0-2	Fine sandy loam	CL-ML, SM	A-4	0	0	100	100	70-85	40-55	10-20	2-6
	2-8	Fine sandy loam	CL-ML, SM	A-4	0	0	100	100	70-85	40-55	10-20	2-6
	8-16	Fine sandy loam, sandy loam	SC-SM	A-4, A-2	0	0	90-100	85-100	55-70	30-45	10-20	2-6
	16-26	Fine sandy loam, sandy loam	SC-SM	A-4, A-2	0	0	90-100	85-100	55-70	30-45	10-20	2-6
	26-30	Loamy sand, sand, loamy fine sand, coarse sand	SW-SM, SP-SM, SC-SM	A-2, A-1	0	0	90-100	85-100	45-65	5-20	0-10	NP-4
	30-60	Sand, loamy sand, loamy fine sand, coarse sand	SW-SM, SC-SM, SP-SM	A-2, A-1	0	0	90-100	85-100	45-65	5-20	0-10	NP-4
201:												
Aeneas-----	0-2	Fine sandy loam	CL-ML, SM	A-4	0	0	100	100	70-85	40-55	10-20	2-6
	2-8	Fine sandy loam	CL-ML, SM	A-4	0	0	100	100	70-85	40-55	10-20	2-6
	8-16	Fine sandy loam, sandy loam	SC-SM	A-4	0	0	90-100	85-100	55-70	30-45	10-20	2-6
	16-26	Fine sandy loam, sandy loam	SC-SM	A-4	0	0	90-100	85-100	55-70	30-45	10-20	2-6
	26-30	Loamy sand, sand, loamy fine sand, coarse sand	SW-SM, SC-SM, SP-SM	A-2, A-1	0	0	90-100	85-100	45-65	5-20	0-10	NP-4
	30-60	Sand, loamy sand, loamy fine sand, coarse sand	SW-SM, SP-SM	A-2, A-1	0	0	90-100	85-100	45-65	5-20	0-10	NP-4
202:												
Aits-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-3	Ashy loam	ML, SM	A-4	0-10	0	95-100	85-95	70-90	45-75	25-40	NP-5
	3-12	Ashy loam, ash very fine sandy loam	ML, SM	A-4	0	0	85-100	75-100	55-85	35-75	25-40	NP-5
	12-17	Gravelly loam	GM, SC-SM, GC-GM, SM, ML	A-4, A-2	0	0	60-80	50-75	35-70	20-65	25-40	NP-5
	17-34	Gravelly loam	GC, SC-SM, CL-ML, GC-GM	A-4, A-2	0	0	60-80	50-75	35-70	20-65	20-30	5-10
	34-45	Gravelly loam, gravelly clay loam, very gravelly sandy clay loam	GC, CL-ML, GC-GM, SC-SM	A-4, A-2	0	0	50-80	40-75	35-70	20-65	20-30	5-10
	45-60	Very gravelly clay loam, gravelly sandy clay loam, gravelly loam	SC, GC, CL	A-2, A-6	0	0	50-80	30-75	25-65	15-55	35-45	10-20

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
203: Andic Dystrocryepts, forested-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Ashy silt loam	ML	A-4	0	0	90-100	80-95	65-85	45-75	25-40	NP-5
	2-5	Ashy fine sandy loam, gravelly ashy sandy loam, stony ashy fine sandy loam	ML, SM	A-4	0-5	0-5	90-100	65-90	60-80	40-70	20-40	NP-5
	5-11	Ashy fine sandy loam, gravelly ashy sandy loam, stony ashy fine sandy loam	ML, SM	A-4	0-5	0-5	90-100	65-95	55-80	35-70	20-40	NP-5
	11-22	Cobbly sandy loam, very gravelly fine sandy loam, stony loamy sand	SC-SM, GM, ML, SM	A-4, A-2, A-1	0-15	5-25	55-95	45-85	30-70	20-55	15-25	NP-10
	22-60	Gravelly loamy sand, very stony fine sandy loam, cobbly loamy sand	SM, GM	A-1, A-2	0-45	5-25	50-90	45-85	25-65	10-35	10-20	NP-5
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
Rubble land-----	0-60	Fragmental material			---	---	---	---	---	---	---	---
204: Andic Dystrocryepts, forested-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Ashy silt loam	ML	A-4	0	0	90-100	80-95	65-85	45-75	25-40	NP-5
	2-5	Ashy fine sandy loam, gravelly ashy sandy loam, stony ashy fine sandy loam	ML, SM	A-4	0-5	0-5	90-100	65-90	60-80	40-70	20-40	NP-5
	5-11	Ashy fine sandy loam, gravelly ashy sandy loam, stony ashy fine sandy loam	ML, SM	A-4	0-5	0-5	90-100	65-95	55-80	35-70	20-40	NP-5
	11-22	Cobbly sandy loam, very gravelly fine sandy loam, stony loamy sand	SC-SM, GM, ML, SM	A-4, A-2, A-1	0-15	5-25	55-95	45-85	30-70	20-55	15-25	NP-10
	22-60	Gravelly loamy sand, cobbly loamy sand, very stony fine sandy loam	SM, GM	A-1, A-2	0-45	5-25	50-90	45-85	25-65	10-35	10-20	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
					Pct	Pct						Pct
204: Vitrandic Humicryepts, nonforested----	In											
	0-4	Gravelly ashy fine sandy loam	SM, ML	A-4	0	0-5	75-90	70-85	55-70	35-60	25-35	NP-5
	4-12	Gravelly ashy sandy loam, stony ashy sandy loam, stony ashy loam	SM, ML, GM	A-4, A-1, A-2	0-35	0-15	60-90	55-85	35-70	25-60	25-35	NP-5
	12-20	Very gravelly ashy sandy loam, very cobbly ashy sandy loam, cobbly ashy sandy loam, stony ashy loam	GM, SM	A-2, A-1, A-4	0-15	5-45	35-85	30-80	25-60	15-45	15-25	NP-5
	20-31	Very gravelly sandy loam, very cobbly sandy loam, cobbly sandy loam, very stony coarse sandy loam	GM, SM	A-1, A-2, A-4	0-25	5-55	35-85	30-80	15-55	10-40	15-25	NP-5
	31-35	Unweathered bedrock			---	---	---	---	---	---	---	---
205: Aquandic Endoaquolls----	0-4	Mucky peat	PT	A-8	0	0	100	100	85-100	80-100	---	---
	4-11	Ashy silt loam	ML	A-4	0	0	90-100	85-100	70-100	65-100	25-40	NP-5
	11-18	Silt loam, loam	CL-ML	A-4	0	0	80-100	75-100	65-100	60-100	15-25	NP-10
	18-23	Silt loam, loam	CL-ML	A-4	0	0	75-100	75-100	65-100	60-100	15-25	NP-10
	23-39	Fine sandy loam, gravelly fine sandy loam, very gravelly silt loam	SC-SM, GM, ML	A-4, A-2, A-1	0	0	50-90	45-85	30-70	20-55	15-25	NP-10
	39-60	Very gravelly sandy loam, very gravelly coarse sand, very gravelly loamy sand	GC-GM, SP-SM, SM, GM, SC-SM, GP-GM	A-1	0	5-15	45-65	40-60	20-45	5-20	10-20	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
					Pct	Pct						Pct
206: Aquandic Endoaquolls----	In											
	0-4	Mucky peat	PT	A-8	0	0	100	100	85-100	80-100	---	---
	4-11	Ashy silt loam	ML	A-4	0	0	90-100	85-100	70-100	65-100	25-40	NP-5
	11-18	Silt loam, loam	CL-ML	A-4	0	0	80-100	75-100	65-100	60-100	15-25	NP-10
	18-23	Silt loam, loam	CL-ML	A-4	0	0	75-100	75-100	65-100	60-100	15-25	NP-10
	23-39	Fine sandy loam, gravelly fine sandy loam, very gravelly silt loam	SC-SM, GM, ML	A-4, A-2, A-1	0	0	50-90	45-85	30-70	20-55	15-25	NP-10
	39-60	Very gravelly sandy loam, very gravelly coarse sand, very gravelly loamy sand	GC-GM, SP-SM, SM, GP-GM, GM, SC-SM	A-1	0	5-15	45-65	40-60	20-45	5-20	10-20	NP-10
Haplosaprists---	0-8	Mucky peat	PT	A-8	0	0	100	100	85-100	80-100	---	---
	8-18	Muck	PT	A-8	0	0	100	100	85-100	80-100	---	---
	18-34	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	75-90	15-25	5-15
	34-44	Silt loam, very fine sandy loam, gravelly fine sandy loam	CL, CL-ML	A-4, A-6	0	0	100	70-100	60-100	50-90	15-25	5-15
	44-55	Fine sandy loam	SC-SM, SM	A-4	0	0	100	100	70-85	30-45	10-20	NP-10
	55-60	Muck	PT	A-8	0	0	100	100	85-100	80-100	---	---
207: Aquandic Xerofluvents---												
	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Ashy sandy loam	SM	A-2	0	0	100	100	60-70	20-30	20-40	NP-5
	5-9	Ashy sandy loam	SM	A-2	0	0	100	100	60-70	20-30	20-30	NP-5
	9-14	Ashy sandy loam	SM	A-2	0	0	100	100	60-70	20-30	20-40	NP-5
	14-25	Gravelly loamy sand	SM	A-1	0	0-5	70-85	50-80	40-50	10-20	10-20	NP-5
	25-45	Sandy loam	SC-SM	A-1, A-2	0	0	75-90	75-85	45-55	15-25	15-25	NP-10
	45-51	Very gravelly loamy sand	GM	A-1	0	0	45-60	40-55	30-40	10-20	10-20	NP-5
	51-60	Very gravelly loamy sand	GM	A-1	0	0	35-50	30-45	25-35	10-20	10-20	NP-5
208: Badland-----	0-60	Weathered bedrock			---	---	---	---	---	---	---	---
209: Baldknob-----												
	0-3	Gravelly ash loam	CL	A-4	0	0-15	65-80	60-75	50-65	40-55	20-30	5-10
	3-12	Very flaggy loam, very channery loam, very flaggy sandy loam	GC-GM	A-2, A-1	15-40	35-60	35-50	30-45	30-45	20-35	20-30	5-10
	12-16	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
209: Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
210: Baldknob-----	0-3	Gravelly ashy loam	CL	A-4	0	0-15	65-80	60-75	50-65	40-55	20-30	5-10
	3-12	Very flaggy loam, very flaggy sandy loam, very channery loam	GC-GM	A-2, A-1	15-40	35-60	35-50	30-45	30-45	20-35	20-30	5-10
	12-16	Unweathered bedrock			---	---	---	---	---	---	---	---
Rubble land----	0-60	Fragmental material			---	---	---	---	---	---	---	---
Thout-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Gravelly ashy sandy loam	SC-SM, ML	A-4	0	0-15	70-90	65-85	45-75	35-55	15-30	NP-10
	5-12	Very gravelly ashy sandy loam, very cobbly ashy sandy loam, very gravelly ashy loam	GC-GM, SC-SM	A-2, A-1, A-4	0	0-25	45-70	40-65	30-65	20-45	15-30	NP-10
	12-25	Very gravelly sandy loam, very cobbly sandy loam, very gravelly loam	GC-GM, SC-SM	A-2, A-1, A-4	0	0-25	45-70	40-65	30-65	20-45	15-30	NP-10
	25-29	Unweathered bedrock			---	---	---	---	---	---	---	---
211: Baldknob-----	0-3	Gravelly ashy loam	CL	A-4	0	0-15	65-80	60-75	50-65	40-55	20-30	5-10
	3-12	Very flaggy loam, very flaggy sandy loam, very channery loam	GC-GM	A-2, A-1	15-40	35-60	35-50	30-45	30-45	20-35	20-30	5-10
	12-16	Unweathered bedrock			---	---	---	---	---	---	---	---
Thout-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Gravelly ashy sandy loam	SC-SM, ML	A-4	0	0-15	70-90	65-85	45-75	35-55	15-30	NP-10
	5-12	Very gravelly ashy sandy loam, very cobbly ashy sandy loam, very gravelly ashy loam	GC-GM, SC-SM	A-2, A-1, A-4	0	0-25	45-70	40-65	30-65	20-45	15-30	NP-10
	12-25	Very gravelly sandy loam, very cobbly sandy loam, very gravelly loam	GC-GM, SC-SM	A-2, A-1, A-4	0	0-25	45-70	40-65	30-65	20-45	15-30	NP-10
	25-29	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
211: Nicmar-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Ashy loam	ML	A-4	0	0	85-100	80-95	75-90	65-80	20-35	NP-5
	5-17	Gravelly ash loam, ash loam	ML	A-4	0	0-15	70-85	65-80	60-75	50-65	20-35	NP-5
	17-24	Very cobbly clay loam, very cobbly sandy clay loam	ML, CL, GM	A-4, A-6	0-15	25-55	50-70	45-65	40-60	40-55	30-40	5-15
	24-34	Very cobbly clay loam, very cobbly sandy clay loam	GM, CL	A-4, A-6	0-15	25-55	50-70	45-65	40-60	40-55	30-40	5-15
	34-60	Very gravelly sandy clay loam, gravelly sandy clay loam	GM, CL	A-4, A-6	0-15	0-25	45-70	40-65	40-60	40-55	30-40	5-15
212: Bearspring-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-8	Gravelly ash sandy loam	CL-ML, SM	A-4	0	0-10	65-80	60-75	55-70	40-65	15-30	NP-10
	8-13	Gravelly ash sandy loam	CL-ML, SM	A-4	0	0-10	65-80	60-75	55-70	40-65	15-30	NP-10
	13-20	Gravelly sandy loam, very gravelly sandy loam, very cobbly sandy loam	GC-GM, SM, ML	A-4, A-2	0	0-30	55-80	50-75	40-60	30-60	15-30	NP-10
	20-37	Very gravelly sandy loam, very cobbly sandy loam	GC-GM	A-1, A-2	0-5	10-30	30-55	25-50	20-45	15-30	15-25	NP-10
	37-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM	A-1, A-2	0-10	5-30	30-55	25-50	20-45	15-30	15-25	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
213: Bluebuck-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Ashy fine sandy loam	SM	A-2, A-4	0	0	100	100	60-70	30-40	15-30	NP-5
	2-4	Stony ashy sandy loam	SM	A-2, A-1	10-15	0-10	85-95	80-90	45-60	10-25	15-30	NP-5
	4-12	Gravelly ashy sandy loam, ashy sandy loam	SM	A-1, A-2	0-5	0-5	75-95	70-90	40-55	10-25	20-30	NP-5
	12-25	Very gravelly loamy sand, very cobbly loamy coarse sand, extremely gravelly coarse sand	SP-SM, GP-GM	A-1	0-15	10-35	40-55	35-50	20-30	0-10	5-15	NP-5
	25-36	Extremely gravelly coarse sand, extremely gravelly loamy coarse sand	GW-GM, GP-GM	A-1	0	5-25	25-40	20-35	10-20	0-10	0-10	NP-5
	36-55	Very gravelly loamy sand, very stony loamy coarse sand, extremely cobbly coarse sand	GP-GM, GW	A-1	0-35	10-45	40-55	35-50	15-30	0-10	5-15	NP-5
	55-60	Very gravelly loamy sand, very cobbly loamy sand, extremely gravelly loamy sand	SP-SM, GP-GM, GW, SW	A-1	0-5	10-30	45-60	40-55	20-35	0-10	5-15	NP-5
214: Boesel-----	0-8	Fine sandy loam	CL-ML, SM, CL	A-4	0	0	100	100	70-85	40-55	15-25	NP-10
	8-27	Fine sandy loam, sandy loam	CL-ML, ML, SM, CL	A-4	0	0	100	100	70-85	40-55	15-25	NP-10
	27-37	Loamy sand, gravelly loamy sand, coarse sand, sand	SM, SP-SM, SC-SM	A-1, A-2	0	0-5	75-90	70-85	40-60	10-20	0-10	NP-5
	37-60	Extremely gravelly coarse sand, very gravelly loamy sand, extremely gravelly sand, very gravelly sand	GP-GM, GC-GM	A-1	0	0-10	25-40	20-35	10-20	5-15	0-10	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
215: Boesel-----	0-8	Fine sandy loam	CL-ML, CL, SM	A-4	0	0	100	100	70-85	40-55	15-25	NP-10
	8-27	Fine sandy loam, sandy loam	CL-ML, CL, ML, SM	A-4	0	0	100	100	70-85	40-55	15-25	NP-10
	27-37	Loamy sand, coarse sand, sand, gravelly loamy sand	SM	A-1, A-2	0	0-5	75-90	70-85	40-60	10-20	0-10	NP-5
	37-60	Extremely gravelly coarse sand, very gravelly loamy sand, extremely gravelly sand, very gravelly sand	GP-GM	A-1	0	0-10	25-40	20-35	10-20	5-15	0-10	NP-5
Muckamuck-----	0-7	Silt loam	CL-ML	A-4	0	0	100	100	85-100	80-90	20-30	NP-10
	7-18	Silt loam, loam	CL-ML	A-4	0	0	100	100	85-100	70-80	20-30	NP-10
	18-28	Silty clay loam	CL	A-6, A-7	0	0	100	100	75-90	70-85	35-45	15-25
	28-60	Gravelly loam, silt loam	GC, CL	A-4, A-2, A-6	0	0-5	65-80	60-80	50-70	35-60	25-35	5-15
216: Borgeau-----	0-5	Ashy loam	ML, SM	A-4	0	0-5	85-95	75-90	70-85	45-60	20-35	NP-5
	5-14	Gravelly ashly loam, ashly loam	GM	A-2, A-4	0	0-5	60-70	55-65	50-65	30-45	20-35	NP-5
	14-27	Very gravelly loam, gravelly loam	GM	A-1, A-2	0	0-5	45-55	40-50	35-50	20-30	20-30	NP-5
	27-41	Very gravelly loam, very cobbly loam, very gravelly sandy loam	GC	A-2, A-1	0-5	0-30	35-45	30-40	25-40	20-30	20-30	5-15
	41-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM	A-1, A-2	0-5	0-30	40-50	35-45	25-30	10-20	15-25	NP-10
Johntom-----	0-3	Gravelly loam	SM	A-4	0	0	75-90	65-75	50-65	40-50	15-25	NP-5
	3-12	Very flaggy loam, very flaggy sandy loam	GM, SM	A-1	0-5	50-60	50-60	45-55	20-35	15-25	15-25	NP-5
	12-16	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
217: Borgeau-----	0-5	Ashy loam	ML, SM	A-4	0	0-5	85-95	75-90	70-85	45-60	20-35	NP-5
	5-14	Gravelly ash loam, ash loam	GM	A-2, A-4	0	0-5	60-70	55-65	50-65	30-45	20-35	NP-5
	14-27	Very gravelly loam, gravelly loam	GM	A-1, A-2	0	0-5	45-55	40-50	35-50	20-30	20-30	NP-5
	27-41	Very gravelly loam, very cobbly loam, very gravelly sandy loam	GC	A-2, A-1	0-5	0-30	35-45	30-40	25-40	20-30	20-30	5-15
	41-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM	A-1, A-2	0-5	0-30	40-50	35-45	25-30	10-20	15-25	NP-10
Nicmar-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Ashy loam	ML	A-4	0	0	85-100	80-95	75-90	65-80	20-35	NP-5
	5-17	Gravelly ash loam, ash loam	ML	A-4	0	0-15	70-85	65-80	60-75	50-65	20-35	NP-5
	17-24	Very cobbly clay loam, very cobbly sandy clay loam	ML, CL, GM	A-4, A-6	0-15	25-55	50-70	45-65	40-60	40-55	30-40	5-15
	24-34	Very cobbly clay loam, very cobbly sandy clay loam	GM, CL	A-4, A-6	0-15	25-55	50-70	45-65	40-60	40-55	30-40	5-15
	34-60	Very gravelly sandy clay loam, gravelly sandy clay loam	GM, CL	A-4, A-6	0-15	0-25	45-70	40-65	40-60	40-55	30-40	5-15
Johntom-----	0-3	Gravelly loam	SM	A-4	0	0	75-90	65-75	50-65	40-50	15-25	NP-5
	3-12	Very flaggy loam, very flaggy sandy loam	GM, SM	A-1	0-5	50-60	50-60	45-55	20-35	15-25	15-25	NP-5
	12-16	Unweathered bedrock			---	---	---	---	---	---	---	---
218: Borgeau-----	0-5	Ashy loam	ML, SM	A-4	0	0-5	85-95	75-90	70-85	45-60	20-35	NP-5
	5-14	Gravelly ash loam, ash loam	GM	A-2, A-4	0	0-5	60-70	55-65	50-65	30-45	20-35	NP-5
	14-27	Very gravelly loam, gravelly loam	GM	A-1, A-2	0	0-5	45-55	40-50	35-50	20-30	20-30	NP-5
	27-41	Very gravelly loam, very gravelly sandy loam, very cobbly loam	GC	A-2, A-1	0-5	0-30	35-45	30-40	25-40	20-30	20-30	5-15
	41-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM	A-1, A-2	0-5	0-30	40-50	35-45	25-30	10-20	15-25	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
218: Peka, moist-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Stony ashy sandy loam	SC-SM, ML	A-4	10-15	0-5	70-85	65-80	40-65	25-55	15-30	NP-10
	7-16	Gravelly ashy sandy loam	SC-SM	A-2, A-4	0-5	0-5	70-90	65-85	45-70	25-40	15-30	NP-10
	16-25	Very cobbly sandy loam, very gravelly sandy loam	GC-GM, SC-SM	A-1	0-5	10-30	40-70	35-65	25-40	15-25	15-25	NP-10
	25-50	Very cobbly sandy loam, very gravelly sandy loam	GM, SM	A-1	0-5	10-30	40-70	35-65	25-40	15-25	15-25	NP-5
	50-60	Very gravelly sandy loam	GM, SM	A-1	0	0-25	45-60	40-55	25-45	10-20	15-25	NP-5
219: Brevco-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Stony ashy coarse sandy loam	SC-SM	A-1, A-2	10-20	0-10	70-80	65-75	30-50	15-35	15-30	NP-10
	4-12	Gravelly ashy coarse sandy loam, gravelly ashy sandy loam	SC-SM	A-1, A-2	0-5	0-15	65-80	60-75	25-50	10-35	15-30	NP-10
	12-26	Very gravelly sandy loam, very gravelly coarse sandy loam, very cobbly coarse sandy loam	GC-GM, GP-GM, SM, SP-SM	A-1, A-2	0-5	10-45	30-65	25-60	15-50	5-35	15-25	NP-10
	26-39	Very cobbly coarse sandy loam, very gravelly coarse sandy loam, very gravelly sandy loam	GC-GM, GP-GM, SM, SP-SM	A-1, A-2	0-5	10-45	30-60	25-55	15-45	5-30	15-25	NP-10
	39-43	Unweathered bedrock			---	---	---	---	---	---	---	---
Lithic Haploxerepts, forested-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Cobbly ashy sandy loam	ML	A-4	0-5	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	4-13	Cobbly ashy sandy loam, very gravelly ashy sandy loam, stony ashy loam	ML	A-4	0-15	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	13-19	Very gravelly sandy loam, gravelly sandy loam, very cobbly sandy loam	SM, GM	A-2, A-1, A-4	0-5	5-30	45-100	35-90	25-70	15-50	15-25	NP-5
	19-23	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
219: Pebcreek, dry---	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-7	Stony ashy sandy loam	SC-SM, ML, SM	A-4, A-2	5-15	0-10	75-90	65-85	40-65	25-55	15-30	NP-10
	7-13	Gravelly ashy sandy loam, ashy sandy loam	SC-SM, ML, GM, SM, GC-GM	A-4, A-2	0	0-10	65-80	60-80	40-65	25-55	15-30	NP-10
	13-39	Very gravelly sand, very gravelly loamy sand	GM, GP-GM	A-1	0	0-10	25-55	20-45	10-30	5-20	0-5	NP-5
	39-44	Very gravelly loamy sand, very gravelly sand, extremely gravelly loamy sand	GP-GM, GM, GP	A-1	0-10	0-10	15-45	10-40	5-30	0-20	0-10	NP-5
	44-60	Gravelly sandy loam, very gravelly sandy loam, very gravelly loamy sand	GC-GM, GM, GP-GM, SP, SM, GP, SP-SM, SC-SM	A-1	0-10	0-15	25-60	20-55	10-40	0-25	5-15	NP-10
220: Brevco, cool----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Stony ashy coarse sandy loam	SC-SM	A-1, A-2	10-20	0-10	70-80	65-75	30-50	15-35	15-30	NP-10
	4-12	Gravelly ashy coarse sandy loam, gravelly ashy sandy loam	SC-SM	A-1, A-2	0-5	0-15	65-80	60-75	25-50	10-35	15-30	NP-10
	12-26	Very gravelly sandy loam, very gravelly coarse sandy loam, very cobble coarse sandy loam	GC-GM, GP-GM, SM, SP-SM	A-1, A-2	0-5	10-45	30-65	25-60	15-50	5-35	15-25	NP-10
	26-39	Very cobbly coarse sandy loam, very gravelly coarse sandy loam, very gravelly sandy loam	GC-GM, GP-GM, SM, SP-SM	A-1, A-2	0-5	10-45	30-60	25-55	15-45	5-30	15-25	NP-10
	39-43	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
220: Lithic Haploxerepts, forested-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Cobbly ashy sandy loam	ML	A-4	0-5	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	4-13	Cobbly ashy sandy loam, very gravelly ashy sandy loam, stony ashy loam	ML	A-4	0-15	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	13-19	Very gravelly sandy loam, gravelly sandy loam, very cobbly sandy loam	SM, GM	A-2, A-1, A-4	0-5	5-30	45-100	35-90	25-70	15-50	15-25	NP-5
	19-23	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
221: Brevco-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Stony ashy coarse sandy loam	SC-SM	A-1, A-2	10-20	0-10	70-80	65-75	30-50	15-35	15-30	NP-10
	4-12	Gravelly ashy coarse sandy loam, gravelly ashy sandy loam	SC-SM	A-1, A-2	0-5	0-15	65-80	60-75	25-50	10-35	15-30	NP-10
	12-26	Very gravelly sandy loam, very gravelly coarse sandy loam, very cobbly coarse sandy loam	GC-GM, GP-GM, SM, SP-SM	A-1, A-2	0-5	10-45	30-65	25-60	15-50	5-35	15-25	NP-10
	26-39	Very cobbly coarse sandy loam, very gravelly coarse sandy loam, very gravelly sandy loam	GC-GM, GP-GM, SM, SP-SM	A-1, A-2	0-5	10-45	30-60	25-55	15-45	5-30	15-25	NP-10
	39-43	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
221: Lithic Haploxerepts, forested, moist	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Cobbly ashy sandy loam	ML	A-4	0-5	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	4-13	Cobbly ashy sandy loam, very gravelly ashy sandy loam, stony ashy loam	ML	A-4	0-15	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	13-19	Very gravelly sandy loam, gravelly sandy loam, very cobbly sandy loam	SM, GM	A-2, A-1, A-4	0-5	5-30	45-100	35-90	25-70	15-50	15-25	NP-5
	19-23	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
222: Brevco, dry-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Stony ashy coarse sandy loam	SC-SM	A-1, A-2	10-20	0-10	70-80	65-75	30-50	15-35	15-30	NP-10
	4-12	Gravelly ashy coarse sandy loam, gravelly ashy sandy loam	SC-SM	A-1, A-2	0-5	0-15	65-80	60-75	25-50	10-35	15-30	NP-10
	12-26	Very gravelly sandy loam, very gravelly coarse sandy loam, very cobbly coarse sandy loam	GC-GM, GP-GM, SM, SP-SM	A-1, A-2	0-5	10-45	30-65	25-60	15-50	5-35	15-25	NP-10
	26-39	Very cobbly coarse sandy loam, very gravelly coarse sandy loam, very gravelly sandy loam	GC-GM, GP-GM, SM, SP-SM	A-1, A-2	0-5	10-45	30-60	25-55	15-45	5-30	15-25	NP-10
	39-43	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
222: Lithic Haploxerepts, forested, dry--	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Cobbly ashy sandy loam	ML	A-4	0-5	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	4-13	Cobbly ashy sandy loam, very gravelly ashy sandy loam, stony ashy loam	ML	A-4	0-15	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	13-19	Very gravelly sandy loam, gravelly sandy loam, very cobbly sandy loam	SM, GM	A-2, A-1, A-4	0-5	5-30	45-100	35-90	25-70	15-50	15-25	NP-5
	19-23	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
223: Burnscreek-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Stony sandy loam	SC-SM	A-1, A-2	10-20	0-10	70-80	65-75	40-50	20-30	20-25	2-5
	4-14	Very stony sandy loam, cobbly fine sandy loam, very cobbly sandy loam	SC-SM	A-1, A-2	5-25	15-25	65-75	60-70	40-50	20-30	20-25	2-5
	14-33	Extremely cobbly sandy loam, very gravelly fine sandy loam, very cobbly coarse sandy loam	GC-GM	A-1, A-2	0-25	15-45	40-50	35-45	25-35	10-20	20-25	4-7
	33-61	Extremely cobbly sandy loam, very cobbly coarse sandy loam, very gravelly fine sandy loam	GC-GM	A-1, A-2	0-25	15-45	40-50	35-45	25-35	10-20	20-25	4-7
224: Cashmere-----	0-2	Fine sandy loam	SC-SM, SM	A-4	0	0	95-100	90-100	70-85	40-50	5-20	2-6
	2-8	Fine sandy loam	SC-SM, SM	A-4	0	0	95-100	90-100	70-85	40-50	5-20	2-6
	8-25	Fine sandy loam, coarse sandy loam, sandy loam	SC-SM, SM	A-4	0	0-5	85-100	80-100	60-75	35-50	5-20	2-6
	25-44	Fine sandy loam, coarse sandy loam, sandy loam	SC-SM, SM	A-4	0	0-5	85-100	80-100	60-75	35-50	5-20	2-6
	44-60	Loamy fine sand, loamy coarse sand	SM	A-2	0	0-5	85-100	80-100	60-75	15-35	0-15	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
225: Cashmere-----	In											
	0-2	Fine sandy loam	SC-SM, SM	A-4	0	0	95-100	90-100	70-85	40-50	5-20	2-6
	2-8	Fine sandy loam	SC-SM, SM	A-4	0	0	95-100	90-100	70-85	40-50	5-20	2-6
	8-25	Fine sandy loam, coarse sandy loam, sandy loam	SC-SM, SM	A-4	0	0-5	85-100	80-100	60-75	35-50	5-20	2-6
	25-44	Fine sandy loam, coarse sandy loam, sandy loam	SC-SM, SM	A-4	0	0-5	85-100	80-100	60-75	35-50	5-20	2-6
	44-60	Loamy fine sand, loamy coarse sand	SM	A-2	0	0-5	85-100	80-100	60-75	15-35	0-15	NP-5
226: Cashmere-----												
	0-2	Fine sandy loam	SC-SM, SM	A-4	0	0	95-100	90-100	70-85	40-50	5-20	2-6
	2-8	Fine sandy loam	SC-SM, SM	A-4	0	0	95-100	90-100	70-85	40-50	5-20	2-6
	8-25	Fine sandy loam, coarse sandy loam, sandy loam	SC-SM, SM	A-4	0	0-5	85-100	80-100	60-75	35-50	5-20	2-6
	25-44	Fine sandy loam, coarse sandy loam, sandy loam	SC-SM, SM	A-4	0	0-5	85-100	80-100	60-75	35-50	5-20	2-6
	44-60	Loamy fine sand, loamy coarse sand	SM	A-2	0	0-5	85-100	80-100	60-75	15-35	0-15	NP-5
227: Cashmere-----												
	0-2	Fine sandy loam	SC-SM, SM	A-4	0	0	95-100	90-100	70-85	40-50	5-20	2-6
	2-8	Fine sandy loam	SC-SM, SM	A-4	0	0	95-100	90-100	70-85	40-50	5-20	2-6
	8-25	Fine sandy loam, coarse sandy loam, sandy loam	SC-SM, SM	A-4	0	0-5	85-100	80-100	60-75	35-50	5-20	2-6
	25-44	Fine sandy loam, coarse sandy loam, sandy loam	SC-SM, SM	A-4	0	0-5	85-100	80-100	60-75	35-50	5-20	2-6
	44-60	Loamy fine sand, loamy coarse sand	SM	A-2	0	0-5	85-100	80-100	60-75	15-35	0-15	NP-5
228: Cashmont-----												
	0-3	Sandy loam	SC-SM, SM	A-2	0	0	85-100	80-100	55-65	25-35	15-25	2-6
	3-8	Sandy loam, fine sandy loam	SC-SM, SM	A-2	0	0	85-100	80-100	55-65	25-35	15-25	2-6
	8-23	Gravelly sandy loam, gravelly fine sandy loam, gravelly coarse sandy loam	SC-SM, SM	A-2, A-1, A-4	0	0	70-80	65-75	40-60	20-40	15-25	2-6
	23-60	Gravelly sandy loam, gravelly fine sandy loam, gravelly coarse sandy loam	SC-SM, SM	A-1, A-2	0	0-5	55-70	50-65	35-50	15-30	15-25	2-6

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
					Pct	Pct						Pct
	<i>In</i>											
229: Cashmont-----	0-3	Sandy loam	SC-SM, SM	A-2	0	0	85-100	80-100	55-65	25-35	15-25	2-6
	3-8	Sandy loam, fine sandy loam	SC-SM, SM	A-2	0	0	85-100	80-100	55-65	25-35	15-25	2-6
	8-23	Gravelly sandy loam, gravelly fine sandy loam, gravelly coarse sandy loam	SC-SM, SM	A-2, A-1, A-4	0	0	70-80	65-75	40-60	20-40	15-25	2-6
	23-60	Gravelly sandy loam, gravelly fine sandy loam, gravelly coarse sandy loam	SC-SM, SM	A-1, A-2	0	0-5	55-70	50-65	35-50	15-30	15-25	2-6
230: Cashmont-----	0-3	Sandy loam	SC-SM, SM	A-2	0	0	85-100	80-100	55-65	25-35	15-25	2-6
	3-8	Sandy loam, fine sandy loam	SC-SM, SM	A-2	0	0	85-100	80-100	55-65	25-35	15-25	2-6
	8-23	Gravelly sandy loam, gravelly fine sandy loam, gravelly coarse sandy loam	SC-SM, SM	A-2, A-1, A-4	0	0	70-80	65-75	40-60	20-40	15-25	2-6
	23-60	Gravelly sandy loam, gravelly fine sandy loam, gravelly coarse sandy loam	SC-SM, SM	A-1, A-2	0	0-5	55-70	50-65	35-50	15-30	15-25	2-6
231: Cashmont-----	0-3	Sandy loam	SC-SM, SM	A-2	0	0	85-100	80-100	55-65	25-35	15-25	2-6
	3-8	Sandy loam, fine sandy loam	SC-SM, SM	A-2	0	0	85-100	80-100	55-65	25-35	15-25	2-6
	8-23	Gravelly sandy loam, gravelly fine sandy loam, gravelly coarse sandy loam	SC-SM, SM	A-2, A-1, A-4	0	0	70-80	65-75	40-60	20-40	15-25	2-6
	23-60	Gravelly sandy loam, gravelly fine sandy loam, gravelly coarse sandy loam	SC-SM, SM	A-1, A-2	0	0-5	55-70	50-65	35-50	15-30	15-25	2-6

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
232: Cashmont-----	0-3	Gravelly sandy loam	SC-SM, SM	A-2	0	0	65-80	60-75	55-65	25-35	15-25	2-6
	3-8	Sandy loam, fine sandy loam	SC-SM, SM	A-2	0	0	85-100	80-100	55-65	25-35	15-25	2-6
	8-23	Gravelly sandy loam, gravelly fine sandy loam, gravelly coarse sandy loam	SC-SM, SM	A-2, A-1, A-4	0	0	70-80	65-75	40-60	20-40	15-25	2-6
	23-60	Gravelly sandy loam, gravelly fine sandy loam, gravelly coarse sandy loam	SC-SM, SM	A-1, A-2	0	0-5	55-70	50-65	35-50	15-30	15-25	2-6
233: Cashmont, extremely stony surface-----	0-3	Sandy loam	SC-SM, SM	A-2	0	0	85-100	80-100	55-65	25-35	15-25	2-6
	3-8	Sandy loam, fine sandy loam	SC-SM, SM	A-2	0	0	85-100	80-100	55-65	25-35	15-25	2-6
	8-23	Gravelly sandy loam, gravelly fine sandy loam, gravelly coarse sandy loam	SC-SM, SM	A-2, A-1, A-4	0	0	70-80	65-75	40-60	20-40	15-25	2-6
	23-60	Gravelly sandy loam, gravelly fine sandy loam, gravelly coarse sandy loam	SC-SM, SM	A-1, A-2	0	0-5	55-70	50-65	35-50	15-30	15-25	2-6
234: Cashmont, extremely stony surface-----	0-3	Sandy loam	SC-SM, SM	A-2	0	0	85-100	80-100	55-65	25-35	15-25	2-6
	3-8	Sandy loam, fine sandy loam	SC-SM, SM	A-2	0	0	85-100	80-100	55-65	25-35	15-25	2-6
	8-23	Gravelly sandy loam, gravelly fine sandy loam, gravelly coarse sandy loam	SC-SM, SM	A-2, A-1, A-4	0	0	70-80	65-75	40-60	20-40	15-25	2-6
	23-60	Gravelly sandy loam, gravelly fine sandy loam, gravelly coarse sandy loam	SC-SM, SM	A-1, A-2	0	0-5	55-70	50-65	35-50	15-30	15-25	2-6

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
235: Cassal-----	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-6	Ashy loam	ML, SM	A-4	0	0	90-100	85-100	65-85	45-70	20-35	NP-5
	6-15	Ashy loam	ML, SM	A-4	0	0	90-100	85-100	60-85	40-70	20-35	NP-5
	15-20	Ashy sandy loam, ashy loam	ML, SM	A-4, A-2	0	0	85-95	80-90	60-80	30-70	15-30	NP-5
	20-37	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, GM, SC-SM, SM	A-1, A-2	0	15-30	45-65	40-60	30-45	15-30	15-25	NP-10
	37-48	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, GM, SC-SM, SM	A-1, A-2	0	15-30	45-65	40-60	30-45	15-30	15-25	NP-10
	48-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, GM, SC-SM, SM	A-1, A-2	0	15-30	40-60	35-55	25-40	10-30	15-25	NP-10
236: Chesaw-----	0-5	Gravelly sandy loam	SC-SM	A-1	0	0-5	60-70	55-65	35-45	15-25	18-22	2-6
	5-17	Very gravelly loamy sand, gravelly coarse sandy loam	GM	A-1	0	0-5	50-60	45-55	25-35	10-20	8-12	1-5
	17-60	Very gravelly sand, very gravelly loamy sand, very gravelly coarse sandy loam	GP-GM, GW-GM	A-1	0	0-5	45-55	40-50	20-30	0-10	0-5	NP-3
237: Chesaw, extremely stony surface-----	0-5	Gravelly sandy loam	SC-SM	A-1	0-3	0-5	60-70	55-65	35-45	15-25	18-22	2-6
	5-17	Very gravelly loamy sand, gravelly coarse sandy loam	GM	A-1	0	0-5	50-60	45-55	25-35	10-20	8-12	1-5
	17-60	Very gravelly sand, very gravelly loamy sand, very gravelly coarse sandy loam	GP-GM, GW-GM	A-1	0	0-5	45-55	40-50	20-30	0-10	0-5	NP-3

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
238: Chesaw-----	0-5	Gravelly sandy loam	SC-SM	A-1	0	0-5	60-70	55-65	35-45	15-25	18-22	2-6
	5-17	Very gravelly loamy sand, gravelly coarse sandy loam	GM	A-1	0	0-5	50-60	45-55	25-35	10-20	8-12	1-5
	17-60	Very gravelly sand, very gravelly loamy sand, very gravelly coarse sandy loam	GP-GM, GW-GM	A-1	0	0-5	45-55	40-50	20-30	0-10	0-5	NP-3
Bong-----	0-6	Ashy sandy loam	ML, SM	A-4	0	0	90-100	85-100	55-80	35-70	15-30	NP-5
	6-10	Ashy sandy loam	ML, SM	A-4	0	0	90-100	85-100	55-80	35-70	15-30	NP-5
	10-16	Gravelly ashly sandy loam, ashly coarse sandy loam, ashly sandy loam	ML, SM	A-4, A-2	0	0	80-95	70-90	40-65	30-60	15-25	NP-5
	16-26	Gravelly loamy coarse sand, coarse sand, gravelly coarse sand	SM, GM	A-1, A-2	0	0	60-95	55-90	20-55	5-40	0-10	NP-5
	26-60	Gravelly coarse sand, coarse sand, gravelly loamy coarse sand	SM, GM	A-1, A-2	0	0	50-95	45-90	10-40	0-35	0-10	NP-5
239: Chesaw-----	0-5	Gravelly sandy loam	SC-SM	A-1	0	0-5	60-70	55-65	35-45	15-25	18-22	2-6
	5-17	Very gravelly loamy sand, gravelly coarse sandy loam	GM	A-1	0	0-5	50-60	45-55	25-35	10-20	8-12	1-5
	17-60	Very gravelly sand, very gravelly loamy sand, very gravelly coarse sandy loam	GP-GM, GW-GM	A-1	0	0-5	45-55	40-50	20-30	0-10	0-5	NP-3
Bong-----	0-6	Ashy sandy loam	ML, SM	A-4	0	0	90-100	85-100	55-80	35-70	15-30	NP-5
	6-10	Ashy sandy loam	ML, SM	A-4	0	0	90-100	85-100	55-80	35-70	15-30	NP-5
	10-16	Gravelly ashly sandy loam, ashly coarse sandy loam, ashly sandy loam	ML, SM	A-4, A-2	0	0	80-95	70-90	40-65	30-60	15-25	NP-5
	16-26	Gravelly loamy coarse sand, coarse sand, gravelly coarse sand	SM, GM	A-1, A-2	0	0	60-95	55-90	20-55	5-40	0-10	NP-5
	26-60	Gravelly coarse sand, coarse sand, gravelly loamy coarse sand	SM, GM	A-1, A-2	0	0	50-95	45-90	10-40	0-35	0-10	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
240: Chesaw-----	0-5	Gravelly sandy loam	SC-SM	A-1	0	0-5	60-70	55-65	35-45	15-25	18-22	2-6
	5-17	Very gravelly loamy sand, gravelly coarse sandy loam	GM	A-1	0	0-5	50-60	45-55	25-35	10-20	8-12	1-5
	17-60	Very gravelly sand, very gravelly loamy sand, very gravelly coarse sandy loam	GP-GM, GW-GM	A-1	0	0-5	45-55	40-50	20-30	0-10	0-5	NP-3
Bong-----	0-6	Ashy sandy loam	ML, SM	A-4	0	0	90-100	85-100	55-80	35-70	15-30	NP-5
	6-10	Ashy sandy loam	ML, SM	A-4	0	0	90-100	85-100	55-80	35-70	15-30	NP-5
	10-16	Gravelly ashly sandy loam, ashly coarse sandy loam, ashly sandy loam	ML, SM	A-4, A-2	0	0	80-95	70-90	40-65	30-60	15-25	NP-5
	16-26	Gravelly loamy coarse sand, coarse sand, gravelly coarse sand	SM, GM	A-1, A-2	0	0	60-95	55-90	20-55	5-40	0-10	NP-5
	26-60	Gravelly coarse sand, coarse sand, gravelly loamy coarse sand	SM, GM	A-1, A-2	0	0	50-95	45-90	10-40	0-35	0-10	NP-5
241: Chewack-----	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-5	Very stony ashly sandy loam	SC-SM, GC-GM	A-2, A-4	15-30	15-30	60-85	55-75	35-65	25-45	15-30	NP-10
	5-25	Very cobbly ashly sandy loam, very gravelly ashly sandy loam	SC-SM, GC-GM	A-2, A-4	0-5	15-30	60-75	50-65	30-60	25-40	15-30	NP-10
	25-60	Very cobbly coarse sandy loam, very gravelly coarse sandy loam	SP-SC, GM, GP-GM, SM, SP-SM	A-1, A-2	0-5	15-40	50-70	40-60	25-40	5-15	15-25	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
241: Sitdown, cool---	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-5	Stony ashy sandy loam	SM, ML	A-4, A-2	10-25	0-10	65-90	60-85	40-70	30-55	20-40	NP-5
	5-13	Gravelly ashy sandy loam, stony ashy sandy loam	SM, ML, GM	A-4, A-2	0-25	0-10	60-90	55-85	40-65	30-55	20-40	NP-5
	13-26	Very cobbly loamy sand, very stony loamy sand, extremely gravelly sand, extremely gravelly loamy sand	GP-GM, GM, GP	A-1	0-30	10-30	25-55	20-45	10-35	0-15	0-10	NP-5
	26-60	Extremely gravelly loamy sand, extremely gravelly sand, very stony loamy sand, extremely cobbly loamy sand	GP-GM, GM, GP	A-1	0-30	10-30	25-45	20-40	5-35	0-15	0-10	NP-5
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
242: Chumstick-----	0-5	Very stony ashy sandy loam	SC-SM	A-1, A-2	20-35	5-30	70-85	65-80	40-55	20-30	15-30	NP-10
	5-15	Very stony ashy sandy loam, extremely stony ashy sandy loam, very cobbly ashy sandy loam	SC-SM, GC-GM	A-1, A-2	15-45	15-30	60-85	55-80	35-55	15-30	15-25	NP-10
	15-19	Unweathered bedrock			---	---	---	---	---	---	---	---
Mineral-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Stony ashy loam	GC-GM, SC-SM	A-4, A-2	10-15	10-15	55-80	50-75	40-60	30-45	15-30	NP-10
	7-13	Very gravelly ashy loam, very stony ashy sandy loam, very cobbly ashy sandy loam	GC-GM, SC-SM	A-2, A-1, A-4	5-30	5-40	40-70	35-65	25-55	15-40	15-30	NP-10
	13-24	Very stony sandy loam, very cobbly sandy loam	SC-SM, GC-GM	A-1, A-2	5-30	15-40	55-75	45-65	20-55	10-35	15-25	NP-10
	24-28	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
243: Chumstick-----	0-5	Very stony ashy sandy loam	SC-SM	A-1, A-2	25-35	5-30	70-85	65-80	40-55	20-30	15-30	NP-10
	5-15	Very stony ashy sandy loam, extremely stony ashy sandy loam, very cobbly ashy sandy loam	SC-SM, GC-GM	A-1, A-2	15-45	15-30	60-85	55-80	35-55	15-30	15-25	NP-10
	15-19	Unweathered bedrock			---	---	---	---	---	---	---	---
Mineral-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Stony ashy loam	GC-GM, SC-SM	A-4, A-2	10-15	10-15	55-80	50-75	40-60	30-45	15-30	NP-10
	7-13	Very gravelly ashy loam, very stony ashy sandy loam, very cobbly ashy sandy loam	GC-GM, SC-SM	A-2, A-1, A-4	5-30	5-40	40-70	35-65	25-55	15-40	15-30	NP-10
	13-24	Very stony sandy loam, very cobbly sandy loam	SC-SM, GC-GM	A-1, A-2	5-30	15-40	55-75	45-65	20-55	10-35	15-25	NP-10
	24-28	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
244: Chumstick-----	0-5	Very stony ashy sandy loam	SC-SM	A-1, A-2	25-35	5-30	70-85	65-80	40-55	20-30	15-30	NP-10
	5-15	Very stony ashy sandy loam, extremely stony ashy sandy loam, very cobbly ashy sandy loam	SC-SM, GC-GM	A-1, A-2	15-45	15-30	60-85	55-80	35-55	15-30	15-25	NP-10
	15-19	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
245: Colville, poorly drained-----	0-4	Silt loam	ML	A-4	0	0	95-100	90-100	85-100	80-95	20-35	NP-10
	4-9	Silt loam, silty clay loam	ML	A-4	0	0	95-100	90-100	85-100	80-95	20-35	NP-10
	9-17	Silty clay loam, silt loam	ML	A-4	0	0	95-100	90-100	85-100	80-95	20-35	NP-10
	17-21	Silt loam	CL	A-6, A-7, A-4	0	0	95-100	90-100	85-100	80-95	30-45	10-20
	21-33	Silty clay loam, clay loam	CL	A-6, A-4, A-7	0	0	95-100	90-100	85-100	80-95	30-45	10-20
	33-43	Silty clay loam, silt loam	CL	A-6, A-4, A-7	0	0	95-100	90-100	85-100	80-95	30-45	10-20
	43-60	Silty clay loam, silt loam	CL	A-6, A-4, A-7	0	0	95-100	90-100	85-100	80-95	30-45	10-20
246: Colville, somewhat poorly drained-----	0-4	Silt loam	ML	A-4	0	0	95-100	90-100	85-100	80-95	20-35	NP-10
	4-9	Silt loam, silty clay loam	ML	A-4	0	0	95-100	90-100	85-100	80-95	20-35	NP-10
	9-17	Silty clay loam, silt loam	ML	A-4	0	0	95-100	90-100	85-100	80-95	20-35	NP-10
	17-21	Silt loam	CL	A-6, A-4, A-7	0	0	95-100	90-100	85-100	80-95	30-45	10-20
	21-33	Silty clay loam, clay loam	CL	A-6, A-4, A-7	0	0	95-100	90-100	85-100	80-95	30-45	10-20
	33-43	Silty clay loam, silt loam	CL	A-6, A-4, A-7	0	0	95-100	90-100	85-100	80-95	30-45	10-20
	43-60	Silty clay loam, silt loam	CL	A-6, A-4, A-7	0	0	95-100	90-100	85-100	80-95	30-45	10-20

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
247: Conconully-----	0-2	Gravelly ashy loam	SC-SM	A-2, A-4	0-5	0-15	60-80	60-75	40-55	25-40	15-30	NP-10
	2-13	Gravelly ashy loam, ashy fine sandy loam, ashy loam	SM	A-1, A-2	0	0-15	55-70	45-65	35-45	15-30	20-35	NP-5
	13-21	Gravelly fine sandy loam, gravelly sandy loam, fine sandy loam	GM	A-1, A-2	0	0-15	55-70	50-65	35-45	15-30	15-25	NP-5
	21-33	Gravelly sandy loam, gravelly fine sandy loam, fine sandy loam	GM	A-1, A-2	0	0-15	55-70	50-65	30-40	15-30	15-25	NP-5
	33-60	Gravelly sandy loam, gravelly coarse sandy loam, very gravelly fine sandy loam	GM	A-1	0	5-25	50-65	45-60	30-40	15-25	15-20	NP-5
248: Conconully-----	0-2	Gravelly ashy loam	SC-SM	A-2, A-4	0-5	0-15	60-80	60-75	40-55	25-40	15-30	NP-10
	2-13	Gravelly ashy loam, ashy fine sandy loam, ashy loam	SM	A-1, A-2	0	0-15	55-70	45-65	35-45	15-30	20-35	NP-5
	13-21	Gravelly fine sandy loam, gravelly sandy loam, fine sandy loam	GM	A-1, A-2	0	0-15	55-70	50-65	35-45	15-30	15-25	NP-5
	21-33	Gravelly sandy loam, gravelly fine sandy loam, fine sandy loam	GM	A-1, A-2	0	0-15	55-70	50-65	30-40	15-30	15-25	NP-5
	33-60	Gravelly sandy loam, gravelly coarse sandy loam, very gravelly fine sandy loam	GM	A-1	0	5-25	50-65	45-60	30-40	15-25	15-20	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
249: Conconully-----	0-2	Gravelly ashy loam	SC-SM	A-2, A-4	0-5	0-15	60-80	60-75	40-55	25-40	15-30	NP-10
	2-13	Gravelly ashy loam, ashy fine sandy loam, ashy loam	SM	A-1, A-2	0	0-15	55-70	45-65	35-45	15-30	20-35	NP-5
	13-21	Gravelly fine sandy loam, gravelly sandy loam, fine sandy loam	GM	A-1, A-2	0	0-15	55-70	50-65	35-45	15-30	15-25	NP-5
	21-33	Gravelly sandy loam, gravelly fine sandy loam, fine sandy loam	GM	A-1, A-2	0	0-15	55-70	50-65	30-40	15-30	15-25	NP-5
	33-60	Gravelly sandy loam, gravelly coarse sandy loam, very gravelly fine sandy loam	GM	A-1	0	5-25	50-65	45-60	30-40	15-25	15-20	NP-5
250: Conconully, extremely stony surface-----	0-2	Gravelly ashy loam	SC-SM	A-2, A-4	0-5	0-15	60-80	60-75	40-55	25-40	15-30	NP-10
	2-13	Gravelly ashy loam, ashy fine sandy loam, ashy loam	SM	A-1, A-2	0	0-15	55-70	45-65	35-45	15-30	20-35	NP-5
	13-21	Gravelly fine sandy loam, gravelly sandy loam, fine sandy loam	GM	A-1, A-2	0	0-15	55-70	50-65	35-45	15-30	15-25	NP-5
	21-33	Gravelly sandy loam, gravelly fine sandy loam, fine sandy loam	GM	A-1, A-2	0	0-15	55-70	50-65	30-40	15-30	15-25	NP-5
	33-60	Gravelly sandy loam, gravelly coarse sandy loam, very gravelly fine sandy loam	GM	A-1	0	5-25	50-65	45-60	30-40	15-25	15-20	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
251: Conconully, extremely stony surface-----	0-2	Gravelly ashy loam	SC-SM	A-2, A-4	0-5	0-15	60-80	60-75	40-55	25-40	15-30	NP-10
	2-13	Gravelly ashy loam, ashy fine sandy loam, ashy loam	SM	A-1, A-2	0	0-15	55-70	45-65	35-45	15-30	20-35	NP-5
	13-21	Gravelly fine sandy loam, gravelly sandy loam, fine sandy loam	GM	A-1, A-2	0	0-15	55-70	50-65	35-45	15-30	15-25	NP-5
	21-33	Gravelly sandy loam, gravelly fine sandy loam, fine sandy loam	GM	A-1, A-2	0	0-15	55-70	50-65	30-40	15-30	15-25	NP-5
	33-60	Gravelly sandy loam, gravelly coarse sandy loam, very gravelly fine sandy loam	GM	A-1	0	5-25	50-65	45-60	30-40	15-25	15-20	NP-5
252: Conconully-----	0-2	Gravelly ashy loam	SC-SM	A-2, A-4	0-5	0-15	60-80	60-75	40-55	25-40	15-30	NP-10
	2-13	Gravelly ashy loam, ashy fine sandy loam, ashy loam	SM	A-1, A-2	0	0-15	55-70	45-65	35-45	15-30	20-35	NP-5
	13-21	Gravelly fine sandy loam, gravelly sandy loam, fine sandy loam	GM	A-1, A-2	0	0-15	55-70	50-65	35-45	15-30	15-25	NP-5
	21-33	Gravelly sandy loam, gravelly fine sandy loam, fine sandy loam	GM	A-1, A-2	0	0-15	55-70	50-65	30-40	15-30	15-25	NP-5
	33-60	Gravelly sandy loam, gravelly coarse sandy loam, very gravelly fine sandy loam	GM	A-1	0	5-25	50-65	45-60	30-40	15-25	15-20	NP-5
Donavan-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Ashy loam	ML, SM	A-4	0	0-5	90-100	85-100	50-80	40-75	20-35	NP-10
	7-11	Gravelly ashy loam, gravelly ashy sandy loam, ashy loam	ML, SM	A-4	0	0-5	70-95	65-90	40-75	35-65	20-35	NP-10
	11-16	Gravelly ashy sandy loam, ashy loam, gravelly ashy loam	CL-ML, SC-SM	A-4	0	0-5	70-95	65-90	40-75	35-65	15-30	NP-10
	16-27	Gravelly sandy loam	SC-SM, SM	A-2, A-4	0	0-5	70-90	65-85	35-70	25-45	15-25	NP-10
	27-34	Gravelly sandy loam	SC-SM, SM	A-2, A-4	0	0-5	70-90	65-85	35-70	25-45	15-25	NP-10
	34-60	Gravelly sandy loam	SC-SM, SM	A-2, A-4	0	0-5	70-90	65-85	35-70	25-45	15-25	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
253: Coxit-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Gravelly ashy sandy loam	SC-SM, GC-GM	A-2, A-1, A-4	0	0-5	65-80	60-75	45-65	20-50	15-30	NP-10
	2-8	Gravelly ashy sandy loam	SC-SM, GC-GM	A-2, A-4, A-1	0	0-5	65-80	60-75	45-65	20-50	15-30	NP-5
	8-24	Very cobbly ashy sandy loam, very gravelly ashy sandy loam	GC-GM, SC-SM	A-1, A-2	0-5	5-30	50-70	45-65	35-55	15-35	15-30	NP-5
	24-35	Very cobbly ashy sandy loam, very gravelly ashy sandy loam	GC-GM, SC-SM	A-1, A-2	0-5	5-30	50-70	45-65	35-55	15-35	15-30	NP-5
	35-49	Very cobbly sandy loam, very gravelly sandy loam	GC-GM, SC-SM	A-1, A-2	0-5	5-35	35-70	30-65	20-55	10-35	15-25	NP-10
	49-60	Extremely cobbly sandy loam, very gravelly sandy loam	GC-GM, SC-SM	A-1, A-2	0-5	5-35	35-70	30-65	20-55	10-35	15-25	NP-10
Pelican-----	0-11	Gravelly ashy loam	ML	A-4	0	0-5	90-100	85-95	60-90	55-80	15-30	NP-5
	11-18	Gravelly sandy loam, very gravelly sandy loam	GC-GM, SC-SM	A-2, A-1, A-4	0	0-15	55-80	45-75	35-60	20-50	10-20	NP-10
	18-28	Very gravelly sandy loam	GC-GM, SC-SM	A-1, A-2	0	0-15	45-65	35-50	25-45	10-35	10-20	NP-10
	28-37	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0	0-40	40-65	30-50	20-45	10-35	10-20	NP-10
	37-46	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0	0-40	40-65	30-50	20-45	10-35	10-20	NP-10
	46-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0	0-40	40-65	30-50	20-45	10-35	10-20	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
254: Crocamp-----	In 0-10	Very stony ashy sandy loam	SC-SM, GC-GM	A-1, A-2	15-45	5-30	50-85	45-75	30-55	15-35	15-30	NP-10
	10-17	Very cobbly ashy sandy loam, very cobbly ashy coarse sandy loam	SC-SM, GC-GM	A-1	0-15	25-45	50-85	45-75	20-35	10-25	15-30	NP-10
	17-30	Extremely cobbly coarse sandy loam, very cobbly coarse sandy loam, extremely gravelly coarse sandy loam, very stony sandy loam	SC-SM, GP-GM, SM, SP-SM, GC-GM, GM	A-1	0-25	15-45	40-75	35-60	10-25	5-20	15-25	NP-10
	30-42	Extremely cobbly coarse sandy loam, very cobbly coarse sandy loam, extremely gravelly coarse sandy loam, extremely stony sandy loam	SC-SM, GM, GP-GM, SP-SM, SM, GC-GM	A-1	0-30	15-45	40-75	35-60	10-25	5-20	15-25	NP-10
	42-46	Unweathered bedrock			---	---	---	---	---	---	---	---
Burget-----	0-8	Stony ashy coarse sandy loam	SC-SM, ML	A-4, A-2	10-20	10-15	75-95	70-90	55-75	30-55	15-30	NP-10
	8-11	Cobbly coarse sandy loam	SC-SM	A-1, A-4, A-2	0	15-40	75-85	65-80	35-60	15-40	15-25	NP-10
	11-21	Weathered bedrock			---	---	---	---	---	---	---	---
255: Crocamp-----	0-10	Very stony ashy sandy loam	SC-SM, GC-GM	A-1, A-2	15-45	5-30	50-85	45-75	30-55	15-35	15-30	NP-10
	10-17	Very cobbly ashy sandy loam, very cobbly ashy coarse sandy loam	SC-SM, GC-GM	A-1	0-15	25-45	50-85	45-75	20-35	10-25	15-30	NP-10
	17-30	Extremely cobbly coarse sandy loam, very cobbly coarse sandy loam, extremely gravelly coarse sandy loam, very stony sandy loam	SC-SM, GM, GP-GM, SM, GC-GM, SP-SM	A-1	0-25	15-45	40-75	35-60	10-25	5-20	15-25	NP-10
	30-42	Extremely cobbly coarse sandy loam, very cobbly coarse sandy loam, extremely gravelly coarse sandy loam, extremely stony sandy loam	SC-SM, GP-GM, SM, SP-SM, GM, GC-GM	A-1	0-30	15-45	40-75	35-60	10-25	5-20	15-25	NP-10
	42-46	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
255: Burget-----	0-8	Stony ashy coarse sandy loam	SC-SM, ML	A-4, A-2	10-20	10-15	75-95	70-90	55-75	30-55	15-30	NP-10
	8-11	Cobbly coarse sandy loam	SC-SM	A-1, A-4, A-2	0	15-40	75-85	65-80	35-60	15-40	15-25	NP-10
	11-21	Weathered bedrock			---	---	---	---	---	---	---	---
256: Crocamp-----	0-10	Very stony ashy sandy loam	SC-SM, GC-GM	A-1, A-2	15-45	5-30	50-85	45-75	30-55	15-35	15-30	NP-10
	10-17	Very cobbly ashy sandy loam, very cobbly coarse sandy loam	SC-SM, GC-GM	A-1	0-15	25-45	50-85	45-75	20-35	10-25	15-30	NP-10
	17-30	Extremely cobbly coarse sandy loam, very cobbly coarse sandy loam, extremely gravelly coarse sandy loam, very stony sandy loam	SC-SM, GP-GM, SM, SP-SM, GC-GM, GM	A-1	0-25	15-45	40-75	35-60	10-25	5-20	15-25	NP-10
	30-42	Extremely cobbly coarse sandy loam, very cobbly coarse sandy loam, extremely gravelly coarse sandy loam, extremely stony sandy loam	SC-SM, GM, GP-GM, SP-SM, SM, GC-GM	A-1	0-30	15-45	40-75	35-60	10-25	5-20	15-25	NP-10
	42-46	Unweathered bedrock			---	---	---	---	---	---	---	---
Lithic Humicryepts, nonforested, xeric-----	0-5	Very stony ashy fine sandy loam	SM, GM	A-2	15-35	15-25	60-80	50-75	35-65	25-35	20-40	NP-5
	5-11	Very stony ashy fine sandy loam, ashy fine sandy loam, extremely cobbly ashy fine sandy loam, gravelly ashy fine sandy loam	SM	A-2	0-35	5-45	65-95	55-90	35-70	25-35	20-40	NP-5
	11-20	Extremely stony sandy loam, gravelly sandy loam, very cobbly sandy loam	SC-SM	A-1, A-2	0-45	0-35	60-80	35-70	20-50	15-25	15-25	NP-10
	20-30	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
257: Cubhill-----	0-9	Gravelly ashy loam	CL-ML, SC-SM	A-4	0	0-5	75-85	70-80	55-70	40-60	15-30	NP-10
	9-18	Gravelly ashy loam	CL-ML, SC-SM	A-4	0	0-5	75-85	70-80	55-70	40-60	15-30	NP-10
	18-25	Very gravelly loam, gravelly loam	GC, GC-GM, CL	A-6, A-2	0	5-15	55-70	50-65	40-60	30-55	20-30	20-30
	25-36	Very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam	GC	A-2, A-6, A-7	0	5-15	45-65	40-60	30-55	25-45	35-45	20-30
	36-60	Very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam	GC	A-2, A-7, A-6	0	5-15	45-65	40-60	30-55	25-45	35-45	20-30
Johntom-----	0-3	Gravelly loam	SM	A-4	0	0	75-90	65-75	50-65	40-50	15-25	NP-5
	3-12	Very flaggy loam, very flaggy sandy loam	GM, SM	A-1	0-5	50-60	50-60	45-55	20-35	15-25	15-25	NP-5
	12-16	Unweathered bedrock			---	---	---	---	---	---	---	---
258: Dams-----	---	---	---	---	---	---	---	---	---	---	---	---
259: Devore, warm----	0-3	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	3-4	Stony ashy sandy loam	ML	A-4	5-25	0-5	95-100	90-100	70-90	60-80	25-40	NP-5
	4-7	Very stony ashy fine sandy loam, very stony ashy sandy loam	SM, ML, GM	A-4, A-2	25-35	10-25	70-85	65-80	45-70	30-55	20-40	NP-5
	7-14	Very stony ashy fine sandy loam, very stony ashy sandy loam	SM, ML, GM	A-4, A-2	25-35	15-35	70-85	65-80	45-70	30-55	20-40	NP-5
	14-26	Extremely stony coarse sandy loam, very stony sandy loam, very cobbly sandy loam	SC-SM, GC-GM	A-1, A-2	25-45	30-50	45-95	40-70	20-45	10-30	10-20	NP-10
	26-35	Extremely stony coarse sandy loam, very stony sandy loam, very cobbly sandy loam	SC-SM, GC-GM	A-1, A-2	25-45	30-50	45-95	40-70	20-45	10-30	10-20	NP-10
	35-39	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
260: Devore-----	0-3	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	3-4	Stony ashy sandy loam	ML	A-4	5-25	0-5	95-100	90-100	70-90	60-80	25-40	NP-5
	4-7	Very stony ashy fine sandy loam, very stony ashy sandy loam	SM, ML, GM	A-4, A-2	25-35	10-25	70-85	65-80	45-70	30-55	20-40	NP-5
	7-14	Very stony ashy fine sandy loam, very stony ashy sandy loam	SM, ML, GM	A-4, A-2	25-35	15-35	70-85	65-80	45-70	30-55	20-40	NP-5
	14-26	Extremely stony coarse sandy loam, very stony sandy loam, very cobbly sandy loam	SC-SM, GC-GM	A-1, A-2	25-45	30-50	45-95	40-70	20-45	10-30	10-20	NP-10
	26-35	Extremely stony coarse sandy loam, very stony sandy loam, very cobbly sandy loam	SC-SM, GC-GM	A-1, A-2	25-45	30-50	45-95	40-70	20-45	10-30	10-20	NP-10
	35-39	Unweathered bedrock			---	---	---	---	---	---	---	---
Treebutte-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Very stony ashy sandy loam	SC-SM, GC-GM	A-4, A-2	25-35	10-30	65-90	60-80	45-65	25-50	15-30	NP-10
	2-11	Very stony ashy sandy loam	SC-SM, GC-GM	A-4, A-2	25-35	15-35	65-90	60-80	45-65	25-50	15-30	NP-10
	11-20	Extremely stony coarse sandy loam, extremely stony sandy loam, very stony sandy loam	SC-SM, GC-GM	A-1, A-2	35-50	25-35	50-75	40-65	20-40	10-30	10-20	NP-10
	20-29	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
261: Devore-----	0-3	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	3-4	Stony ash sandy loam	ML	A-4	5-25	0-5	95-100	90-100	70-90	60-80	25-40	NP-5
	4-7	Very stony ash fine sandy loam, very stony ash sandy loam	SM, ML, GM	A-4, A-2	25-35	10-25	70-85	65-80	45-70	30-55	20-40	NP-5
	7-14	Very stony ash fine sandy loam, very stony ash sandy loam	SM, ML, GM	A-4, A-2	25-35	15-35	70-85	65-80	45-70	30-55	20-40	NP-5
	14-26	Extremely stony coarse sandy loam, very stony sandy loam, very cobbly sandy loam	SC-SM, GC-GM	A-1, A-2	25-45	30-50	45-95	40-70	20-45	10-30	10-20	NP-10
	26-35	Extremely stony coarse sandy loam, very stony sandy loam, very cobbly sandy loam	SC-SM, GC-GM	A-1, A-2	25-45	30-50	45-95	40-70	20-45	10-30	10-20	NP-10
	35-39	Unweathered bedrock			---	---	---	---	---	---	---	---
Treebutte-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Very stony ash sandy loam	SC-SM, GC-GM	A-4, A-2	25-35	10-30	65-90	60-80	45-65	25-50	15-30	NP-10
	2-11	Very stony ash sandy loam	SC-SM, GC-GM	A-4, A-2	25-35	15-35	65-90	60-80	45-65	25-50	15-30	NP-10
	11-20	Extremely stony coarse sandy loam, extremely stony sandy loam, very stony sandy loam	SC-SM, GC-GM	A-1, A-2	35-50	25-35	50-75	40-65	20-40	10-30	10-20	NP-10
	20-29	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
262: Disautel-----	0-9	Silt loam	CL-ML	A-4	0	0	90-100	85-100	75-90	50-75	15-25	2-8
	9-16	Silt loam, loam, very fine sandy loam	CL-ML	A-4	0	0	90-100	85-100	75-90	50-75	15-25	2-8
	16-24	Loam, very fine sandy loam, silt loam	CL	A-4, A-6	0	0-10	80-95	75-100	65-80	45-70	20-30	5-15
	24-31	Gravelly loam, cobbly very fine sandy loam, very gravelly fine sandy loam	CL	A-4, A-6	0	0-15	65-80	50-75	40-65	35-55	20-30	5-15
	31-60	Gravelly loam, cobbly very fine sandy loam, very gravelly fine sandy loam	GC	A-4, A-6	0	0-15	55-75	50-70	40-55	35-50	20-30	5-15
263: Disautel-----	0-9	Silt loam	CL-ML	A-4	0	0	90-100	85-100	75-90	50-75	15-25	2-8
	9-16	Silt loam, loam, very fine sandy loam	CL-ML	A-4	0	0	90-100	85-100	75-90	50-75	15-25	2-8
	16-24	Loam, very fine sandy loam, silt loam	CL	A-4, A-6	0	0-10	80-95	75-100	65-80	45-70	20-30	5-15
	24-31	Gravelly loam, cobbly very fine sandy loam, very gravelly fine sandy loam	CL	A-4, A-6	0	0-15	65-80	50-75	40-65	35-55	20-30	5-15
	31-60	Gravelly loam, very gravelly fine sandy loam, cobbly very fine sandy loam	GC	A-4, A-6	0	0-15	55-75	50-70	40-55	35-50	20-30	5-15
264: Disautel, extremely stony surface-----	0-9	Silt loam	CL-ML	A-4	0	0	90-100	85-100	75-90	50-75	15-25	2-8
	9-16	Silt loam, loam, very fine sandy loam	CL-ML	A-4	0	0	90-100	85-100	75-90	50-75	15-25	2-8
	16-24	Loam, very fine sandy loam, silt loam	CL	A-4, A-6	0	0-10	80-95	75-100	65-80	45-70	20-30	5-15
	24-31	Gravelly loam, cobbly very fine sandy loam, very gravelly fine sandy loam	CL	A-4, A-6	0	0-15	65-80	50-75	40-65	35-55	20-30	5-15
	31-60	Gravelly loam, very gravelly fine sandy loam, cobbly very fine sandy loam	GC	A-4, A-6	0	0-15	55-75	50-70	40-55	35-50	20-30	5-15

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
265: Disautel, extremely stony surface-----	0-9	Silt loam	CL-ML	A-4	0	0	90-100	85-100	75-90	50-75	15-25	2-8
	9-16	Silt loam, very fine sandy loam, loam	CL-ML	A-4	0	0	90-100	85-100	75-90	50-75	15-25	2-8
	16-24	Loam, very fine sandy loam, silt loam	CL	A-4, A-6	0	0-10	80-95	75-100	65-80	45-70	20-30	5-15
	24-31	Gravelly loam, cobbly very fine sandy loam, very gravelly fine sandy loam	CL	A-4, A-6	0	0-15	65-80	50-75	40-65	35-55	20-30	5-15
	31-60	Gravelly loam, very gravelly fine sandy loam, cobbly very fine sandy loam	GC	A-4, A-6	0	0-15	55-75	50-70	40-55	35-50	20-30	5-15
266: Disautel, eroded	0-2	Cobbly silt loam	CL-ML	A-4	0	5-30	90-100	85-100	75-90	50-75	15-25	2-8
	2-16	Silt loam, loam, very fine sandy loam	CL-ML	A-4	0	0-1	90-100	85-100	75-90	50-75	15-25	2-8
	16-24	Loam, very fine sandy loam, silt loam	CL	A-4, A-6	0	0-10	80-95	75-90	65-80	45-70	20-30	5-15
	24-31	Gravelly loam, cobbly very fine sandy loam, very gravelly fine sandy loam	CL	A-4, A-6	0	0-15	65-80	50-75	40-65	35-55	20-30	5-15
	31-60	Gravelly loam, very gravelly fine sandy loam, cobbly very fine sandy loam	GC	A-4, A-6	0	0-15	55-75	50-70	40-55	35-50	20-30	5-15
267: Donavan-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Ashy loam	ML, SM	A-4	0	0-5	90-100	85-100	50-80	40-75	20-35	NP-10
	7-11	Gravelly ashly loam, gravelly ashly sandy loam, ashly loam	ML, SM	A-4	0	0-5	70-95	65-90	40-75	35-65	20-35	NP-10
	11-16	Gravelly ashly sandy loam, ashly loam, gravelly ashly loam	CL-ML, SC-SM	A-4	0	0-5	70-95	65-90	40-75	35-65	15-30	NP-10
	16-27	Gravelly sandy loam	SC-SM, SM	A-2, A-4	0	0-5	70-90	65-85	35-70	25-45	15-25	NP-10
	27-34	Gravelly sandy loam	SC-SM, SM	A-2, A-4	0	0-5	70-90	65-85	35-70	25-45	15-25	NP-10
	34-60	Gravelly sandy loam	SC-SM, SM	A-2, A-4	0	0-5	70-90	65-85	35-70	25-45	15-25	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
268: Donavan-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Ashy loam	ML, SM	A-4	0	0-5	90-100	85-100	50-80	40-75	20-35	NP-10
	7-11	Gravelly ash loam, gravelly ash sandy loam, ash loam	ML, SM	A-4	0	0-5	70-95	65-90	40-75	35-65	20-35	NP-10
	11-16	Gravelly ash sandy loam, ash loam, gravelly ash loam	CL-ML, SC-SM	A-4	0	0-5	70-95	65-90	40-75	35-65	15-30	NP-10
	16-27	Gravelly sandy loam	SC-SM, SM	A-2, A-4	0	0-5	70-90	65-85	35-70	25-45	15-25	NP-10
	27-34	Gravelly sandy loam	SC-SM, SM	A-2, A-4	0	0-5	70-90	65-85	35-70	25-45	15-25	NP-10
	34-60	Gravelly sandy loam	SC-SM, SM	A-2, A-4	0	0-5	70-90	65-85	35-70	25-45	15-25	NP-10
269: Donavan-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Ashy loam	ML, SM	A-4	0	0-5	90-100	85-100	50-80	40-75	20-35	NP-10
	7-11	Gravelly ash loam, gravelly ash sandy loam, ash loam	ML, SM	A-4	0	0-5	70-95	65-90	40-75	35-65	20-35	NP-10
	11-16	Gravelly ash sandy loam, ash loam, gravelly ash loam	CL-ML, SC-SM	A-4	0	0-5	70-95	65-90	40-75	35-65	15-30	NP-10
	16-27	Gravelly sandy loam	SC-SM, SM	A-2, A-4	0	0-5	70-90	65-85	35-70	25-45	15-25	NP-10
	27-34	Gravelly sandy loam	SC-SM, SM	A-2, A-4	0	0-5	70-90	65-85	35-70	25-45	15-25	NP-10
	34-60	Gravelly sandy loam	SC-SM, SM	A-2, A-4	0	0-5	70-90	65-85	35-70	25-45	15-25	NP-10
270: Donavan, extremely stony surface-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Ashy loam	ML, SM	A-4	0	0-5	90-100	85-100	50-80	40-75	20-35	NP-10
	7-11	Gravelly ash loam, gravelly ash sandy loam, ash loam	ML, SM	A-4	0	0-5	70-95	65-90	40-75	35-65	20-35	NP-10
	11-16	Gravelly ash sandy loam, ash loam, gravelly ash loam	CL-ML, SC-SM	A-4	0	0-5	70-95	65-90	40-75	35-65	15-30	NP-10
	16-27	Gravelly sandy loam	SC-SM, SM	A-2, A-4	0	0-5	70-90	65-85	35-70	25-45	15-25	NP-10
	27-34	Gravelly sandy loam	SC-SM, SM	A-2, A-4	0	0-5	70-90	65-85	35-70	25-45	15-25	NP-10
	34-60	Gravelly sandy loam	SC-SM, SM	A-2, A-4	0	0-5	70-90	65-85	35-70	25-45	15-25	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
271: Donavan, extremely stony surface-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Ashy loam	ML, SM	A-4	0	0-5	90-100	85-100	50-80	40-75	20-35	NP-10
	7-11	Gravelly ashy loam, gravelly ashy sandy loam, ashy loam	ML, SM	A-4	0	0-5	70-95	65-90	40-75	35-65	20-35	NP-10
	11-16	Gravelly ashy sandy loam, ashy loam, gravelly ashy loam	CL-ML, SC-SM	A-4	0	0-5	70-95	65-90	40-75	35-65	15-30	NP-10
	16-27	Gravelly sandy loam	SC-SM, SM	A-2, A-4	0	0-5	70-90	65-85	35-70	25-45	15-25	NP-10
	27-34	Gravelly sandy loam	SC-SM, SM	A-2, A-4	0	0-5	70-90	65-85	35-70	25-45	15-25	NP-10
	34-60	Gravelly sandy loam	SC-SM, SM	A-2, A-4	0	0-5	70-90	65-85	35-70	25-45	15-25	NP-10
272: Donavan, extremely stony surface-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Ashy loam	ML, SM	A-4	0	0-5	90-100	85-100	50-80	40-75	20-35	NP-10
	7-11	Gravelly ashy loam, gravelly ashy sandy loam, ashy loam	ML, SM	A-4	0	0-5	70-95	65-90	40-75	35-65	20-35	NP-10
	11-16	Gravelly ashy sandy loam, ashy loam, gravelly ashy loam	CL-ML, SC-SM	A-4	0	0-5	70-95	65-90	40-75	35-65	15-30	NP-10
	16-27	Gravelly sandy loam	SC-SM, SM	A-2, A-4	0	0-5	70-90	65-85	35-70	25-45	15-25	NP-10
	27-34	Gravelly sandy loam	SC-SM, SM	A-2, A-4	0	0-5	70-90	65-85	35-70	25-45	15-25	NP-10
	34-60	Gravelly sandy loam	SC-SM, SM	A-2, A-4	0	0-5	70-90	65-85	35-70	25-45	15-25	NP-10
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
273: Entiat-----	0-3	Sandy loam	SC-SM, SM	A-2	0	0-5	85-100	80-100	55-65	25-35	15-25	2-6
	3-8	Very gravelly sandy loam, very gravelly loam, gravelly fine sandy loam	GC-GM	A-1	0	0-5	35-70	30-60	25-35	10-20	20-30	4-8
	8-18	Very gravelly sandy loam, very gravelly loam, very gravelly fine sandy loam	GW-GC, GC-GM	A-1	0	0-10	30-40	25-35	15-25	5-15	20-30	4-8
	18-28	Weathered bedrock			0	0	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
274:												
Ewall-----	0-2	Loamy fine sand	SP-SM, SM	A-3, A-2, A-1	0	0	100	100	50-70	5-15	0-10	NP
	2-7	Loamy fine sand	SP-SM, SM	A-3, A-1, A-2	0	0	100	100	50-70	5-15	0-10	NP
	7-15	Loamy fine sand	SP-SM, SM	A-3, A-1, A-2	0	0	100	100	50-70	5-15	0-10	NP
	15-26	Sand, loamy fine sand, fine sand	SM, SP-SM	A-2, A-1	0	0	85-100	75-100	40-70	5-20	0-10	NP
	26-60	Sand, loamy sand, gravelly sand	SM, SP-SM	A-2, A-1	0	0-5	75-100	60-100	35-70	5-20	0-10	NP
275:												
Ewall-----	0-2	Loamy fine sand	SP-SM, SM	A-3, A-1, A-2	0	0	100	100	50-70	5-15	0-10	NP
	2-7	Loamy fine sand	SP-SM, SM	A-3, A-1, A-2	0	0	100	100	50-70	5-15	0-10	NP
	7-15	Loamy fine sand	SP-SM, SM	A-3, A-1, A-2	0	0	100	100	50-70	5-15	0-10	NP
	15-26	Sand, loamy fine sand, fine sand	SM, SP-SM	A-2, A-1	0	0	85-100	75-100	40-70	5-20	0-10	NP
	26-60	Sand, loamy sand, gravelly sand	SM, SP-SM	A-2, A-1	0	0-5	75-100	60-100	35-70	5-20	0-10	NP
276:												
Ewall-----	0-2	Loamy fine sand	SP-SM, SM	A-3, A-1, A-2	0	0	100	100	50-70	5-15	0-10	NP
	2-7	Loamy fine sand	SP-SM, SM	A-3, A-1, A-2	0	0	100	100	50-70	5-15	0-10	NP
	7-15	Loamy fine sand	SP-SM, SM	A-3, A-1, A-2	0	0	100	100	50-70	5-15	0-10	NP
	15-26	Sand, loamy fine sand, fine sand	SM, SP-SM	A-2, A-1	0	0	85-100	75-100	40-70	5-20	0-10	NP
	26-60	Sand, loamy sand, gravelly sand	SM, SP-SM	A-2, A-1	0	0-5	75-100	60-100	35-70	5-20	0-10	NP
277:												
Farway, moist---	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Gravelly ashy sandy loam	SM, ML	A-4, A-2	0	0	70-80	65-75	45-60	30-55	20-40	NP-5
	5-10	Gravelly ashy sandy loam, ashy sandy loam	SM, ML	A-4, A-2	0	0-5	70-90	65-85	40-70	30-65	20-40	NP-5
	10-21	Gravelly ashy sandy loam, ashy sandy loam	SM, ML	A-4, A-2	0	0-5	70-90	65-85	40-70	30-65	20-40	NP-5
	21-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM	A-1, A-2	0	5-30	35-60	30-55	20-40	10-30	15-25	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
278: Finney-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-3	Gravelly ashy sandy loam	SM	A-1, A-2	0	0	65-80	60-75	40-70	10-30	20-40	NP-5
	3-11	Gravelly ashy sandy loam	SM	A-1, A-2	0	0-5	65-80	60-75	40-70	10-30	20-40	NP-5
	11-21	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0	0-30	40-65	35-60	25-50	10-20	20-30	NP-10
	21-33	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, GP-GC, SP-SC, SC-SM	A-1	0	0-30	40-65	35-60	25-50	10-20	20-30	NP-10
	33-44	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SP-SC, GP-GC, SC-SM	A-1	0	0-30	40-65	35-60	25-50	10-20	20-30	NP-10
	44-48	Unweathered bedrock			---	---	---	---	---	---	---	---
Myerscreek, moist-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Ashy silt loam	ML	A-4	0	0	95-100	90-100	70-90	55-80	20-40	NP-5
	2-5	Ashy fine sandy loam	ML	A-4	0-5	0-5	90-100	85-100	70-90	50-80	20-40	NP-5
	5-13	Ashy fine sandy loam, gravelly ashy fine sandy loam, stony ashy fine sandy loam, gravelly ashy sandy loam, stony ashy sandy loam	ML, SM	A-4	0-25	0-10	85-100	75-90	60-90	40-75	20-40	NP-5
	13-32	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-40	45-65	35-55	20-40	10-35	10-20	NP-10
	32-47	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-40	35-60	30-55	15-40	10-30	10-20	NP-10
	47-60	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-40	35-60	30-55	15-40	10-30	10-20	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
279: Goddard-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Ashy fine sandy loam	ML, SM	A-4	0	0-5	90-100	85-100	60-85	40-60	20-40	NP-5
	7-13	Gravelly ashy sandy loam, ashy fine sandy loam	SM, GM, ML	A-4, A-2	0	0-5	65-95	60-90	45-75	30-55	20-40	NP-5
	13-26	Very gravelly loamy sand, extremely gravelly sand, extremely gravelly coarse sand	GW-GM, GM, GP-GM	A-1	0	5-25	25-55	20-45	10-30	5-15	0-10	NP-5
	26-60	Extremely gravelly loamy coarse sand, extremely gravelly loamy sand, extremely gravelly sand	GW-GM, GM, GP-GM	A-1	0	5-25	25-55	20-45	10-30	5-15	0-10	NP-5
Lithic Haploxerepts, forested-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Cobbly ashy sandy loam	ML	A-4	0-5	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	4-13	Cobbly ashy sandy loam, very gravelly ashy sandy loam, stony ashy loam	ML	A-4	0-15	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	13-19	Very gravelly sandy loam, gravelly sandy loam, very cobbly sandy loam	SM, GM	A-2, A-1, A-4	0-5	5-30	45-100	35-90	25-70	15-50	15-25	NP-5
	19-23	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
280: Goddard-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Ashy fine sandy loam	ML, SM	A-4	0	0-5	90-100	85-100	60-85	40-60	20-40	NP-5
	7-13	Gravelly ashy sandy loam, ashy fine sandy loam	SM, GM, ML	A-4, A-2	0	0-5	65-95	60-90	45-75	30-55	20-40	NP-5
	13-26	Very gravelly loamy sand, extremely gravelly sand, extremely gravelly coarse sand	GW-GM, GM, GP-GM	A-1	0	5-25	25-55	20-45	10-30	5-15	0-10	NP-5
	26-60	Extremely gravelly loamy coarse sand, extremely gravelly loamy sand, extremely gravelly sand	GW-GM, GM, GP-GM	A-1	0	5-25	25-55	20-45	10-30	5-15	0-10	NP-5
Parmenter-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Ashy fine sandy loam	SM, ML	A-4	0	0	90-100	85-100	55-70	35-55	20-40	NP-5
	4-13	Ashy fine sandy loam, gravelly ashy fine sandy loam	SM, ML	A-4, A-2	0	0-5	75-95	65-90	30-75	25-55	20-40	NP-5
	13-23	Ashy fine sandy loam, gravelly ashy fine sandy loam	SM, ML	A-4, A-2	0	0-5	75-95	65-90	30-75	25-55	20-40	NP-5
	23-35	Very gravelly loamy coarse sand, very gravelly loamy sand	SP-SM, GP-GM, SP, GP	A-1	0-5	5-15	45-75	35-55	20-35	0-15	0-10	NP-5
	35-60	Very gravelly loamy coarse sand, very cobbly loamy coarse sand, very gravelly loamy sand	SP-SM, GP, GP-GM, SP	A-1	0-5	5-30	45-75	35-55	20-35	0-15	0-10	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
281: Goddard, warm---	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Ashy fine sandy loam	ML, SM	A-4	0	0-5	90-100	85-100	60-85	40-60	20-40	NP-5
	7-13	Gravelly ashy sandy loam, ashy fine sandy loam	SM, GM, ML	A-4, A-2	0	0-5	65-95	60-90	45-75	30-55	20-40	NP-5
	13-26	Very gravelly loamy sand, extremely gravelly sand, extremely gravelly coarse sand	GW-GM, GM, GP-GM	A-1	0	5-25	25-55	20-45	10-30	5-15	0-10	NP-5
	26-60	Extremely gravelly loamy coarse sand, extremely gravelly loamy sand, extremely gravelly sand	GW-GM, GM, GP-GM	A-1	0	5-25	25-55	20-45	10-30	5-15	0-10	NP-5
Parmenter, dry--	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Ashy fine sandy loam	SM, ML	A-4	0	0	90-100	85-100	55-70	35-55	20-40	NP-5
	4-13	Ashy fine sandy loam, gravelly ashy fine sandy loam	SM, ML	A-4, A-2	0	0-5	75-95	65-90	30-75	25-55	20-40	NP-5
	13-23	Ashy fine sandy loam, gravelly ashy fine sandy loam	SM, ML	A-4, A-2	0	0-5	75-95	65-90	30-75	25-55	20-40	NP-5
	23-35	Very gravelly loamy coarse sand, very gravelly loamy sand	SP-SM, GP, GP-GM, SP	A-1	0-5	5-15	45-75	35-55	20-35	0-15	0-10	NP-5
	35-60	Very gravelly loamy coarse sand, very cobbly loamy coarse sand, very gravelly loamy sand	SP-SM, GP, SP, GP-GM	A-1	0-5	5-30	45-75	35-55	20-35	0-15	0-10	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
282: Granflat-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Gravelly ashy sandy loam	SM, ML	A-4, A-2	0-5	0-15	80-95	70-85	55-75	30-60	15-30	NP-5
	7-10	Very cobbly ashy sandy loam, very gravelly ashy sandy loam, gravelly ashy sandy loam	GM, ML, SM	A-4, A-2, A-1	0	5-30	55-80	50-75	35-60	20-55	15-30	NP-5
	10-16	Very cobbly ashy sandy loam, very gravelly ashy sandy loam	GM, SM	A-1, A-2	0	15-45	40-75	35-70	25-55	15-35	15-30	NP-5
	16-26	Extremely cobbly sand, extremely gravelly sand	GP-GM, GM, GP, GW-GM	A-1	0	15-45	15-45	10-40	5-30	0-15	0-10	NP-5
	26-60	Extremely gravelly sand, extremely cobbly sand	GP-GM, GP, GM, GW-GM	A-1	0	15-45	15-45	10-40	5-30	0-15	0-10	NP-5
283: Haley-----	0-8	Ashy fine sandy loam	SM, ML	A-4	0	0	100	90-100	75-90	40-50	0-10	NP
	8-12	Ashy fine sandy loam, ashy sandy loam	SM, ML	A-4	0	0	100	90-100	75-90	40-50	0-10	NP
	12-25	Ashy fine sandy loam, ashy sandy loam	SM, ML	A-4	0	0	100	90-100	75-90	40-50	0-10	NP
	25-60	Sand, coarse sand, loamy sand	SP-SM	A-3, A-1, A-2	0	0	100	90-100	50-65	5-15	0-10	NP
284: Haley-----	0-8	Ashy fine sandy loam	SM, ML	A-4	0	0	100	90-100	75-90	40-50	0-10	NP
	8-12	Ashy fine sandy loam, ashy sandy loam	SM, ML	A-4	0	0	100	90-100	75-90	40-50	0-10	NP
	12-25	Ashy fine sandy loam, ashy sandy loam	SM, ML	A-4	0	0	100	90-100	75-90	40-50	0-10	NP
	25-60	Sand, coarse sand, loamy sand	SP-SM	A-3, A-1, A-2	0	0	100	90-100	50-65	5-15	0-10	NP

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
285: Haploxerandic Haplocryepts, forested, till substratum-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Ashy silt loam	ML	A-4	0	0-5	90-100	80-95	65-85	45-75	25-35	NP-5
	2-5	Ashy fine sandy loam, very gravelly ashy fine sandy loam, very cobbly ashy fine sandy loam	ML, SM	A-4	0	0-5	90-100	70-90	60-80	40-70	25-35	NP-5
	5-11	Ashy fine sandy loam, very gravelly ashy sandy loam, very cobbly ashy fine sandy loam, stony ashy sandy loam	ML, SM	A-4	0-25	0-45	90-100	75-95	55-80	35-70	25-35	NP-5
	11-22	Cobbly sandy loam, very gravelly sandy loam	SC-SM, SM, ML, GM	A-4, A-1	0-5	5-45	55-95	45-85	30-70	20-55	15-25	NP-10
	22-60	Gravelly loamy sand, very cobbly coarse sandy loam, very gravelly sandy loam	SM, GM	A-1, A-2	0-5	5-45	50-90	45-85	25-65	10-35	10-20	NP-5
	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-9	Loam	CL, SC	A-4, A-6	0	0	90-100	75-100	65-90	45-70	20-30	5-15
Cryaquolls, poorly drained, till substratum	9-17	Loam	CL, SC	A-4, A-6	0	0	90-100	75-100	65-90	45-70	20-30	5-15
	17-21	Silt loam, gravelly loam, gravelly fine sandy loam	SC, CL	A-4, A-2, A-6	0	0-5	75-95	65-90	50-80	30-70	20-30	5-15
	21-31	Sandy loam, gravelly fine sandy loam	SC-SM, GC-GM	A-2, A-1, A-4	0	0-5	65-95	60-90	35-70	20-45	15-25	NP-10
	31-40	Gravelly loamy coarse sand, gravelly fine sandy loam, sandy loam	SM, SP-SM, GM, GP-GM	A-1, A-2, A-4	0	0-5	65-95	55-90	15-60	5-45	5-15	NP-5
	40-60	Gravelly fine sandy loam, gravelly loamy coarse sand, sandy loam	SC-SM, SM, GM, GC-GM	A-1, A-2, A-4	0	0-5	65-95	55-90	15-60	5-45	15-25	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
286: Havillah-----	0-12	Ashy silt loam	ML	A-4	0	0	100	100	90-100	85-95	30-40	NP-5
	12-19	Ashy silt loam, ashy loam	ML	A-4	0	0	100	100	90-100	85-95	30-40	NP-5
	19-24	Gravelly silt loam, silt loam, loam	ML	A-4	0	0	70-100	65-100	60-70	50-65	20-30	NP-5
	24-27	Gravelly silt loam, silt loam, loam	ML	A-4, A-2	0	0-5	70-100	65-100	60-70	50-65	20-30	NP-5
	27-60	Gravelly loam, gravelly silt loam, gravelly clay loam	GC	A-4, A-6	0	0-5	55-65	50-60	45-55	35-45	20-30	5-15
287: Havillah-----	0-12	Ashy silt loam	ML	A-4	0	0	100	100	90-100	85-95	30-40	NP-5
	12-19	Ashy silt loam, ashy loam	ML	A-4	0	0	100	100	90-100	85-95	30-40	NP-5
	19-24	Gravelly silt loam, silt loam, loam	ML	A-4	0	0	70-100	65-100	60-70	50-65	20-30	NP-5
	24-27	Gravelly silt loam, silt loam, loam	ML	A-4, A-2	0	0-5	70-100	65-100	60-70	50-65	20-30	NP-5
	27-60	Gravelly loam, gravelly silt loam, gravelly clay loam	GC	A-4, A-6	0	0-5	55-65	50-60	45-55	35-45	20-30	5-15
288: Havillah-----	0-12	Ashy silt loam	ML	A-4	0	0	100	100	90-100	85-95	30-40	NP-5
	12-19	Ashy silt loam, ashy loam	ML	A-4	0	0	100	100	90-100	85-95	30-40	NP-5
	19-24	Gravelly silt loam, silt loam, loam	ML	A-4	0	0-5	70-100	65-100	60-70	50-65	20-30	NP-5
	24-27	Gravelly silt loam, silt loam, loam	ML	A-4, A-2	0	0-5	70-100	65-100	60-70	50-65	20-30	NP-5
	27-60	Gravelly loam, gravelly silt loam, gravelly clay loam	GC	A-4, A-6	0	0-5	55-65	50-60	45-55	35-45	20-30	5-15

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
289:												
Havillah, eroded	0-5	Ashy silt loam	ML	A-4	0	0	100	100	90-100	85-95	30-40	NP-5
	5-19	Ashy silt loam, ashy loam	ML	A-4	0	0	100	100	90-100	85-95	30-40	NP-5
	19-24	Gravelly silt loam, silt loam, loam	ML	A-4	0	0	70-100	65-100	60-70	50-65	20-30	NP-5
	24-27	Gravelly silt loam, silt loam, loam	ML	A-4, A-2	0	0-5	70-100	65-100	60-70	50-65	20-30	NP-5
	27-60	Gravelly loam, gravelly silt loam, gravelly clay loam	GC	A-4, A-6	0	0-5	55-65	50-60	45-55	35-45	20-30	5-15
290:												
Havillah, extremely stony surface-----	0-12	Ashy silt loam	ML	A-4	0	0	100	100	90-100	85-95	30-40	NP-5
	12-19	Ashy silt loam, ashy loam	ML	A-4	0	0	100	100	90-100	85-95	30-40	NP-5
	19-24	Gravelly silt loam, silt loam, loam	ML	A-4	0	0	70-100	65-100	60-70	50-65	20-30	NP-5
	24-27	Gravelly silt loam, silt loam, loam	ML	A-4, A-2	0	0-5	70-100	65-100	60-70	50-65	20-30	NP-5
	27-60	Gravelly loam, gravelly silt loam, gravelly clay loam	GC	A-4, A-6	0	0-5	55-65	50-60	45-55	35-45	20-30	5-15
291:												
Histic Cryaquepts-----	0-8	Mucky peat	PT	A-8	0	0	100	100	60-100	50-90	---	---
	8-10	Silt loam	CL, CL-ML	A-4	0	0	90-100	80-100	65-95	50-85	15-25	5-15
	10-15	Ashy fine sandy loam, ashy sandy loam	SC-SM, CL, ML, SM	A-4, A-2	0	0	90-100	75-100	55-70	40-55	15-25	NP-10
	15-21	Very gravelly sandy loam, very gravelly coarse sandy loam, gravelly sandy loam	SC-SM, GC-GM	A-1, A-2	0	0-5	50-80	45-75	30-55	15-35	15-25	NP-10
	21-34	Gravelly sandy loam, very gravelly sandy loam, very gravelly coarse sandy loam	SC-SM, GC-GM	A-1, A-2	0	0-5	50-80	45-75	30-55	15-35	15-25	NP-10
	34-60	Very gravelly loamy sand, gravelly coarse sand, very gravelly coarse sand	GP-GM, GP, SP, SP-SM	A-1	0	0-5	40-65	35-55	5-30	0-15	5-15	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
291: Cryohemists-----	0-14	Mucky peat	PT	A-8	0	0	100	100	85-100	80-100	---	---
	14-19	Muck	PT	A-8	0	0	100	100	85-100	80-100	---	---
	19-26	Fine sandy loam, gravelly sandy loam, very gravelly sandy loam	SC-SM, GC-GM, ML	A-4, A-1, A-2	0	0	55-100	45-100	30-75	20-55	15-25	NP-10
	26-33	Gravelly sandy loam, fine sandy loam, very gravelly sandy loam	SC-SM, GC-GM, ML	A-4, A-1, A-2	0	0	55-100	45-100	30-75	20-55	15-25	NP-10
	33-60	Very gravelly loamy sand, gravelly loamy sand, very gravelly sandy loam	SC-SM, GC-GM, GM, SM	A-1	0	0	50-80	45-75	20-50	5-25	10-20	NP-10
292: Histosols, ponded-----	0-4	Mucky peat	PT	A-8	0	0	100	100	85-100	80-100	---	---
	4-20	Muck, mucky peat, peat	PT	A-8	0	0	100	100	85-100	80-100	---	---
	20-32	Silt loam, loam, clay loam	CL, CL-ML	A-6, A-4	0	0	100	95-100	90-100	70-80	25-40	5-20
	32-60	Silt loam, fine sandy loam, very gravelly sand	SC-SM, CL-ML, GP-GM, ML, SM	A-4, A-1, A-2, A-3	0	0-5	50-100	45-100	30-95	10-80	15-30	NP-10
293: Hodgson-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Ashy silt loam	CL	A-4	0	0	100	95-100	90-100	70-90	20-35	NP-10
	7-10	Ashy silt loam	CL	A-4	0	0	100	95-100	90-100	70-90	20-35	NP-10
	10-16	Silt loam, silty clay loam	CL	A-4, A-6	0	0	100	95-100	90-100	70-90	10-25	5-15
	16-26	Silt loam, silty clay loam	CL	A-4, A-6	0	0	100	90-100	90-100	70-90	10-25	5-15
	26-41	Silty clay loam, silty clay	CL	A-6	0	0	100	90-100	90-100	85-95	30-40	10-20
	41-60	Silty clay loam, silty clay	CL	A-6	0	0	100	90-100	90-100	85-95	30-40	10-20

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
294: Humic Vitricryands, nonforested----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Ashy silt loam	ML	A-4, A-5	0	0	100	100	90-100	80-100	30-50	NP-5
	5-16	Ashy silt loam	ML	A-4, A-5	0	0-5	90-100	85-100	80-90	70-90	30-50	NP-5
	16-27	Gravelly fine sandy loam	GM	A-4, A-2	0	0-15	55-75	55-70	40-50	25-40	0-10	NP-5
	27-33	Very gravelly sandy loam	GM, GP-GM	A-1	0	0-25	45-65	45-60	25-35	10-20	0-10	NP-5
	33-41	Weathered bedrock			---	---	---	---	---	---	---	---
	41-45	Unweathered bedrock			---	---	---	---	---	---	---	---
Typic Humicryepts, nonforested----	0-7	Ashy silt loam	CL-ML	A-4	0	0-5	85-100	80-100	80-90	55-70	20-35	NP-10
	7-12	Silt loam	CL-ML, ML	A-4	0	0-5	85-100	80-100	80-100	55-70	20-35	NP-10
	12-24	Gravelly silt loam	CL-ML, ML	A-4	0	0-5	70-85	65-80	55-70	40-55	20-35	NP-10
	24-30	Very gravelly coarse sandy loam	SM, SP-SM	A-1	0	0-5	50-70	40-50	30-40	10-20	0-10	NP-5
	30-34	Unweathered bedrock			---	---	---	---	---	---	---	---
295: Hunters-----	0-3	Ashy silt loam	CL, ML	A-4	0	0	100	95-100	90-100	70-90	20-35	NP-10
	3-15	Ashy silt loam	CL, ML	A-4	0	0	100	95-100	90-100	70-90	20-35	NP-10
	15-24	Ashy silt loam	CL	A-4	0	0	100	95-100	90-100	70-90	10-25	5-15
	24-30	Stratified very fine sandy loam to silty clay	CL	A-4, A-6	0	0	100	90-100	90-100	70-90	10-25	5-15
	30-60	Stratified very fine sandy loam to silty clay	CL	A-6	0	0	100	90-100	90-100	85-95	30-40	10-20
296: Hunters-----	0-3	Ashy silt loam	CL, ML	A-4	0	0	100	95-100	90-100	70-90	20-35	NP-10
	3-15	Ashy silt loam	CL, ML	A-4	0	0	100	95-100	90-100	70-90	20-35	NP-10
	15-24	Ashy silt loam	CL	A-4	0	0	100	95-100	90-100	70-90	10-25	5-15
	24-30	Stratified very fine sandy loam to silty clay	CL	A-4, A-6	0	0	100	90-100	90-100	70-90	10-25	5-15
	30-60	Stratified very fine sandy loam to silty clay	CL	A-6	0	0	100	90-100	90-100	85-95	30-40	10-20

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
297:												
Hunters, eroded	0-1	Ashy silt loam	CL, ML	A-4	0	0	100	95-100	90-100	70-90	20-35	NP-10
	1-15	Ashy silt loam	CL, ML	A-4	0	0	100	95-100	90-100	70-90	20-35	NP-10
	15-24	Ashy silt loam	CL	A-4	0	0	100	95-100	90-100	70-90	10-25	5-15
	24-30	Stratified very fine sandy loam to silty clay	CL	A-4, A-6	0	0	100	90-100	90-100	70-90	10-25	5-15
	30-60	Stratified very fine sandy loam to silty clay	CL	A-6	0	0	100	90-100	90-100	85-95	30-40	10-20
298:												
Jimbluff-----	0-2	Moderately decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	2-6	Ashy sandy loam	CL-ML, ML, SC-SM, SM	A-4	0	0-5	85-100	75-90	60-80	40-60	15-30	NP-10
	6-11	Gravelly ash sandy loam, very gravelly ashy sandy loam, very cobble ash sandy loam	SC-SM, GC-GM	A-2, A-1, A-4	0	0-25	60-70	55-60	30-50	15-40	15-30	NP-10
	11-19	Very cobble ash sandy loam, gravelly ash sandy loam, very gravelly ash sandy loam	SC-SM, GC-GM	A-2, A-1, A-4	0	0-25	60-70	55-60	30-50	15-40	15-30	NP-10
	19-26	Very cobble sandy loam, very gravelly sandy loam, extremely cobble coarse sandy loam	GC-GM	A-2	5-15	15-45	50-60	45-55	35-45	25-35	15-25	NP-10
	26-37	Extremely cobble coarse sandy loam, very gravelly sandy loam, very cobble sandy loam	GC-GM	A-2	5-15	30-45	50-60	45-55	35-45	25-35	15-25	NP-5
	37-60	Extremely gravelly loamy sand, extremely cobble loamy sand	GW-GM, GM, GP-GM	A-1	0-5	30-45	35-45	30-40	10-25	5-15	5-15	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
299: Jimbluff-----	0-2	Moderately decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	2-6	Gravelly ashy sandy loam	CL-ML, ML, SC-SM, SM	A-4	0	0-5	85-100	50-75	45-70	30-60	15-30	NP-10
	6-11	Gravelly ashy sandy loam, very gravelly ashy sandy loam, very cobbly ashy sandy loam	SC-SM, GC-GM	A-2, A-1, A-4	0	0-25	60-70	55-60	30-50	15-40	15-30	NP-10
	11-19	Very cobbly ashy sandy loam, gravelly ashy sandy loam, very gravelly ashy sandy loam	SC-SM, GC-GM	A-2, A-1, A-4	0	0-25	60-70	55-60	30-50	15-40	15-30	NP-10
	19-26	Very cobbly sandy loam, very gravelly sandy loam, extremely cobbly coarse sandy loam	GC-GM	A-2	5-15	15-45	50-60	45-55	35-45	25-35	15-25	NP-10
	26-37	Extremely gravelly sandy loam, very cobbly sandy loam, extremely cobbly coarse sandy loam	GC-GM	A-2	5-15	30-45	50-60	45-55	35-45	25-35	15-25	NP-5
	37-60	Extremely gravelly loamy sand, extremely cobbly loamy sand	GW-GM, GM, GP-GM	A-1	0-5	30-45	35-45	30-40	10-25	5-15	5-15	NP-5
300: Johntom-----	0-3	Gravelly loam	SM	A-4	0	0	75-90	65-75	50-65	40-50	15-25	NP-5
	3-12	Very flaggy loam, very flaggy sandy loam	GM, SM	A-1	0-5	50-60	50-60	45-55	20-35	15-25	15-25	NP-5
	12-16	Unweathered bedrock			---	---	---	---	---	---	---	---
Borgeau-----	0-5	Ashy loam	ML, SM	A-4	0	0-5	85-95	75-90	70-85	45-60	20-35	NP-5
	5-14	Gravelly ashy loam, ashy loam	GM	A-2, A-4	0	0-5	60-70	55-65	50-65	30-45	20-35	NP-5
	14-27	Very gravelly loam, gravelly loam	GM	A-1, A-2	0	0-5	45-55	40-50	35-50	20-30	20-30	NP-5
	27-41	Very gravelly loam, very cobbly loam, very gravelly sandy loam	GC	A-2, A-1	0-5	0-30	35-45	30-40	25-40	20-30	20-30	5-15
	41-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM	A-1, A-2	0-5	0-30	40-50	35-45	25-30	10-20	15-25	NP-10
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
301:												
Johntom-----	0-3	Gravelly loam	SM	A-4	0	0	75-90	65-75	50-65	40-50	15-25	NP-5
	3-12	Very flaggy loam, very flaggy sandy loam	GM, SM	A-1	0-5	50-60	50-60	45-55	20-35	15-25	15-25	NP-5
	12-16	Unweathered bedrock			---	---	---	---	---	---	---	---
Foggydew-----	0-7	Gravelly ashy sandy loam	GC-GM, SC-SM	A-1, A-2	0-10	0-15	55-80	50-75	30-50	15-30	15-30	NP-10
	7-12	Very gravelly ashy sandy loam, gravelly ashy sandy loam	GC-GM, SC-SM	A-1, A-2	0-10	0-15	45-70	40-65	25-45	10-25	15-30	NP-10
	12-20	Very gravelly ashy sandy loam, gravelly ashy sandy loam, extremely gravelly ashy sandy loam	GW-GC	A-1	0	0-15	30-55	25-50	15-35	10-20	15-30	NP-10
	20-27	Extremely gravelly sandy loam, extremely cobbly sandy loam, very gravelly sandy loam	GP-GC, GP-GM, GM, GP	A-1	0	0-45	10-40	5-35	5-25	0-15	15-25	NP-10
	27-42	Extremely gravelly sandy loam, very gravelly sandy loam, extremely cobbly sandy loam	GP-GC, GW-GC, GM, GP	A-1	0	0-45	10-40	5-35	5-25	0-15	15-25	NP-10
	42-53	Extremely gravelly sandy loam, very gravelly sandy loam, extremely cobbly sandy loam	GP-GC, GP, GM, GP-GM	A-1	0	0-45	10-40	5-35	5-25	0-15	15-25	NP-10
	53-57	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
302:												
Johntom-----	0-3	Gravelly loam	SM	A-4	0	0	75-90	65-75	50-65	40-50	15-25	NP-5
	3-12	Very flaggy loam, very flaggy sandy loam	GM, SM	A-1	0-5	50-60	50-60	45-55	20-35	15-25	15-25	NP-5
	12-16	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
303:												
Johntom-----	0-3	Gravelly loam	SM	A-4	0	0	75-90	65-75	50-65	40-50	15-25	NP-5
	3-12	Very flaggy loam, very flaggy sandy loam	GM, SM	A-1	0-5	50-60	50-60	45-55	20-35	15-25	15-25	NP-5
	12-16	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
304: Karamin-----	In											
	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-6	Ashy fine sandy loam	SM, ML	A-4	0	0	95-100	90-100	65-85	40-55	15-20	NP-5
	6-18	Ashy fine sandy loam, ashly sandy loam, ashly loam	ML, SM	A-4	0	0	95-100	90-100	60-85	35-65	15-20	NP-5
	18-28	Loamy fine sand, loamy sand, sand	SM	A-2, A-1	0	0	90-100	85-100	45-85	20-30	0-14	NP
	28-43	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-1, A-3	0	0	90-100	85-100	45-80	5-25	0-14	NP
	43-60	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-1, A-3	0	0-5	90-100	85-100	45-80	5-25	0-14	NP
305: Kartar-----												
	0-6	Ashy sandy loam	SC-SM, SM	A-2, A-4	0	0-5	95-100	90-100	60-70	30-40	15-30	NP-10
	6-16	Ashy sandy loam, ashly fine sandy loam	SC-SM, SM	A-2	0	0-5	90-100	85-95	55-65	25-35	15-30	NP-10
	16-28	Gravelly ashly sandy loam, gravelly ashly fine sandy loam, cobbly ashly sandy loam	SC-SM, SM	A-1, A-2	0	0-15	60-85	55-80	35-50	20-30	15-30	NP-10
	28-50	Very gravelly loamy sand, gravelly sand, cobbly loamy sand	GP-GM, GP-GC	A-1	0	0-25	40-65	35-60	20-30	0-10	0-10	NP-5
	50-60	Very gravelly sand, extremely gravelly sand, very gravelly coarse sand, extremely gravelly coarse sand, gravelly fine sand	GP-GM, GP-GC	A-1	0	0-25	30-60	25-55	15-25	0-10	0-10	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
306: Kartar-----	0-6	Ashy sandy loam	SC-SM, SM	A-2, A-4	0	0-5	95-100	90-100	60-70	30-40	15-30	NP-10
	6-16	Ashy sandy loam, ash fine sandy loam	SC-SM, SM	A-2	0	0-5	90-100	85-95	55-65	25-35	15-30	NP-10
	16-28	Gravelly ash sandy loam, gravelly ash fine sandy loam, cobbly ashy sandy loam	SC-SM, SM	A-1, A-2	0	0-15	60-85	55-80	35-50	20-30	15-30	NP-10
	28-50	Very gravelly loamy sand, gravelly sand, cobbly loamy sand	GP-GM, GP-GC	A-1	0	0-25	40-65	35-60	20-30	0-10	0-10	NP-5
	50-60	Very gravelly sand, extremely gravelly sand, very gravelly coarse sand, extremely gravelly coarse sand, gravelly fine sand	GP-GM, GP-GC	A-1	0	0-25	30-60	25-55	15-25	0-10	0-10	NP-5
307: Kartar, cool----	0-8	Ashy sandy loam	SC-SM, SM	A-2, A-4	0	0-5	95-100	90-100	60-70	30-40	15-30	NP-10
	8-16	Ashy sandy loam, ash fine sandy loam	SC-SM, SM	A-2	0	0-5	90-100	85-95	55-65	25-35	15-30	NP-10
	16-28	Gravelly ash sandy loam, gravelly ash fine sandy loam, cobbly ashy sandy loam	SC-SM, SM	A-1, A-2	0	0-15	60-85	55-80	35-50	20-30	15-30	NP-10
	28-50	Very gravelly loamy sand, gravelly sand, cobbly loamy sand	GP-GM, GP-GC	A-1	0	0-25	40-65	35-60	20-30	0-10	0-10	NP-5
	50-60	Very gravelly sand, extremely gravelly sand, very gravelly coarse sand, extremely gravelly coarse sand, gravelly fine sand	GP-GM, GP-GC	A-1	0	0-25	30-60	25-55	15-25	0-10	0-10	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
308: Kartar-----	0-6	Ashy fine sandy loam	SC-SM, SM	A-2, A-4	0	0-5	95-100	90-100	60-70	30-40	15-30	NP-10
	6-16	Ashy sandy loam, ashy fine sandy loam	SC-SM, SM	A-2	0	0-5	90-100	85-95	55-65	25-35	15-30	NP-10
	16-28	Gravelly ashy sandy loam, gravelly ashy fine sandy loam, cobbly ashy sandy loam	SC-SM, SM	A-1	0	0-15	60-85	55-80	35-50	20-30	15-30	NP-10
	28-50	Very gravelly loamy sand, gravelly sand, cobbly loamy sand	GP-GM, GP-GC	A-1	0	0-25	40-65	35-60	20-30	0-10	0-10	NP-5
	50-60	Very gravelly sand, extremely gravelly sand, very gravelly coarse sand, extremely gravelly coarse sand, gravelly fine sand	GP-GM, GP-GC	A-1	0	0-25	30-60	25-55	15-25	0-10	0-10	NP-5
309: Kartar-----	0-6	Ashy fine sandy loam	SC-SM, SM	A-2, A-4	0	0-5	95-100	90-100	60-70	30-40	15-30	NP-10
	6-16	Ashy sandy loam, ashy fine sandy loam	SC-SM, SM	A-2	0	0-5	90-100	85-95	55-65	25-35	15-30	NP-10
	16-28	Gravelly ashy sandy loam, gravelly ashy fine sandy loam, cobbly ashy sandy loam	SC-SM, SM	A-1	0	0-15	60-85	55-80	35-50	20-30	15-30	NP-10
	28-50	Very gravelly loamy sand, gravelly sand, cobbly loamy sand	GP-GM, GP-GC	A-1	0	0-25	40-65	35-60	20-30	0-10	0-10	NP-5
	50-60	Very gravelly sand, extremely gravelly sand, very gravelly coarse sand, extremely gravelly coarse sand, gravelly fine sand	GP-GM, GP-GC	A-1	0	0-25	30-60	25-55	15-25	0-10	0-10	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
310: Kartar-----	0-6	Ashy fine sandy loam	SC-SM, SM	A-2, A-4	0	0-5	95-100	90-100	60-70	30-40	15-30	NP-10
	6-16	Ashy sandy loam, ash fine sandy loam	SC-SM, SM	A-2	0	0-5	90-100	85-95	55-65	25-35	15-30	NP-10
	16-28	Gravelly ash sandy loam, gravelly ash fine sandy loam, cobbly ashy sandy loam	SC-SM, SM	A-1	0	0-15	60-85	55-80	35-50	20-30	15-30	NP-10
	28-50	Very gravelly loamy sand, gravelly sand, cobbly loamy sand	GP-GM, GP-GC	A-1	0	0-25	40-65	35-60	20-30	0-10	0-10	NP-5
	50-60	Very gravelly sand, extremely gravelly sand, very gravelly coarse sand, extremely gravelly coarse sand, gravelly fine sand	GP-GM, GP-GC	A-1	0	0-25	30-60	25-55	15-25	0-10	0-10	NP-5
311: Kartar, extremely stony surface-----	0-6	Cobbly ash sandy loam	SC-SM, SM	A-2	0	15-25	90-100	85-95	55-65	25-35	15-30	NP-10
	6-16	Cobbly ash sandy loam, ashy fine sandy loam	SC-SM, SM	A-2	0	0-15	90-100	85-95	55-65	25-35	15-30	NP-10
	16-28	Gravelly ash sandy loam, gravelly ash fine sandy loam, cobbly ashy sandy loam	SC-SM, SM	A-1, A-2	0	0-15	60-85	55-80	35-50	20-30	15-30	NP-10
	28-50	Very gravelly loamy sand, gravelly sand, cobbly loamy sand	GP-GM, GP-GC	A-1	0	0-25	40-65	35-60	20-30	0-10	0-10	NP-5
	50-60	Very gravelly sand, extremely gravelly sand, very gravelly coarse sand, extremely gravelly coarse sand, gravelly fine sand	GP-GM, GP-GC	A-1	0	0-25	30-60	25-55	15-25	0-10	0-10	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
312: Kartar, extremely stony surface-----	0-6	Cobbly ashy sandy loam	SC-SM, SM	A-2	0	15-25	90-100	85-95	55-65	25-35	15-30	NP-10
	6-16	Cobbly ashy sandy loam, ashy fine sandy loam	SC-SM, SM	A-2	0	0-15	90-100	85-95	55-65	25-35	15-30	NP-10
	16-28	Gravelly ashy sandy loam, gravelly ashy fine sandy loam, cobbly ashy sandy loam	SC-SM, SM	A-1, A-2	0	0-15	60-85	55-80	35-50	20-30	15-30	NP-10
	28-50	Very gravelly loamy sand, gravelly sand, cobbly loamy sand	GP-GM, GP-GC	A-1	0	0-25	40-65	35-60	20-30	0-10	0-10	NP-5
	50-60	Very gravelly sand, extremely gravelly sand, very gravelly coarse sand, extremely gravelly coarse sand, gravelly fine sand	GP-GM, GP-GC	A-1	0	0-25	30-60	25-55	15-25	0-10	0-10	NP-5
313: Karu-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Gravelly ashy sandy loam	CL-ML	A-4	0	0	80-90	65-75	55-65	40-60	15-30	NP-10
	5-17	Cobbly ashy sandy loam, gravelly ashy sandy loam	SC-SM, SM, ML	A-4	0-5	0-15	70-90	65-85	55-80	35-60	15-30	NP-10
	17-23	Very cobbly sandy loam, very gravelly sandy loam	GC-GM, SC-SM	A-2, A-1	0-5	15-35	45-70	40-65	30-55	20-35	15-25	NP-10
	23-34	Very cobbly sandy loam, very gravelly sandy loam	GC-GM, SC-SM	A-1, A-2	0-5	15-35	45-70	40-65	25-55	15-35	15-25	NP-10
	34-60	Very gravelly loamy sand, very gravelly sandy loam, very cobbly sandy loam	GM, SM	A-1	0	0-30	35-65	30-60	15-40	5-25	5-15	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
314: Karu-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Stony ashy sandy loam	CL-ML	A-4	15-25	5-15	85-95	80-90	60-75	40-60	15-30	NP-10
	5-17	Cobbly ashy sandy loam, gravelly ashy sandy loam	SC-SM, SM, ML	A-4	0-5	0-15	70-90	65-85	55-80	35-60	15-30	NP-10
	17-23	Very cobbly sandy loam, very gravelly sandy loam	GC-GM, SC-SM	A-2, A-1	0-5	15-35	45-70	40-65	30-55	20-35	15-25	NP-10
	23-34	Very cobbly sandy loam, very gravelly sandy loam	GC-GM, SC-SM	A-1, A-2	0-5	15-35	45-70	40-65	25-55	15-35	15-25	NP-10
	34-60	Very gravelly loamy sand, very gravelly sandy loam, very cobbly sandy loam	GM, SM	A-1	0	0-30	35-65	30-60	15-40	5-25	5-15	NP-5
315: Koepke-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-9	Ashy silt loam	ML	A-4	0	0-5	95-100	90-100	85-95	70-80	25-40	NP-5
	9-22	Ashy loam, ashy silt loam, gravelly ashy loam	ML	A-4	0	0-5	75-100	70-90	60-80	55-70	25-40	NP-5
	22-24	Gravelly ashy loam, ashy silt loam, ashy loam	ML	A-4	0	0-5	75-100	70-90	60-80	55-70	25-40	NP-5
	24-34	Gravelly sandy loam, cobbly sandy loam	SC-SM, GM, SM	A-2, A-4	0	0-15	55-85	45-75	30-55	25-45	15-25	NP-10
	34-42	Very gravelly sandy loam	SC-SM, SM, GM	A-2, A-4	0	0-15	55-85	45-75	30-55	25-45	15-25	NP-10
	42-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, GM, GP-GM	A-1, A-2	0	0-30	40-60	30-50	20-40	10-30	15-25	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
						Pct	Pct				Pct	
316: Koepke-----	In											
	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-9	Ashy silt loam	ML	A-4	0	0-5	95-100	90-100	85-95	70-80	25-40	NP-5
	9-22	Ashy loam, gravelly ash loam, ashy silt loam	ML	A-4	0	0-5	75-100	70-90	60-80	55-70	25-40	NP-5
	22-24	Gravelly ash loam, ash silt loam, ash loam	ML	A-4	0	0-5	75-100	70-90	60-80	55-70	25-40	NP-5
	24-34	Gravelly sandy loam, cobbly sandy loam	SC-SM, GM, SM	A-2, A-4	0	0-15	55-85	45-75	30-55	25-45	15-25	NP-10
	34-42	Very gravelly sandy loam	SC-SM, SM, GM	A-2, A-4	0	0-15	55-85	45-75	30-55	25-45	15-25	NP-10
	42-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, GM, GP-GM	A-1, A-2	0	0-30	40-60	30-50	20-40	10-30	15-25	NP-10
317: Koepke-----	In											
	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-9	Ashy silt loam	ML	A-4	0	0-5	95-100	90-100	85-95	70-80	25-40	NP-5
	9-22	Ashy loam, gravelly ash loam, ashy silt loam	ML	A-4	0	0-5	75-100	70-90	60-80	55-70	25-40	NP-5
	22-24	Gravelly ash loam, ash silt loam, ash loam	ML	A-4	0	0-5	75-100	70-90	60-80	55-70	25-40	NP-5
	24-34	Gravelly sandy loam, cobbly sandy loam	SC-SM, GM, SM	A-2, A-4	0	0-15	55-85	45-75	30-55	25-45	15-25	NP-10
	34-42	Very gravelly sandy loam	SC-SM, SM, GM	A-2, A-4	0	0-15	55-85	45-75	30-55	25-45	15-25	NP-10
	42-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, GM, GP-GM	A-1, A-2	0	0-30	40-60	30-50	20-40	10-30	15-25	NP-10
318: Koepke-----	In											
	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-9	Ashy silt loam	ML	A-4	0	0-5	95-100	90-100	85-95	70-80	25-40	NP-5
	9-22	Ashy loam, gravelly ash loam, ashy silt loam	ML	A-4	0	0-5	75-100	70-90	60-80	55-70	25-40	NP-5
	22-24	Gravelly ash loam, ash silt loam, ash loam	ML	A-4	0	0-5	75-100	70-90	60-80	55-70	25-40	NP-5
	24-34	Gravelly sandy loam, cobbly sandy loam	SC-SM, GM, SM	A-2, A-4	0	0-15	55-85	45-75	30-55	25-45	15-25	NP-10
	34-42	Very gravelly sandy loam	SC-SM, SM, GM	A-2, A-4	0	0-15	55-85	45-75	30-55	25-45	15-25	NP-10
	42-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, GM, GP-GM	A-1, A-2	0	0-30	40-60	30-50	20-40	10-30	15-25	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
319: Koepke, well drained-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-9	Ashy silt loam	ML	A-4	0	0-5	95-100	90-100	85-95	70-80	25-40	NP-5
	9-22	Ashy loam, ashy silt loam, gravelly ashy loam	ML	A-4	0	0-5	75-100	70-90	60-80	55-70	25-40	NP-5
	22-24	Gravelly ashy loam, ashy silt loam, ashy loam	ML	A-4	0	0-5	75-100	70-90	60-80	55-70	25-40	NP-5
	24-34	Gravelly sandy loam, cobbly sandy loam	SC-SM, GM, SM	A-2, A-4	0	0-15	55-85	45-75	30-55	25-45	15-25	NP-10
	34-42	Very gravelly sandy loam	SC-SM, SM, GM	A-2, A-4	0	0-15	55-85	45-75	30-55	25-45	15-25	NP-10
	42-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, GM, GP-GM	A-1, A-2	0	0-30	40-60	30-50	20-40	10-30	15-25	NP-10
Koepke, moderately well drained-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-9	Ashy silt loam	ML	A-4	0	0-5	95-100	90-100	85-95	70-80	25-40	NP-5
	9-22	Ashy loam, gravelly ashy loam, ashy silt loam	ML	A-4	0	0-5	75-100	70-90	60-80	55-70	25-40	NP-5
	22-24	Gravelly ashy loam, ashy silt loam, ashy loam	ML	A-4	0	0-5	75-100	70-90	60-80	55-70	25-40	NP-5
	24-34	Gravelly sandy loam, cobbly sandy loam	SC-SM, GM, SM	A-2, A-4	0	0-15	55-85	45-75	30-55	25-45	15-25	NP-10
	34-42	Very gravelly sandy loam	SC-SM, SM, GM	A-2, A-4	0	0-15	55-85	45-75	30-55	25-45	15-25	NP-10
	42-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, GM, GP-GM	A-1, A-2	0	0-30	40-60	30-50	20-40	10-30	15-25	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
320: Koepke, well drained-----	In											
	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-9	Ashy silt loam	ML	A-4	0	0-5	95-100	90-100	85-95	70-80	25-40	NP-5
	9-22	Ashy loam, gravelly ash loam, ash silt loam	ML	A-4	0	0-5	75-100	70-90	60-80	55-70	25-40	NP-5
	22-24	Gravelly ash loam, ash silt loam, ash loam	ML	A-4	0	0-5	75-100	70-90	60-80	55-70	25-40	NP-5
	24-34	Gravelly sandy loam, cobble sandy loam	SC-SM, GM, SM	A-2, A-4	0	0-15	55-85	45-75	30-55	25-45	15-25	NP-10
	34-42	Very gravelly sandy loam	SC-SM, SM, GM	A-2, A-4	0	0-15	55-85	45-75	30-55	25-45	15-25	NP-10
	42-60	Very gravelly sandy loam, very cobble sandy loam	GC-GM, GM, GP-GM	A-1, A-2	0	0-30	40-60	30-50	20-40	10-30	15-25	NP-10
Koepke, moderately well drained-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-9	Ashy silt loam	ML	A-4	0	0-5	95-100	90-100	85-95	70-80	25-40	NP-5
	9-22	Ashy loam, gravelly ash loam, ash silt loam	ML	A-4	0	0-5	75-100	70-90	60-80	55-70	25-40	NP-5
	22-24	Gravelly ash loam, ash silt loam, ash loam	ML	A-4	0	0-5	75-100	70-90	60-80	55-70	25-40	NP-5
	24-34	Gravelly sandy loam, cobble sandy loam	SC-SM, GM, SM	A-2, A-4	0	0-15	55-85	45-75	30-55	25-45	15-25	NP-10
	34-42	Very gravelly sandy loam	SC-SM, SM, GM	A-2, A-4	0	0-15	55-85	45-75	30-55	25-45	15-25	NP-10
	42-60	Very gravelly sandy loam, very cobble sandy loam	GC-GM, GM, GP-GM	A-1, A-2	0	0-30	40-60	30-50	20-40	10-30	15-25	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
321: Koepeke, well drained-----	In											
	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-9	Ashy silt loam	ML	A-4	0	0-5	95-100	90-100	85-95	70-80	25-40	NP-5
	9-22	Ashy loam, gravelly ash loam, ash silt loam	ML	A-4	0	0-5	75-100	70-90	60-80	55-70	25-40	NP-5
	22-24	Gravelly ash loam, ash silt loam, ash loam	ML	A-4	0	0-5	75-100	70-90	60-80	55-70	25-40	NP-5
	24-34	Gravelly sandy loam, cobbly sandy loam	SC-SM, GM, SM	A-2, A-4	0	0-15	55-85	45-75	30-55	25-45	15-25	NP-10
	34-42	Very gravelly sandy loam	SC-SM, SM, GM	A-2, A-4	0	0-15	55-85	45-75	30-55	25-45	15-25	NP-10
	42-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, GM, GP-GM	A-1, A-2	0	0-30	40-60	30-50	20-40	10-30	15-25	NP-10
Koepeke, moderately well drained-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-9	Ashy silt loam	ML	A-4	0	0-5	95-100	90-100	85-95	70-80	25-40	NP-5
	9-22	Ashy loam, gravelly ash loam, ash silt loam	ML	A-4	0	0-5	75-100	70-90	60-80	55-70	25-40	NP-5
	22-24	Gravelly ash loam, ash silt loam, ash loam	ML	A-4	0	0-5	75-100	70-90	60-80	55-70	25-40	NP-5
	24-34	Gravelly sandy loam, cobbly sandy loam	SC-SM, GM, SM	A-2, A-4	0	0-15	55-85	45-75	30-55	25-45	15-25	NP-10
	34-42	Very gravelly sandy loam	SC-SM, SM, GM	A-2, A-4	0	0-15	55-85	45-75	30-55	25-45	15-25	NP-10
	42-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, GM, GP-GM	A-1, A-2	0	0-30	40-60	30-50	20-40	10-30	15-25	NP-10
322: Lani-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-9	Ashy sandy loam	SM	A-2, A-4	0	0	95-100	75-100	55-60	30-40	0-14	NP-5
	9-15	Ashy sandy loam, ash loam, ash fine sandy loam	SM	A-2, A-4	0	0	95-100	75-100	55-60	30-40	0-14	NP-5
	15-29	Fine sandy loam, sandy loam, loam	SM	A-4	0	0	95-100	75-100	60-80	35-45	0-14	NP-5
	29-60	Gravelly fine sandy loam, gravelly sandy loam, gravelly sandy clay loam	SM	A-2, A-1	0	0	65-75	60-75	40-60	20-35	0-14	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
323: Lani-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-9	Ashy sandy loam	SM	A-2, A-4	0	0	95-100	75-100	55-60	30-40	0-14	NP-5
	9-15	Ashy sandy loam, ashy loam, ashy fine sandy loam	SM	A-2, A-4	0	0	95-100	75-100	55-60	30-40	0-14	NP-5
	15-29	Fine sandy loam, sandy loam, loam	SM	A-4	0	0	95-100	75-100	60-80	35-45	0-14	NP-5
	29-60	Gravelly fine sandy loam, gravelly sandy loam, gravelly sandy clay loam	SM	A-2, A-1	0	0	65-75	60-75	40-60	20-35	0-14	NP-5
324: Lani, extremely stony surface--	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-9	Ashy sandy loam	SM	A-2, A-4	0	0	95-100	75-100	55-60	30-40	0-14	NP-5
	9-15	Ashy sandy loam, ashy loam, ashy fine sandy loam	SM	A-2, A-4	0	0	95-100	75-100	55-60	30-40	0-14	NP-5
	15-29	Fine sandy loam, sandy loam, loam	SM	A-4	0	0	95-100	75-100	60-80	35-45	0-14	NP-5
	29-60	Gravelly fine sandy loam, gravelly sandy loam, gravelly sandy clay loam	SM	A-2, A-1	0	0	65-75	60-75	40-60	20-35	0-14	NP-5
325: Lani, extremely stony surface--	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-9	Ashy sandy loam	SM	A-2, A-4	0	0	95-100	75-100	55-60	30-40	0-14	NP-5
	9-15	Ashy sandy loam, ashy loam, ashy fine sandy loam	SM	A-2, A-4	0	0	95-100	75-100	55-60	30-40	0-14	NP-5
	15-29	Fine sandy loam, sandy loam, loam	SM	A-4	0	0	95-100	75-100	60-80	35-45	0-14	NP-5
	29-60	Gravelly fine sandy loam, gravelly sandy loam, gravelly sandy clay loam	SM	A-2, A-1	0	0	65-75	60-75	40-60	20-35	0-14	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
					Pct	Pct					Pct	
326: Leavenworth-----	In											
	0-3	Silt loam	CL-ML	A-4	0	0	100	100	90-100	70-90	20-30	2-6
	3-21	Silt loam, very fine sandy loam	CL-ML	A-4	0	0	100	100	90-100	70-90	20-30	2-6
	21-60	Stratified coarse sand to fine sandy loam	SM, ML	A-4	0	0	100	100	65-85	35-55	15-25	NP-5
327: Leftcreek-----	0-5	Cobbly ashy sandy loam	SM, GM	A-1, A-2	0-5	15-25	60-85	55-80	35-55	15-30	20-40	NP-5
	5-14	Very cobbly ashy sandy loam, very gravelly ashy sandy loam, very gravelly ashy coarse sandy loam, very cobbly ashy coarse sandy loam	SM, GM	A-1	0-5	0-30	45-70	40-65	20-45	10-25	20-40	NP-5
	14-18	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
328: Leiko-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Ashy sandy loam	SC-SM	A-2, A-1	0	0-5	80-90	75-85	45-65	25-35	15-30	NP-10
	2-9	Ashy sandy loam	SC-SM	A-2, A-1	0	0-5	80-90	75-85	45-60	25-35	15-30	NP-10
	9-30	Very gravelly sandy loam, very gravelly loamy coarse sand, very cobbly loamy sand	GP-GM, GM, SM, SP-SM	A-1	0	0-25	35-60	30-55	15-30	5-15	0-10	NP-5
	30-60	Very gravelly sand, extremely gravelly sand, very cobbly sand, extremely cobbly loamy coarse sand	GW-GM	A-1	0-5	0-40	20-40	15-35	10-20	0-15	0-10	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
329: Leiko-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Ashy sandy loam	SC-SM	A-2, A-1	0	0-5	80-90	75-85	45-65	25-35	15-30	NP-10
	2-9	Ashy sandy loam	SC-SM	A-2, A-1	0	0-5	80-90	75-85	45-60	25-35	15-30	NP-10
	9-30	Very gravelly sandy loam, very gravelly loamy coarse sand, very cobbly loamy sand	GP-GM, GM, SM, SP-SM	A-1	0	0-25	35-60	30-55	15-30	5-15	0-10	NP-5
	30-60	Very gravelly sand, extremely gravelly sand, very cobbly sand, extremely cobbly loamy coarse sand	GW-GM	A-1	0-5	0-40	20-40	15-35	10-20	0-15	0-10	NP-5
330: Leiko-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Ashy sandy loam	SC-SM	A-2, A-1	0	0-5	80-90	75-85	45-65	25-35	15-30	NP-10
	2-9	Ashy sandy loam	SC-SM	A-2, A-1	0	0-5	80-90	75-85	45-60	25-35	15-30	NP-10
	9-30	Very gravelly sandy loam, very gravelly loamy coarse sand, very cobbly loamy sand	GP-GM, GM, SM, SP-SM	A-1	0	0-25	35-60	30-55	15-30	5-15	0-10	NP-5
	30-60	Very gravelly sand, extremely gravelly sand, very cobbly sand, extremely cobbly loamy coarse sand	GW-GM	A-1	0-5	0-40	20-40	15-35	10-20	0-15	0-10	NP-5
331: Leiko, extremely stony surface--	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Ashy sandy loam	SC-SM	A-2, A-1	0	0-5	80-90	75-85	45-65	25-35	15-30	NP-10
	2-9	Ashy sandy loam	SC-SM	A-2, A-1	0	0-5	80-90	75-85	45-60	25-35	15-30	NP-10
	9-30	Very gravelly sandy loam, very gravelly loamy coarse sand, very cobbly loamy sand	GP-GM, GM, SM, SP-SM	A-1	0	0-25	35-60	30-55	15-30	5-15	0-10	NP-5
	30-60	Very gravelly sand, extremely gravelly sand, very cobbly sand, extremely cobbly loamy coarse sand	GW-GM	A-1	0-5	0-40	20-40	15-35	10-20	0-15	0-10	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
332: Leiko, extremely stony surface--	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Ashy sandy loam	SC-SM	A-2, A-1	0	0-5	80-90	75-85	45-65	25-35	15-30	NP-10
	2-9	Ashy sandy loam	SC-SM	A-2, A-1	0	0-5	80-90	75-85	45-60	25-35	15-30	NP-10
	9-30	Very gravelly sandy loam, very gravelly loamy coarse sand, very cobble loamy sand	GP-GM, GM, SM, SP-SM	A-1	0	0-25	35-60	30-55	15-30	5-15	0-10	NP-5
	30-60	Very gravelly sand, extremely gravelly sand, very cobbly sand, extremely cobbly loamy coarse sand	GW-GM	A-1	0-5	0-40	20-40	15-35	10-20	0-15	0-10	NP-5
333: Leiko-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Cobbly ash coarse sandy loam	SC-SM	A-4, A-2	0	15-25	75-85	65-80	45-65	30-45	15-30	NP-10
	4-12	Gravelly ash coarse sandy loam, very gravelly ash coarse sandy loam	GC-GM, SC-SM	A-2, A-1, A-4	0	0-15	55-75	45-65	30-55	20-40	15-30	NP-10
	12-25	Very gravelly sandy loam, very gravelly loamy coarse sand, very cobble loamy sand	GP-GM, GM, SM, SP-SM	A-1	0	0-25	35-60	30-55	15-30	5-15	0-10	NP-5
	25-60	Very gravelly coarse sand, very gravelly loamy sand, very gravelly loamy coarse sand	GM, GP-GM, SM, SP-SM	A-1	0-5	5-25	40-60	30-50	15-35	5-20	0-10	NP

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
334: Leiko, extremely stony surface--	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Ashy sandy loam	SC-SM	A-2, A-1	0	0-5	80-90	75-85	45-65	25-35	15-30	NP-10
	2-9	Ashy sandy loam	SC-SM	A-2, A-1	0	0-5	80-90	75-85	45-60	25-35	15-30	NP-10
	9-30	Very gravelly sandy loam, very gravelly loamy coarse sand, very cobble loamy sand	GP-GM, GM, SM, SP-SM	A-1	0	0-25	35-60	30-55	15-30	5-15	0-10	NP-5
	30-60	Very gravelly sand, extremely gravelly sand, very cobble sand, extremely cobble loamy coarse sand	GW-GM	A-1	0-5	0-40	20-40	15-35	10-20	0-15	0-10	NP-5
335: Leiko-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Cobbly ashy coarse sandy loam	SC-SM	A-4, A-2	0	15-25	75-85	65-80	45-65	30-45	15-30	NP-10
	4-12	Gravelly ashy coarse sandy loam, very gravelly ashy coarse sandy loam	GC-GM, SC-SM	A-2, A-1, A-4	0	0-15	55-75	45-65	30-55	20-40	15-30	NP-10
	12-25	Very gravelly sandy loam, very gravelly loamy coarse sand, very cobble loamy sand	GP-GM, GM, SM, SP-SM	A-1	0	0-25	35-60	30-55	15-30	5-15	0-10	NP-5
	25-60	Very gravelly coarse sand, very gravelly loamy sand, very gravelly loamy coarse sand	GM, GP-GM, SM, SP-SM	A-1	0-5	5-25	40-60	30-50	15-35	5-20	0-10	NP
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

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Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
336: Lekrem, extremely stony surface-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Stony ashy sandy loam	SC-SM, SM, ML	A-4, A-2	5-25	0-5	75-90	70-85	55-70	30-55	15-30	NP-10
	5-17	Gravelly ashy sandy loam, very gravelly ashy sandy loam	GC-GM, SC-SM	A-2, A-1, A-4	0-5	0-15	50-80	45-75	30-60	20-50	15-30	NP-10
	17-30	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-2, A-1, A-4	0-5	10-30	40-65	35-60	25-50	15-40	10-20	NP-10
	30-41	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-5	10-30	35-60	30-55	20-40	10-30	10-20	NP-10
	41-60	Very gravelly loamy coarse sand, very gravelly loamy sand	GM, GP-GM	A-1	0-5	10-25	30-45	25-40	10-30	5-20	5-15	NP-5
Chumstick, moist	0-5	Very stony ashy sandy loam	SC-SM	A-1, A-2	25-35	5-30	70-85	65-80	40-55	20-30	15-30	NP-10
	5-15	Very stony ashy sandy loam, extremely stony ashy sandy loam, very cobbly ashy sandy loam	SC-SM, GC-GM	A-1, A-2	15-45	15-30	60-85	55-80	35-55	15-30	15-25	NP-10
	15-19	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
337: Lithic Humicryepts, forested, udic	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Very stony ashy fine sandy loam	SM, GM	A-2	15-35	15-25	60-80	50-75	35-65	25-35	20-40	NP-5
	5-11	Very stony ashy fine sandy loam, ashy fine sandy loam, extremely cobbly ashy fine sandy loam, gravelly ashy fine sandy loam	SM	A-2	0-35	5-45	65-95	55-90	35-70	25-35	20-40	NP-5
	11-20	Extremely stony sandy loam, gravelly sandy loam, very cobbly sandy loam	SC-SM	A-1, A-2	0-45	0-35	60-80	35-70	20-50	15-25	15-25	NP-10
	20-30	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
337: Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
338: Lithic Haploxerepts, range-----	0-3	Cobbly ashy sandy loam	ML	A-4	0-5	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	3-12	Cobbly ashy sandy loam, very gravelly ashy sandy loam, stony ashy loam	ML	A-4	0-15	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	12-18	Very gravelly sandy loam, gravelly sandy loam, very cobbly sandy loam	SM, GM	A-2, A-1, A-4	0-5	5-30	45-100	35-90	25-70	15-50	15-25	NP-5
	18-22	Unweathered bedrock			---	---	---	---	---	---	---	---
Cashmont, extremely stony surface-----	0-3	Sandy loam	SC-SM, SM	A-2	0	0	85-100	80-100	55-65	25-35	15-25	2-6
	3-8	Sandy loam, fine sandy loam	SC-SM, SM	A-2	0	0	85-100	80-100	55-65	25-35	15-25	2-6
	8-23	Gravelly sandy loam, gravelly fine sandy loam, gravelly coarse sandy loam	SC-SM, SM	A-2, A-1, A-4	0	0	70-80	65-75	40-60	20-40	15-25	2-6
	23-60	Gravelly sandy loam, gravelly fine sandy loam, gravelly coarse sandy loam	SC-SM, SM	A-1, A-2	0	0-5	55-70	50-65	35-50	15-30	15-25	2-6
339: Lithic Haploxerepts, range-----	0-3	Cobbly ashy sandy loam	ML	A-4	0-5	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	3-12	Cobbly ashy sandy loam, very gravelly ashy sandy loam, stony ashy loam	ML	A-4	0-15	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	12-18	Very gravelly sandy loam, gravelly sandy loam, very cobbly sandy loam	SM, GM	A-2, A-1, A-4	0-5	5-30	45-100	35-90	25-70	15-50	15-25	NP-5
	18-22	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
339: Conconully, extremely stony surface-----	0-2	Gravelly ashy loam	SC-SM	A-2, A-4	0-5	0-15	60-80	60-75	40-55	25-40	15-30	NP-10
	2-13	Gravelly ashy loam, ashy fine sandy loam, ashy loam	SM	A-1, A-2	0	0-15	55-70	45-65	35-45	15-30	20-35	NP-5
	13-21	Gravelly fine sandy loam, gravelly sandy loam, fine sandy loam	GM	A-1, A-2	0	0-15	55-70	50-65	35-45	15-30	15-25	NP-5
	21-33	Gravelly sandy loam, gravelly fine sandy loam, fine sandy loam	GM	A-1, A-2	0	0-15	55-70	50-65	30-40	15-30	15-25	NP-5
	33-60	Gravelly sandy loam, gravelly coarse sandy loam, very gravelly fine sandy loam	GM	A-1	0	5-25	50-65	45-60	30-40	15-25	15-20	NP-5
340: Lithic Haploxerepts, range-----	0-3	Cobbly ashy sandy loam	ML	A-4	0-5	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	3-12	Cobbly ashy sandy loam, very gravelly ashy sandy loam, stony ashy loam	ML	A-4	0-15	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	12-18	Very gravelly sandy loam, gravelly sandy loam, very cobbly sandy loam	SM, GM	A-2, A-1, A-4	0-5	5-30	45-100	35-90	25-70	15-50	15-25	NP-5
	18-22	Unweathered bedrock			---	---	---	---	---	---	---	---
Donavan, extremely stony surface-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Ashy loam	ML, SM	A-4	0	0-5	90-100	85-100	50-80	40-75	20-35	NP-10
	7-11	Gravelly ashy loam, gravelly ashy sandy loam, ashy loam	ML, SM	A-4	0	0-5	70-95	65-90	40-75	35-65	20-35	NP-10
	11-16	Gravelly ashy sandy loam, ashy loam, gravelly ashy loam	CL-ML, SC-SM	A-4	0	0-5	70-95	65-90	40-75	35-65	15-30	NP-10
	16-27	Gravelly sandy loam	SC-SM, SM	A-2, A-4, A-1	0	0-5	70-90	65-85	35-70	25-45	15-25	NP-10
	27-34	Gravelly sandy loam	SC-SM, SM	A-2, A-1, A-4	0	0-5	70-90	65-85	35-70	25-45	15-25	NP-10
	34-60	Gravelly sandy loam	SC-SM, SM	A-2, A-4	0	0-5	70-90	65-85	35-70	25-45	15-25	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
340: Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
341: Lithic Haploxerepts, range-----	0-3	Cobbly ashy sandy loam	ML	A-4	0-5	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	3-12	Cobbly ashy sandy loam, very gravelly ashy sandy loam, stony ashy loam	ML	A-4	0-15	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	12-18	Very gravelly sandy loam, gravelly sandy loam, very cobbly sandy loam	SM, GM	A-2, A-1, A-4	0-5	5-30	45-100	35-90	25-70	15-50	15-25	NP-5
	18-22	Unweathered bedrock			---	---	---	---	---	---	---	---
Kartar, extremely stony surface-----	0-6	Cobbly ashy sandy loam	SC-SM, SM	A-2	0	15-25	90-100	85-95	55-65	25-35	15-30	NP-10
	6-16	Cobbly ashy sandy loam, ashy fine sandy loam	SC-SM, SM	A-2	0	0-15	90-100	85-95	55-65	25-35	15-30	NP-10
	16-28	Gravelly ashy sandy loam, gravelly ashy fine sandy loam, cobbly ashy sandy loam	SC-SM, SM	A-1, A-2	0	0-15	60-85	55-80	35-50	20-30	15-30	NP-10
	28-50	Very gravelly loamy sand, gravelly sand, cobbly loamy sand	GP-GM, GP-GC	A-1	0	0-25	40-65	35-60	20-30	0-10	0-10	NP-5
	50-60	Very gravelly sand, extremely gravelly sand, very gravelly coarse sand, extremely gravelly coarse sand, gravelly fine sand	GP-GM, GP-GC	A-1	0	0-25	30-60	25-55	15-25	0-10	0-10	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
342: Lithic Haploxerepts, range-----	0-3	Cobbly ashly sandy loam	ML	A-4	0-5	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	3-12	Cobbly ashly sandy loam, very gravelly ashly sandy loam, stony ashly loam	ML	A-4	0-15	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	12-18	Very gravelly sandy loam, gravelly sandy loam, very cobbly sandy loam	SM, GM	A-2, A-1, A-4	0-5	5-30	45-100	35-90	25-70	15-50	15-25	NP-5
	18-22	Unweathered bedrock			---	---	---	---	---	---	---	---
Molson, extremely stony surface-----	0-8	Ashly silt loam	ML	A-4	0	0-5	90-100	80-90	70-85	50-75	30-40	NP-5
	8-18	Ashly silt loam	ML	A-4	0	0-5	90-100	80-90	70-85	50-75	30-40	NP-5
	18-42	Gravelly silt loam, gravelly loam, loam	SC-SM, CL-ML, GC-GM, GM, ML, SM	A-4, A-2	0	0-5	70-90	60-80	40-75	30-60	15-25	NP-10
	42-50	Gravelly silt loam, gravelly loam	GC-GM, SM, SC-SM, GM	A-4, A-2	0	0-5	55-75	50-70	40-60	30-50	15-25	NP-10
	50-60	Gravelly silt loam, gravelly loam	GC-GM, SC-SM, SM, GM	A-4, A-2	0	0-5	55-75	50-70	40-60	30-50	15-25	NP-10
343: Lithic Haploxerepts, range-----	0-3	Cobbly ashly sandy loam	ML	A-4	0-5	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	3-12	Cobbly ashly sandy loam, very gravelly ashly sandy loam, stony ashly loam	ML	A-4	0-15	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	12-18	Very gravelly sandy loam, gravelly sandy loam, very cobbly sandy loam	SM, GM	A-2, A-1, A-4	0-5	5-30	45-100	35-90	25-70	15-50	15-25	NP-5
	18-22	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
343: Newbon, extremely stony surface-----	0-2	Gravelly loam	SC-SM	A-4	0	0	70-80	65-75	60-70	40-50	20-30	NP-10
	2-13	Gravelly loam	SC-SM	A-4	0	0	70-80	65-75	60-70	40-50	20-30	NP-10
	13-25	Gravelly loam, gravelly silt loam	GC-GM	A-4	0	0-5	55-65	50-60	45-55	35-45	20-30	NP-10
	25-60	Very gravelly loam, gravelly loam, gravelly silt loam	GC-GM	A-2, A-4	0	0-5	45-75	40-60	35-45	30-40	20-30	NP-10
344: Lithic Haploxerepts, range-----	0-3	Cobbly ashy sandy loam	ML	A-4	0-5	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	3-12	Cobbly ashy sandy loam, very gravelly ashy sandy loam, stony ashy loam	ML	A-4	0-15	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	12-18	Very gravelly sandy loam, gravelly sandy loam, very cobbly sandy loam	SM, GM	A-2, A-1, A-4	0-5	5-30	45-100	35-90	25-70	15-50	15-25	NP-5
	18-22	Unweathered bedrock			---	---	---	---	---	---	---	---
Nighthawk, extremely stony surface-----	0-4	Gravelly loam	CL, CL-ML	A-4, A-6	0-5	0-5	80-90	65-75	55-65	50-65	25-35	5-15
	4-8	Gravelly loam, gravelly silt loam	CL, CL-ML	A-4, A-6	0-5	0-5	80-90	65-75	55-70	50-65	25-35	5-15
	8-13	Gravelly loam, gravelly silt loam, very gravelly silt loam, very gravelly loam	GC, GC-GM, CL	A-4, A-6, A-2	0-5	0-15	60-85	40-70	35-65	35-55	20-30	5-15
	13-22	Very gravelly loam, gravelly silt loam, very gravelly silt loam, gravelly loam	GC, CL, GC-GM	A-2, A-1, A-6	0-5	0-15	50-80	30-65	30-60	20-55	20-30	5-15
	22-32	Very gravelly loam, very gravelly coarse sandy loam	GC-GM, GM, GC	A-1, A-2	0-5	0-5	20-30	15-25	15-25	15-25	15-25	NP-10
	32-60	Very gravelly coarse sandy loam, very gravelly loam	GC-GM, GM, GC	A-1, A-2	0-5	0-5	20-30	15-25	15-25	15-25	15-25	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
345: Lithic Haploxerepts, range-----	0-3	Cobbly ashy sandy loam	ML	A-4	0-5	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	3-12	Cobbly ashy sandy loam, very gravelly ashy sandy loam, stony ashy loam	ML	A-4	0-15	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	12-18	Very gravelly sandy loam, gravelly sandy loam, very cobbly sandy loam	SM, GM	A-2, A-1, A-4	0-5	5-30	45-100	35-90	25-70	15-50	15-25	NP-5
	18-22	Unweathered bedrock			---	---	---	---	---	---	---	---
345: Republic, extremely stony surface-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Ashy loam	ML, SM	A-4	0	0	85-100	75-100	60-85	45-70	20-35	NP-10
	7-16	Ashy sandy loam	SC-SM, SM, ML	A-4, A-2	0	0	80-100	75-100	50-80	30-65	15-30	NP-10
	16-29	Sandy loam, loam, gravelly sandy loam	SC-SM, ML, SM	A-4, A-2	0	0-15	75-95	65-95	45-75	25-65	10-20	NP-10
	29-36	Gravelly sandy loam, sandy loam, loam	SC-SM, GM, ML, SM, GC-GM	A-4, A-2	0	0-15	65-95	60-90	35-75	25-55	10-20	NP-10
36-60	Very gravelly sandy loam, sandy loam	SC-SM, GM, SM, GC-GM	A-2, A-1, A-4	0	0-15	50-85	45-80	30-70	15-45	10-20	NP-10	
346: Lithic Haploxerepts, range, moist---	0-3	Cobbly ashy sandy loam	ML	A-4	0-5	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	3-12	Cobbly ashy sandy loam, very gravelly ashy sandy loam, stony ashy loam	ML	A-4	0-15	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	12-18	Very gravelly sandy loam, gravelly sandy loam, very cobbly sandy loam	SM, GM	A-2, A-1, A-4	0-5	5-30	45-100	35-90	25-70	15-50	15-25	NP-5
	18-22	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
347: Lithic Haploxerepts, range-----	0-3	Cobbly ashy sandy loam	ML	A-4	0-5	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	3-12	Cobbly ashy sandy loam, very gravelly ashy sandy loam, stony ashy loam	ML	A-4	0-15	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	12-18	Very gravelly sandy loam, gravelly sandy loam, very cobbly sandy loam	SM, GM	A-2, A-1, A-4	0-5	5-30	45-100	35-90	25-70	15-50	15-25	NP-5
	18-22	Unweathered bedrock			---	---	---	---	---	---	---	---
Vallan-----	0-2	Ashy loam	ML	A-4	0	0	85-100	75-100	70-80	50-60	20-35	NP-10
	2-10	Loam, clay loam, gravelly loam	CL, CL-ML	A-4, A-6	0	0-5	75-100	65-100	60-80	55-70	25-40	5-15
	10-16	Gravelly loam, loam, clay loam	CL, CL-ML	A-4, A-6	0	0-5	75-95	65-95	60-80	55-70	25-40	5-15
	16-20	Unweathered bedrock			---	---	---	---	---	---	---	---
348: Lithic Haploxerepts, forested-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Cobbly ashy sandy loam	ML	A-4	0-5	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	4-13	Cobbly ashy sandy loam, very gravelly ashy sandy loam, stony ashy loam	ML	A-4	0-15	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	13-19	Very gravelly sandy loam, gravelly sandy loam, very cobbly sandy loam	SM, GM	A-2, A-1, A-4	0-5	5-30	45-100	35-90	25-70	15-50	15-25	NP-5
	19-23	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
348: Wilma, dry-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Gravelly ashy fine sandy loam	ML, SM	A-4	0-5	0-5	80-95	70-85	60-75	45-60	25-35	NP-5
	7-13	Gravelly ashy fine sandy loam	ML, SM	A-4	0-5	0-5	75-95	65-85	55-70	40-60	25-35	NP-5
	13-18	Very gravelly fine sandy loam, very gravelly sandy loam, very cobbly sandy loam, very cobbly fine sandy loam	GM, SM	A-2, A-1, A-4	0-10	15-30	45-65	40-60	30-55	15-45	10-20	NP-5
	18-29	Extremely gravelly coarse sandy loam, very gravelly sandy loam, very cobbly coarse sandy loam	GM, GP-GM	A-1	0-10	15-30	35-50	30-45	15-35	5-25	10-20	NP-5
	29-33	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
349: Longort-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-6	Gravelly ashy sandy loam	SC-SM, ML, GC-GM	A-4, A-2	0	0-5	65-80	60-75	40-60	30-55	15-30	NP-10
	6-18	Gravelly ashy sandy loam, very gravelly ashy sandy loam	SC-SM, GC-GM	A-2, A-4	0	0-25	60-80	55-75	35-55	25-40	15-30	NP-10
	18-38	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0	10-30	45-65	40-60	25-40	15-30	15-25	NP-10
	38-48	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0	10-30	45-65	40-60	25-40	15-30	15-25	NP-10
	48-60	Very cobbly sandy loam, very gravelly sandy loam	GC-GM	A-1, A-2	0	15-40	40-50	35-45	25-40	10-25	15-25	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
350: Longort-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-6	Gravelly ashy sandy loam	SC-SM, ML, GC-GM	A-4, A-2	0	0-5	65-80	60-75	40-60	30-55	15-30	NP-10
	6-18	Gravelly ashy sandy loam, very gravelly ashy sandy loam	SC-SM, GC-GM	A-2, A-4	0	0-25	60-80	55-75	35-55	25-40	15-30	NP-10
	18-38	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0	10-30	45-65	40-60	25-40	15-30	15-25	NP-10
	38-48	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0	10-30	45-65	40-60	25-40	15-30	15-25	NP-10
	48-60	Very cobbly sandy loam, very gravelly sandy loam	GC-GM	A-1, A-2	0	15-40	40-50	35-45	25-40	10-25	15-25	NP-10
Santop-----	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-7	Gravelly ashy sandy loam	SC-SM, GC-GM	A-2, A-4	0	0-5	65-80	60-75	40-60	25-40	15-30	NP-10
	7-17	Very gravelly ashy sandy loam, very cobbly ashy sandy loam	GC-GM, SC-SM	A-1, A-2	0-5	5-25	45-65	40-60	30-45	15-35	15-30	NP-10
	17-36	Very stony sandy loam, very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	5-25	40-65	35-60	20-40	10-30	15-25	NP-10
	36-40	Unweathered bedrock			---	---	---	---	---	---	---	---
351: Longswamp, warm	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Ashy loam	ML	A-4	0	0	85-100	80-100	75-85	50-60	20-35	NP-5
	7-13	Ashy loam	SM	A-4	0	0	80-100	75-95	65-75	40-50	20-35	NP-5
	13-16	Gravelly ashy sandy loam, gravelly ashy loam	SM	A-1	0-5	0-15	65-85	60-80	40-50	15-25	15-25	NP-5
	16-26	Very gravelly sandy loam, gravelly loam	GM, SM	A-1, A-2	0-5	0-25	40-75	35-70	30-45	15-35	15-25	NP-5
	26-37	Very gravelly sandy loam, gravelly loam	GM, SM	A-1	0-15	0-25	40-60	35-55	25-35	10-20	15-25	NP-5
	37-60	Gravelly loam, very cobbly loam	GM	A-2	0-15	0-30	50-70	40-60	30-50	20-35	15-30	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
352: Louploup-----	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-8	Ashy fine sandy loam	ML, SM	A-4	0	0	90-100	85-100	60-80	40-65	20-40	NP-5
	8-23	Ashy fine sandy loam	ML, SM	A-4	0	0	90-100	85-100	60-80	40-65	20-40	NP-5
	23-43	Gravelly sandy loam, sandy loam	SC-SM	A-2, A-1	0	0-5	75-90	70-85	40-60	20-35	10-20	NP-10
	43-60	Gravelly sandy loam, gravelly coarse sandy loam	SC-SM, GC-GM	A-1, A-2	0-5	5-15	60-80	55-75	30-55	15-30	10-20	NP-10
Stepstone-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Ashy fine sandy loam	CL-ML	A-4	0	0	90-100	85-100	70-90	50-75	15-30	NP-10
	2-6	Ashy fine sandy loam, gravelly ash fine sandy loam	CL-ML	A-4	0	0-15	90-100	70-100	70-85	50-75	15-30	NP-10
	6-19	Ashy fine sandy loam, gravelly ash fine sandy loam	SC-SM, ML	A-4, A-2	0	0-15	90-100	70-100	70-85	30-60	15-30	NP-10
	19-23	Very gravelly sandy loam, gravelly sandy loam	GC-GM, SC-SM	A-2, A-1, A-4	0	0-25	55-70	50-65	35-55	20-45	10-20	NP-10
	23-39	Very gravelly loamy sand, extremely gravelly loamy sand, very cobbly loamy sand	GC-GM, SC-SM	A-1, A-2	0-15	10-30	45-60	40-55	20-35	10-25	10-20	NP-10
	39-60	Very gravelly loamy sand	GC-GM	A-1, A-2	0-15	10-30	35-50	30-45	15-30	5-20	10-20	NP-10
353: Louploup, dry---	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-8	Ashy fine sandy loam	ML, SM	A-4	0	0	90-100	85-100	60-80	40-65	20-40	NP-5
	8-23	Ashy fine sandy loam	ML, SM	A-4	0	0	90-100	85-100	60-80	40-65	20-40	NP-5
	23-43	Gravelly sandy loam, sandy loam	SC-SM	A-2, A-1	0	0-5	75-90	70-85	40-60	20-35	10-20	NP-10
	43-60	Gravelly sandy loam, gravelly coarse sandy loam	SC-SM, GC-GM	A-1, A-2	0-5	5-15	60-80	55-75	30-55	15-30	10-20	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
353: Stepstone, dry--	In											
	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Ashy fine sandy loam	CL-ML	A-4	0	0	90-100	85-100	70-90	50-75	15-30	NP-10
	2-6	Ashy fine sandy loam, gravelly ash fine sandy loam	CL-ML	A-4	0	0-15	90-100	70-100	70-85	50-75	15-30	NP-10
	6-19	Ashy fine sandy loam, gravelly ash fine sandy loam	SC-SM, ML	A-4, A-2	0	0-15	90-100	70-100	70-85	30-60	15-30	NP-10
	19-23	Very gravelly sandy loam, gravelly sandy loam	GC-GM, SC-SM	A-2, A-1, A-4	0	0-25	55-70	50-65	35-55	20-45	10-20	NP-10
	23-39	Very gravelly loamy sand, extremely gravelly loamy sand, very cobbly loamy sand	GC-GM, SC-SM	A-1, A-2	0-15	10-30	45-60	40-55	20-35	10-25	10-20	NP-10
	39-60	Very gravelly loamy sand	GC-GM	A-1, A-2	0-15	10-30	35-50	30-45	15-30	5-20	10-20	NP-10
354: Manley-----	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-3	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	3-5	Ashy fine sandy loam	ML	A-4	0	0	100	100	75-90	50-80	20-40	NP-5
	5-16	Ashy fine sandy loam	ML	A-4	0	0	90-100	85-100	75-90	50-80	20-40	NP-5
	16-24	Ashy fine sandy loam, gravelly ash fine sandy loam	ML, SM	A-4	0	0	85-100	70-100	65-90	40-70	20-40	NP-5
	24-37	Very cobbly sandy loam, very gravelly sandy loam	GC-GM, SC-SM	A-1, A-2	0-10	10-35	35-75	25-65	15-50	10-35	10-20	NP-10
	37-60	Very gravelly sandy loam, very cobbly sandy loam, very gravelly loamy sand	GC-GM, SC-SM	A-1	0-10	10-35	35-75	25-65	10-40	5-25	10-20	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
355: Manley-----	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-3	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	3-5	Ashy fine sandy loam	ML	A-4	0	0	100	100	75-90	50-80	20-40	NP-5
	5-16	Ashy fine sandy loam	ML	A-4	0	0	90-100	85-100	75-90	50-80	20-40	NP-5
	16-24	Ashy fine sandy loam, gravelly ashy fine sandy loam	ML, SM	A-4	0	0	85-100	70-100	65-90	40-70	20-40	NP-5
	24-37	Very cobbly sandy loam, very gravelly sandy loam	GC-GM, SC-SM	A-1, A-2	0-10	10-35	35-75	25-65	15-50	10-35	10-20	NP-10
	37-60	Very gravelly sandy loam, very cobbly sandy loam, very gravelly loamy sand	GC-GM, SC-SM	A-1	0-10	10-35	35-75	25-65	10-40	5-25	10-20	NP-10
356: Manley, warm----	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-3	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	3-5	Ashy silt loam	ML	A-4	0	0	100	100	75-90	50-80	20-40	NP-5
	5-16	Ashy fine sandy loam	ML	A-4	0	0	90-100	85-100	75-90	50-80	20-40	NP-5
	16-24	Ashy fine sandy loam, gravelly ashy fine sandy loam	ML, SM	A-4	0	0	85-100	70-100	65-90	40-70	20-40	NP-5
	24-37	Very cobbly sandy loam, very gravelly sandy loam	GC-GM, SC-SM	A-1, A-2	0-10	10-35	35-75	25-65	15-50	10-35	10-20	NP-10
	37-60	Very gravelly sandy loam, very cobbly sandy loam, very gravelly loamy sand	GC-GM, SC-SM	A-1	0-10	10-35	35-75	25-65	10-40	5-25	10-20	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
356: Devore, warm----	0-3	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	3-4	Stony ashy sandy loam	ML	A-4	5-25	0-5	95-100	90-100	70-90	60-80	25-40	NP-5
	4-7	Very stony ashy fine sandy loam, very stony ashy sandy loam	SM, ML, GM	A-4, A-2	25-35	10-25	70-85	65-80	45-70	30-55	20-40	NP-5
	7-14	Very stony ashy fine sandy loam, very stony ashy sandy loam	SM, ML, GM	A-4, A-2	25-35	15-35	70-85	65-80	45-70	30-55	20-40	NP-5
	14-26	Extremely stony coarse sandy loam, very stony sandy loam, very cobbly sandy loam	SC-SM, GC-GM	A-1, A-2	25-45	30-50	45-95	40-70	20-45	10-30	10-20	NP-10
	26-35	Extremely stony coarse sandy loam, very stony sandy loam, very cobbly sandy loam	SC-SM, GC-GM	A-1, A-2	25-45	30-50	45-95	40-70	20-45	10-30	10-20	NP-10
	35-39	Unweathered bedrock			---	---	---	---	---	---	---	---
357: Manley, warm----	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-3	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	3-5	Ashy silt loam	ML	A-4	0	0	100	100	75-90	50-80	20-40	NP-5
	5-16	Ashy fine sandy loam	ML	A-4	0	0	90-100	85-100	75-90	50-80	20-40	NP-5
	16-24	Ashy fine sandy loam, gravelly ashy fine sandy loam	ML, SM	A-4	0	0	85-100	70-100	65-90	40-70	20-40	NP-5
	24-37	Very cobbly sandy loam, very gravelly sandy loam	GC-GM, SC-SM	A-1, A-2	0-10	10-35	35-75	25-65	15-50	10-35	10-20	NP-10
	37-60	Very gravelly sandy loam, very cobbly sandy loam, very gravelly loamy sand	GC-GM, SC-SM	A-1	0-10	10-35	35-75	25-65	10-40	5-25	10-20	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
357: Devore, warm----	0-3	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	3-4	Stony ash sandy loam	ML	A-4	5-25	0-5	95-100	90-100	70-90	60-80	25-40	NP-5
	4-7	Very stony ash fine sandy loam, very stony ash sandy loam	SM, ML, GM	A-4, A-2	25-35	10-25	70-85	65-80	45-70	30-55	20-40	NP-5
	7-14	Very stony ash fine sandy loam, very stony ash sandy loam	SM, ML, GM	A-4, A-2	25-35	15-35	70-85	65-80	45-70	30-55	20-40	NP-5
	14-26	Extremely stony coarse sandy loam, very stony sandy loam, very cobbly sandy loam	SC-SM, GC-GM	A-1, A-2	25-45	30-50	45-95	40-70	20-45	10-30	10-20	NP-10
	26-35	Extremely stony coarse sandy loam, very stony sandy loam, very cobbly sandy loam	SC-SM, GC-GM	A-1, A-2	25-45	30-50	45-95	40-70	20-45	10-30	10-20	NP-10
	35-39	Unweathered bedrock			---	---	---	---	---	---	---	---
358: Mansonia-----	0-4	Paragravelly ash fine sandy loam	SC-SM	A-4	0	0	100	100	70-80	40-50	15-30	NP-10
	4-10	Paragravelly ash fine sandy loam	SC-SM	A-4	0	0	100	100	70-80	40-50	15-30	NP-10
	10-20	Paragravelly ash sandy loam, paragravelly ash fine sandy loam	SC-SM	A-2, A-4	0	0	100	100	65-75	30-40	15-30	NP-10
	20-50	Paragravelly ash sandy loam, very paragravelly ash sandy loam	SC-SM	A-2, A-4	0	0-5	100	90-100	60-70	25-40	15-30	NP-10
	50-60	Unweathered bedrock			---	---	---	---	---	---	---	---
Swakane-----	0-4	Very stony ash sandy loam	SC-SM, GC-GM	A-2, A-1, A-4	25-45	0-25	55-85	45-80	35-55	20-40	10-20	NP-10
	4-11	Very cobbly ash sandy loam, very gravelly ash sandy loam	SC-SM, GC-GM	A-1, A-2	0-15	0-25	45-80	40-75	30-55	15-30	10-20	NP-10
	11-17	Very gravelly sandy loam, very cobbly sandy loam, extremely gravelly sandy loam	GC-GM, SC-SM	A-1	0-15	15-30	35-70	30-65	20-40	5-25	10-20	NP-10
	17-21	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
359: Merkel-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-6	Ashy sandy loam	SM	A-2	0	0-5	95-100	80-95	50-60	25-35	20-30	NP-5
	6-12	Gravelly ashy sandy loam, ashy sandy loam, ashy fine sandy loam	SM	A-2, A-1	0	0-15	70-90	60-80	40-55	20-35	20-30	NP-5
	12-29	Gravelly ashy sandy loam, ashy sandy loam, ashy fine sandy loam	SM	A-1, A-2	0-5	0-15	60-80	50-70	30-50	10-30	20-30	NP-5
	29-35	Very gravelly sandy loam, very cobbly sandy loam	SM	A-1, A-2	0-5	15-30	50-75	40-60	35-45	15-30	20-30	NP-5
	35-60	Very gravelly coarse sandy loam, very cobbly sandy loam, very cobbly loamy coarse sand	GP-GM, GM, SM, SP-SM	A-1	0-5	15-30	50-65	40-60	20-35	5-15	0-14	NP
360: Merkel-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-6	Ashy sandy loam	SM	A-2	0	0-5	95-100	80-95	50-60	25-35	20-30	NP-5
	6-12	Gravelly ashy sandy loam, ashy sandy loam, ashy fine sandy loam	SM	A-2, A-1	0	0-15	70-90	60-80	40-55	20-35	20-30	NP-5
	12-29	Gravelly ashy sandy loam, ashy sandy loam, ashy fine sandy loam	SM	A-1, A-2	0-5	0-15	60-80	50-70	30-50	10-30	20-30	NP-5
	29-35	Very gravelly sandy loam, very cobbly sandy loam	SM	A-1, A-2	0-5	15-30	50-75	40-60	35-45	15-30	20-30	NP-5
	35-60	Very gravelly coarse sandy loam, very cobbly sandy loam, very cobbly loamy coarse sand	GP-GM, GM, SM, SP-SM	A-1	0-5	15-30	50-65	40-60	20-35	5-15	0-14	NP

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
361: Merkel-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-6	Cobbly ashy sandy loam	SM	A-1	0	15-30	75-85	70-80	40-55	20-30	20-30	NP-5
	6-12	Gravelly ashy sandy loam, ashy sandy loam, ashy fine sandy loam	SM	A-2, A-1	0	0-15	70-90	60-80	40-55	20-35	20-30	NP-5
	12-29	Gravelly ashy sandy loam, ashy sandy loam, ashy fine sandy loam	SM	A-1, A-2	0-5	0-15	60-80	50-70	30-50	10-30	20-30	NP-5
	29-35	Very gravelly sandy loam, very cobbly sandy loam	SM	A-1, A-2	0-5	15-30	50-75	40-60	35-45	15-30	20-30	NP-5
	35-60	Very gravelly coarse sandy loam, very cobbly sandy loam, very cobbly loamy coarse sand	GP-GM, GM, SM, SP-SM	A-1	0-5	15-30	50-65	40-60	20-35	5-15	0-14	NP
362: Merkel-----	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-3	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	3-4	Stony ashy silt loam	ML	A-4	10-25	0-5	70-90	65-85	60-70	50-70	20-35	NP-10
	4-7	Very stony ashy fine sandy loam	GC-GM, GM	A-1, A-2	25-35	10-25	50-65	45-60	40-55	20-35	15-30	NP-10
	7-14	Very stony ashy fine sandy loam	GC-GM, GM	A-1, A-2	25-35	15-40	45-65	40-60	35-50	15-30	15-30	NP-10
	14-26	Extremely stony coarse sandy loam, very stony sandy loam, very cobbly sandy loam	GP-GM, GW-GM, GP-GC	A-1	25-35	30-50	30-50	25-45	20-35	5-15	0-10	NP-5
	26-35	Extremely stony coarse sandy loam, very stony sandy loam, very cobbly sandy loam	GP-GM, GP-GC, GW-GM	A-1	25-35	30-50	30-50	25-45	15-30	5-15	0-10	NP-5
	35-39	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
362: Lithic Haploxerepts, forested-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Cobbly ashy sandy loam	ML	A-4	0-5	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	4-13	Cobbly ashy sandy loam, very gravelly ashy sandy loam, stony ashy loam	ML	A-4	0-15	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	13-19	Very gravelly sandy loam, gravelly sandy loam, very cobbly sandy loam	SM, GM	A-2, A-1, A-4	0-5	5-30	45-100	35-90	25-70	15-50	15-25	NP-5
	19-23	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
363: Merkel-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-6	Ashy sandy loam	SM	A-2	0	0-5	95-100	80-95	50-60	25-35	20-30	NP-5
	6-12	Gravelly ashy sandy loam, ashy sandy loam, ashy fine sandy loam	SM	A-2, A-1	0	0-15	70-90	60-80	40-55	20-35	20-30	NP-5
	12-29	Gravelly ashy sandy loam, ashy sandy loam, ashy fine sandy loam	SM	A-1, A-2	0-5	0-15	60-80	50-70	30-50	10-30	20-30	NP-5
	29-35	Very gravelly sandy loam, very cobbly sandy loam	SM	A-1, A-2	0-5	15-30	50-75	40-60	35-45	15-30	20-30	NP-5
	35-60	Very gravelly coarse sandy loam, very cobbly sandy loam, very cobbly loamy coarse sand	GP-GM, GM, SM, SP-SM	A-1	0-5	15-30	50-65	40-60	20-35	5-15	0-14	NP

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
363: Wilma-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Gravelly ash fine sandy loam	ML, SM	A-4	0-5	0-5	80-95	70-85	60-75	45-60	25-35	NP-5
	7-13	Gravelly ash fine sandy loam	ML, SM	A-4	0-5	0-5	75-95	65-85	55-70	40-60	25-35	NP-5
	13-18	Very gravelly fine sandy loam, very gravelly sandy loam, very cobbly sandy loam, very cobbly fine sandy loam	GM, SM	A-2, A-1, A-4	0-10	15-30	45-65	40-60	30-55	15-45	10-20	NP-5
	18-29	Extremely gravelly coarse sandy loam, very gravelly sandy loam, very cobbly coarse sandy loam	GM, GP-GM	A-1	0-10	15-30	35-50	30-45	15-35	5-25	10-20	NP-5
	29-33	Unweathered bedrock			---	---	---	---	---	---	---	---
364: Midpeak-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Gravelly ash sandy loam	GC-GM, ML, SM	A-4	0	0-5	65-80	60-75	50-65	40-55	15-30	NP-10
	7-16	Very gravelly ash sandy loam	GC-GM, ML, SM	A-4	0	0-5	60-80	55-75	45-65	35-55	15-30	NP-10
	16-24	Very gravelly sandy loam, very cobbly sandy loam	GC-GM	A-2	0	5-30	50-60	45-55	35-45	25-35	15-25	NP-10
	24-37	Extremely gravelly sandy loam, very gravelly sandy loam, very cobbly sandy loam	GC-GM	A-1, A-2	0	5-30	35-60	30-55	20-45	10-35	15-25	NP-10
	37-41	Unweathered bedrock			---	---	---	---	---	---	---	---
Johntom-----	0-3	Gravelly loam	SM	A-4	0	0	75-90	65-75	50-65	40-50	15-25	NP-5
	3-12	Very flaggy loam, very flaggy sandy loam	GM, SM	A-1	0-5	50-60	50-60	45-55	20-35	15-25	15-25	NP-5
	12-16	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
365: Mineral, dry----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Stony ash loam	GC-GM, SC-SM	A-4, A-2	10-15	10-15	55-80	50-75	40-60	30-45	15-30	NP-10
	7-13	Very gravelly ash loam, very stony ash sandy loam, very cobbly ash sandy loam	GC-GM, SC-SM	A-2, A-1, A-4	5-30	5-40	40-70	35-65	25-55	15-40	15-30	NP-10
	13-24	Very stony sandy loam, very cobbly sandy loam	SC-SM, GC-GM	A-1, A-2	5-30	15-40	55-75	45-65	20-55	10-35	15-25	NP-10
	24-28	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
366: Mineral, dry----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Stony ash loam	GC-GM, SC-SM	A-4, A-2	10-15	10-15	55-80	50-75	40-60	30-45	15-30	NP-10
	7-13	Very gravelly ash loam, very stony ash sandy loam, very cobbly ash sandy loam	GC-GM, SC-SM	A-2, A-1, A-4	5-30	5-40	40-70	35-65	25-55	15-40	15-30	NP-10
	13-24	Very stony sandy loam, very cobbly sandy loam	SC-SM, GC-GM	A-1, A-2	5-30	15-40	55-75	45-65	20-55	10-35	15-25	NP-10
	24-28	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
367: Mires-----	0-9	Ashy loam	ML	A-4	0	0	80-100	75-100	75-95	65-85	25-40	NP-5
	9-13	Ashy loam, ash silt loam	ML	A-4	0	0	80-100	75-100	75-95	40-70	25-40	NP-5
	13-21	Gravelly ash loam, cobbly ash sandy loam	SM	A-1	0	0-15	45-85	40-80	35-45	15-25	25-40	NP-5
	21-29	Gravelly loamy sand, very gravelly loamy sand, cobbly loamy sand	GP-GM	A-1	0	0-15	35-55	30-50	20-30	5-15	5-15	NP-5
	29-60	Extremely gravelly sand, very gravelly loamy sand, very gravelly sand	GP-GM	A-1	0	0-15	15-30	10-25	5-15	0-10	5-15	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
368: Mires-----	0-9	Gravelly ashy loam	GM	A-4	0	0	55-65	50-60	40-50	35-45	25-40	NP-5
	9-13	Gravelly ashy loam	GM	A-4	0	0	55-65	50-60	40-50	35-45	25-40	NP-5
	13-21	Gravelly ashy loam, cobbly ashy sandy loam	SM	A-1	0	0-15	45-85	40-80	35-45	15-25	25-40	NP-5
	21-29	Gravelly loamy sand, very gravelly loamy sand, cobbly loamy sand	GP-GM	A-1	0	0-15	35-55	30-50	20-30	5-15	5-15	NP-5
	29-60	Extremely gravelly sand, very gravelly loamy sand, very gravelly sand	GP-GM	A-1	0	0-15	15-30	10-25	5-15	0-10	5-15	NP-5
369: Mires-----	0-9	Gravelly ashy sandy loam	SM	A-1	0	0	60-80	55-75	35-45	15-25	25-40	NP-5
	9-13	Gravelly ashy loam	GM	A-4, A-2	0	0	60-80	55-75	45-55	30-45	25-40	NP-5
	13-21	Gravelly ashy loam, cobbly ashy sandy loam	SM	A-1	0	0-15	45-85	40-80	35-45	15-25	25-40	NP-5
	21-29	Gravelly loamy sand, very gravelly loamy sand, cobbly loamy sand	GP-GM	A-1	0	0-15	35-55	30-50	20-30	5-15	5-15	NP-5
	29-60	Extremely gravelly sand, very gravelly loamy sand, very gravelly sand	GP-GM	A-1	0	0-15	15-30	10-25	5-15	0-10	5-15	NP-5
370: Mires, stony surface-----	0-9	Ashy sandy loam	ML	A-4	0	0	80-100	75-100	75-95	65-85	25-40	NP-5
	9-13	Ashy loam, ashy silt loam	ML	A-4	0	0	80-100	75-100	75-95	40-70	25-40	NP-5
	13-21	Gravelly ashy loam, cobbly ashy sandy loam	SM	A-1	0	0-15	45-85	40-80	35-45	15-25	25-40	NP-5
	21-29	Gravelly loamy sand, very gravelly loamy sand, cobbly loamy sand	GP-GM	A-1	0	0-15	35-55	30-50	20-30	5-15	5-15	NP-5
	29-60	Extremely gravelly sand, very gravelly loamy sand, very gravelly sand	GP-GM	A-1	0	0-15	15-30	10-25	5-15	0-10	5-15	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
371: Mires, extremely stony surface--	In				Pct	Pct					Pct	
	0-9	Ashy sandy loam	ML	A-4	0	0	80-100	75-100	75-95	65-85	25-40	NP-5
	9-13	Ashy loam, ashy silt loam	ML	A-4	0	0	80-100	75-100	75-95	40-70	25-40	NP-5
	13-21	Gravelly ashy loam, cobble ashy sandy loam	SM	A-1	0	0-15	45-85	40-80	35-45	15-25	25-40	NP-5
	21-29	Gravelly loamy sand, very gravelly loamy sand, cobble loamy sand	GP-GM	A-1	0	0-15	35-55	30-50	20-30	5-15	5-15	NP-5
	29-60	Extremely gravelly sand, very gravelly loamy sand, very gravelly sand	GP-GM	A-1	0	0-15	15-30	10-25	5-15	0-10	5-15	NP-5
372: Mires-----	0-9	Ashy loam	ML	A-4	0	0	80-90	75-85	70-80	55-70	25-40	NP-5
	9-13	Ashy loam, ashy silt loam	ML	A-4	0	0	80-90	75-85	70-80	55-70	25-40	NP-5
	13-21	Gravelly ashy loam	SM	A-1	0	0	70-80	65-75	40-50	20-30	25-40	NP-5
	21-29	Gravelly loamy sand, very gravelly sand, cobble sand, very gravelly loamy sand	SP-SM	A-1	0	0-15	55-65	50-60	30-45	5-15	5-15	NP-5
	29-60	Very gravelly sand, extremely gravelly sand, very gravelly loamy sand	GP-GM	A-1	0	0-15	30-45	25-40	10-20	0-10	0-10	NP-5
Leiko-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Ashy sandy loam	SC-SM	A-2, A-1	0	0-5	80-90	75-85	45-65	25-35	15-30	NP-10
	2-9	Ashy sandy loam	SC-SM	A-2, A-1	0	0-5	80-90	75-85	45-60	25-35	15-30	NP-10
	9-30	Very gravelly sandy loam, very gravelly loamy coarse sand, very cobble loamy sand	GP-GM, GM, SM, SP-SM	A-1	0	0-25	35-60	30-55	15-30	5-15	0-10	NP-5
	30-60	Very gravelly sand, extremely gravelly sand, very cobble sand, extremely cobble loamy coarse sand	GW-GM	A-1	0-5	0-40	20-40	15-35	10-20	0-15	0-10	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
373: Mobu-----	0-2	Silt loam	CL-ML	A-4	0	0	100	100	100	90-100	15-25	2-6
	2-11	Silt loam	CL-ML	A-4	0	0	100	100	100	90-100	15-25	2-6
	11-15	Silt loam	CL-ML	A-4	0	0	100	100	100	90-100	15-25	2-6
	15-30	Silt loam, very fine sandy loam	CL-ML	A-4	0	0	100	100	100	90-100	15-25	2-6
	30-36	Stratified very fine sandy loam to silt loam to silty clay loam	CL	A-4	0	0	100	100	100	90-100	20-30	6-10
	36-60	Stratified very fine sandy loam to silt loam to silty clay loam	CL	A-4	0	0	100	100	100	90-100	20-30	6-10
374: Mobu-----	0-2	Silt loam	CL-ML	A-4	0	0	100	100	100	90-100	15-25	2-6
	2-11	Silt loam	CL-ML	A-4	0	0	100	100	100	90-100	15-25	2-6
	11-15	Silt loam	CL-ML	A-4	0	0	100	100	100	90-100	15-25	2-6
	15-30	Silt loam, very fine sandy loam	CL-ML	A-4	0	0	100	100	100	90-100	15-25	2-6
	30-36	Stratified very fine sandy loam to silt loam to silty clay loam	CL	A-4	0	0	100	100	100	90-100	20-30	6-10
	36-60	Stratified very fine sandy loam to silt loam to silty clay loam	CL	A-4	0	0	100	100	100	90-100	20-30	6-10
375: Mobu-----	0-2	Silt loam	CL-ML	A-4	0	0	100	100	100	90-100	15-25	2-6
	2-11	Silt loam	CL-ML	A-4	0	0	100	100	100	90-100	15-25	2-6
	11-15	Silt loam	CL-ML	A-4	0	0	100	100	100	90-100	15-25	2-6
	15-30	Silt loam, very fine sandy loam	CL-ML	A-4	0	0	100	100	100	90-100	15-25	2-6
	30-36	Stratified very fine sandy loam to silt loam to silty clay loam	CL	A-4	0	0	100	100	100	90-100	20-30	6-10
	36-60	Stratified very fine sandy loam to silt loam to silty clay loam	CL	A-4	0	0	100	100	100	90-100	20-30	6-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
376: Mobu, eroded----	In											
	0-1	Silt loam	CL-ML	A-4	0	0	100	100	100	90-100	15-25	2-6
	1-11	Silt loam	CL-ML	A-4	0	0	100	100	100	90-100	15-25	2-6
	11-15	Silt loam	CL-ML	A-4	0	0	100	100	100	90-100	15-25	2-6
	15-30	Silt loam, very fine sandy loam	CL-ML	A-4	0	0	100	100	100	90-100	15-25	2-6
	30-36	Stratified very fine sandy loam to silt loam to silty clay loam	CL	A-4	0	0	100	100	100	90-100	20-30	6-10
	36-60	Stratified very fine sandy loam to silt loam to silty clay loam	CL	A-4	0	0	100	100	100	90-100	20-30	6-10
377: Molson-----	0-8	Ashy silt loam	ML	A-4	0	0-5	90-100	80-90	70-85	50-75	30-40	NP-5
	8-18	Ashy silt loam	ML	A-4	0	0-5	90-100	80-90	70-85	50-75	30-40	NP-5
	18-42	Gravelly silt loam, gravelly loam, loam	SC-SM, CL-ML, GC-GM, GM, ML, SM	A-4, A-2	0	0-5	70-90	60-80	40-75	30-60	15-25	NP-10
	42-50	Gravelly silt loam, gravelly loam	GC-GM, SM, SC-SM, GM	A-4, A-2	0	0-5	55-75	50-70	40-60	30-50	15-25	NP-10
	50-60	Gravelly silt loam, gravelly loam	GC-GM, SM, SC-SM, GM	A-4, A-2	0	0-5	55-75	50-70	40-60	30-50	15-25	NP-10
378: Molson-----	0-8	Ashy silt loam	ML	A-4	0	0-5	90-100	80-90	70-85	50-75	30-40	NP-5
	8-18	Ashy silt loam	ML	A-4	0	0-5	90-100	80-90	70-85	50-75	30-40	NP-5
	18-42	Gravelly silt loam, gravelly loam, loam	SC-SM, CL-ML, GM, ML, GC-GM, SM	A-4, A-2	0	0-5	70-90	60-80	40-75	30-60	15-25	NP-10
	42-50	Gravelly silt loam, gravelly loam	GC-GM, SM, SC-SM, GM	A-4, A-2	0	0-5	55-75	50-70	40-60	30-50	15-25	NP-10
	50-60	Gravelly silt loam, gravelly loam	GC-GM, SC-SM, SM, GM	A-4, A-2	0	0-5	55-75	50-70	40-60	30-50	15-25	NP-10
379: Molson-----	0-8	Ashy silt loam	ML	A-4	0	0-5	90-100	80-90	70-85	50-75	30-40	NP-5
	8-18	Ashy silt loam	ML	A-4	0	0-5	90-100	80-90	70-85	50-75	30-40	NP-5
	18-42	Gravelly silt loam, gravelly loam, loam	SC-SM, CL-ML, GC-GM, GM, ML, SM	A-4, A-2	0	0-5	70-90	60-80	40-75	30-60	15-25	NP-10
	42-50	Gravelly silt loam, gravelly loam	GC-GM, SC-SM, SM, GM	A-4, A-2	0	0-5	55-75	50-70	40-60	30-50	15-25	NP-10
	50-60	Gravelly silt loam, gravelly loam	GC-GM, SC-SM, SM, GM	A-4, A-2	0	0-5	55-75	50-70	40-60	30-50	15-25	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
380: Molson-----	0-8	Ashy silt loam	ML	A-4	0	0-5	90-100	80-90	70-85	50-75	30-40	NP-5
	8-18	Ashy silt loam	ML	A-4	0	0-5	90-100	80-90	70-85	50-75	30-40	NP-5
	18-42	Gravelly silt loam, gravelly loam, loam	SC-SM, CI-ML, GM, ML, GC-GM, SM	A-4, A-2	0	0-5	70-90	60-80	40-75	30-60	15-25	NP-10
	42-50	Gravelly silt loam, gravelly loam	GC-GM, SM, SC-SM, GM	A-4, A-2	0	0-5	55-75	50-70	40-60	30-50	15-25	NP-10
	50-60	Gravelly silt loam, gravelly loam	GC-GM, SM, SC-SM, GM	A-4, A-2	0	0-5	55-75	50-70	40-60	30-50	15-25	NP-10
381: Molson, extremely stony surface-----	0-8	Ashy silt loam	ML	A-4	0	0-5	90-100	80-90	70-85	50-75	30-40	NP-5
	8-18	Ashy silt loam	ML	A-4	0	0-5	90-100	80-90	70-85	50-75	30-40	NP-5
	18-42	Gravelly silt loam, gravelly loam, loam	SC-SM, CI-ML, GC-GM, ML, GM, SM	A-4, A-2	0	0-5	70-90	60-80	40-75	30-60	15-25	NP-10
	42-50	Gravelly silt loam, gravelly loam	GC-GM, SM, SC-SM, GM	A-4, A-2	0	0-5	55-75	50-70	40-60	30-50	15-25	NP-10
	50-60	Gravelly silt loam, gravelly loam	GC-GM, SC-SM, SM, GM	A-4, A-2	0	0-5	55-75	50-70	40-60	30-50	15-25	NP-10
382: Molson, extremely stony surface-----	0-8	Ashy silt loam	ML	A-4	0	0-5	90-100	80-90	70-85	50-75	30-40	NP-5
	8-18	Ashy silt loam	ML	A-4	0	0-5	90-100	80-90	70-85	50-75	30-40	NP-5
	18-42	Gravelly silt loam, gravelly loam, loam	SC-SM, CI-ML, GC-GM, GM, ML, SM	A-4, A-2	0	0-5	70-90	60-80	40-75	30-60	15-25	NP-10
	42-50	Gravelly silt loam, gravelly loam	GC-GM, SM, SC-SM, GM	A-4, A-2	0	0-5	55-75	50-70	40-60	30-50	15-25	NP-10
	50-60	Gravelly silt loam, gravelly loam	GC-GM, SC-SM, SM, GM	A-4, A-2	0	0-5	55-75	50-70	40-60	30-50	15-25	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
383: Molson-----	0-8	Gravelly ashy silt loam	SM	A-4	0	0-5	90-100	55-75	45-65	35-50	30-40	NP-5
	8-18	Ashy silt loam	ML	A-4	0	0-5	90-100	80-90	70-85	50-75	30-40	NP-5
	18-42	Gravelly silt loam, gravelly loam, loam	SC-SM, GC-GM, GM, ML, CL-ML, SM	A-4, A-2	0	0-5	70-90	60-80	40-75	30-60	15-25	NP-10
	42-50	Gravelly silt loam, gravelly loam	GC-GM, SC-SM, SM, GM	A-4, A-2	0	0-5	55-75	50-70	40-60	30-50	15-25	NP-10
	50-60	Gravelly silt loam, gravelly loam	GC-GM, SC-SM, SM, GM	A-4, A-2	0	0-5	55-75	50-70	40-60	30-50	15-25	NP-10
384: Muckamuck-----	0-7	Silt loam	CL-ML	A-4	0	0	100	100	85-100	80-90	20-30	NP-10
	7-18	Silt loam, loam	CL-ML	A-4	0	0	100	100	85-100	70-80	20-30	NP-10
	18-28	Silty clay loam	CL	A-6, A-7	0	0	100	100	75-90	70-85	35-45	15-25
	28-60	Gravelly loam, silt loam	GC, CL	A-4, A-2, A-6	0	0-5	65-80	60-80	50-70	35-60	25-35	5-15
385: Myerscreek, cool	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Ashy silt loam	ML	A-4	0	0	95-100	90-100	70-90	55-80	20-40	NP-5
	2-5	Ashy fine sandy loam	ML	A-4	0-5	0-5	90-100	85-100	70-90	50-80	20-40	NP-5
	5-13	Ashy fine sandy loam, gravelly ashy fine sandy loam, stony ashy fine sandy loam, gravelly ashy sandy loam, stony ashy sandy loam	ML, SM	A-4	0-25	0-10	85-100	75-90	60-90	40-75	20-40	NP-5
	13-32	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-40	45-65	35-55	20-40	10-35	10-20	NP-10
	32-47	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-40	35-60	30-55	15-40	10-30	10-20	NP-10
	47-60	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-40	35-60	30-55	15-40	10-30	10-20	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
386: Myerscreek, moist-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Ashy silt loam	ML	A-4	0	0	95-100	90-100	70-90	55-80	20-40	NP-5
	2-5	Ashy fine sandy loam	ML	A-4	0-5	0-5	90-100	85-100	70-90	50-80	20-40	NP-5
	5-13	Ashy fine sandy loam, gravelly ashy fine sandy loam, stony ashy fine sandy loam, gravelly ashy sandy loam, stony ashy sandy loam	ML, SM	A-4	0-25	0-10	85-100	75-90	60-90	40-75	20-40	NP-5
	13-32	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-40	45-65	35-55	20-40	10-35	10-20	NP-10
	32-47	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-40	35-60	30-55	15-40	10-30	10-20	NP-10
	47-60	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-40	35-60	30-55	15-40	10-30	10-20	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
387: Myerscreek, warm	In											
	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Ashy silt loam	ML	A-4	0	0	95-100	90-100	70-90	55-80	20-40	NP-5
	2-5	Stony ashy fine sandy loam	SM	A-2	5-25	0-5	65-85	60-80	50-60	30-40	20-40	NP-5
	5-13	Ashy fine sandy loam, gravelly ashy fine sandy loam, stony ashy fine sandy loam, gravelly ashy sandy loam, stony ashy sandy loam	ML, SM	A-4	0-25	0-10	85-100	75-90	60-90	40-75	20-40	NP-5
	13-32	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-40	45-65	35-55	20-40	10-35	10-20	NP-10
	32-47	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-40	35-60	30-55	15-40	10-30	10-20	NP-10
	47-60	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-40	35-60	30-55	15-40	10-30	10-20	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
388: Myerscreek, warm	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Ashy silt loam	ML	A-4	0	0	95-100	90-100	70-90	55-80	20-40	NP-5
	2-5	Stony ashy fine sandy loam	SM	A-2	5-25	0-5	65-85	60-80	50-60	30-40	20-40	NP-5
	5-13	Ashy fine sandy loam, gravelly ashy fine sandy loam, stony ashy fine sandy loam, gravelly ashy sandy loam, stony ashy sandy loam	ML, SM	A-4	0-25	0-10	85-100	75-90	60-90	40-75	20-40	NP-5
	13-32	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-40	45-65	35-55	20-40	10-35	10-20	NP-10
	32-47	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-40	35-60	30-55	15-40	10-30	10-20	NP-10
	47-60	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-40	35-60	30-55	15-40	10-30	10-20	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
389: Myerscreek, cool	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Ashy silt loam	ML	A-4	0	0	95-100	90-100	70-90	55-80	20-40	NP-5
	2-5	Ashy fine sandy loam	ML	A-4	0-5	0-5	90-100	85-100	70-90	50-80	20-40	NP-5
	5-13	Ashy fine sandy loam, gravelly ashy fine sandy loam, stony ashy fine sandy loam, gravelly ashy sandy loam, stony ashy sandy loam	ML, SM	A-4	0-25	0-10	85-100	75-90	60-90	40-75	20-40	NP-5
	13-32	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-40	45-65	35-55	20-40	10-35	10-20	NP-10
	32-47	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-40	35-60	30-55	15-40	10-30	10-20	NP-10
	47-60	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-40	35-60	30-55	15-40	10-30	10-20	NP-10
Aquandic Dystrocryepts, udic, forested	0-3	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	3-9	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	65-90	55-75	20-40	NP-5
	9-14	Ashy sandy loam, gravelly ashy sandy loam, ashy fine sandy loam	ML, SM	A-4	0	0	65-95	60-90	50-80	40-65	20-40	NP-5
	14-31	Gravelly sandy loam, very gravelly sandy loam	GC-GM, SC-SM	A-2, A-1, A-4	0	0-10	45-80	40-75	30-60	20-50	15-25	NP-10
	31-37	Very gravelly sandy loam, gravelly sandy loam	GC-GM, SC-SM	A-2, A-1, A-4	0	5-30	40-80	35-75	20-60	15-45	15-25	NP-10
	37-60	Very gravelly sandy loam, very cobbly sandy loam, gravelly sandy loam	GC-GM, SC-SM	A-2, A-1, A-4	0	10-40	40-80	35-75	20-60	15-45	15-25	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
390: Myerscreek, cool	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Ashy silt loam	ML	A-4	0	0	95-100	90-100	70-90	55-80	20-40	NP-5
	2-5	Ashy fine sandy loam	ML	A-4	0-5	0-5	90-100	85-100	70-90	50-80	20-40	NP-5
	5-13	Ashy fine sandy loam, gravelly ashy fine sandy loam, stony ashy fine sandy loam, gravelly ashy sandy loam, stony ashy sandy loam	ML, SM	A-4	0-25	0-10	85-100	75-90	60-90	40-75	20-40	NP-5
	13-32	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-40	45-65	35-55	20-40	10-35	10-20	NP-10
	32-47	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-40	35-60	30-55	15-40	10-30	10-20	NP-10
	47-60	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-40	35-60	30-55	15-40	10-30	10-20	NP-10
Devore-----	0-3	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	3-4	Stony ashy sandy loam	ML	A-4	5-25	0-5	95-100	90-100	70-90	60-80	25-40	NP-5
	4-7	Very stony ashy fine sandy loam, very stony ashy sandy loam	SM, ML, GM	A-4, A-2	25-35	10-25	70-85	65-80	45-70	30-55	20-40	NP-5
	7-14	Very stony ashy fine sandy loam, very stony ashy sandy loam	SM, ML, GM	A-4, A-2	25-35	15-35	70-85	65-80	45-70	30-55	20-40	NP-5
	14-26	Extremely stony coarse sandy loam, very stony sandy loam, very cobbly sandy loam	SC-SM, GC-GM	A-1, A-2	25-45	30-50	45-95	40-70	20-45	10-30	10-20	NP-10
	26-35	Extremely stony coarse sandy loam, very stony sandy loam, very cobbly sandy loam	SC-SM, GC-GM	A-1, A-2	25-45	30-50	45-95	40-70	20-45	10-30	10-20	NP-10
	35-39	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
391: Myerscreek, cool	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Ashy silt loam	ML	A-4	0	0	95-100	90-100	70-90	55-80	20-40	NP-5
	2-5	Ashy fine sandy loam	ML	A-4	0-5	0-5	90-100	85-100	70-90	50-80	20-40	NP-5
	5-13	Ashy fine sandy loam, gravelly ashy fine sandy loam, stony ashy fine sandy loam, gravelly ashy sandy loam, stony ashy sandy loam	ML, SM	A-4	0-25	0-10	85-100	75-90	60-90	40-75	20-40	NP-5
	13-32	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-40	45-65	35-55	20-40	10-35	10-20	NP-10
	32-47	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-40	35-60	30-55	15-40	10-30	10-20	NP-10
	47-60	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-40	35-60	30-55	15-40	10-30	10-20	NP-10
Devore-----	0-3	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	3-4	Stony ashy sandy loam	ML	A-4	5-25	0-5	95-100	90-100	70-90	60-80	25-40	NP-5
	4-7	Very stony ashy fine sandy loam, very stony ashy sandy loam	SM, ML, GM	A-4, A-2	25-35	10-25	70-85	65-80	45-70	30-55	20-40	NP-5
	7-14	Very stony ashy fine sandy loam, very stony ashy sandy loam	SM, ML, GM	A-4, A-2	25-35	15-35	70-85	65-80	45-70	30-55	20-40	NP-5
	14-26	Extremely stony coarse sandy loam, very stony sandy loam, very cobbly sandy loam	SC-SM, GC-GM	A-1, A-2	25-45	30-50	45-95	40-70	20-45	10-30	10-20	NP-10
	26-35	Extremely stony coarse sandy loam, very stony sandy loam, very cobbly sandy loam	SC-SM, GC-GM	A-1, A-2	25-45	30-50	45-95	40-70	20-45	10-30	10-20	NP-10
	35-39	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
392: Myerscreek, moist-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Ashy silt loam	ML	A-4	0	0	95-100	90-100	70-90	55-80	20-40	NP-5
	2-5	Ashy fine sandy loam	ML	A-4	0-5	0-5	90-100	85-100	70-90	50-80	20-40	NP-5
	5-13	Ashy fine sandy loam, gravelly ashy fine sandy loam, stony ashy fine sandy loam, gravelly ashy sandy loam, stony ashy sandy loam	ML, SM	A-4	0-25	0-10	85-100	75-90	60-90	40-75	20-40	NP-5
	13-32	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-40	45-65	35-55	20-40	10-35	10-20	NP-10
	32-47	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-40	35-60	30-55	15-40	10-30	10-20	NP-10
	47-60	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-40	35-60	30-55	15-40	10-30	10-20	NP-10
Finney-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-3	Gravelly ashy sandy loam	SM	A-1, A-2	0	0	65-80	60-75	40-70	10-30	20-40	NP-5
	3-11	Gravelly ashy sandy loam	SM	A-1, A-2	0	0-5	65-80	60-75	40-70	10-30	20-40	NP-5
	11-21	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0	0-30	40-65	35-60	25-50	10-20	20-30	NP-10
	21-33	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, GP-GC, SP-SC, SC-SM	A-1	0	0-30	40-65	35-60	25-50	10-20	20-30	NP-10
	33-44	Very gravelly sandy loam, very cobbly sandy loam	SP-SC, GP-GC, GC-GM, SC-SM	A-1	0	0-30	40-65	35-60	25-50	10-20	20-30	NP-10
	44-48	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
					Pct	Pct						Pct
	<i>In</i>											
393: Myerscreek, cool	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Ashy silt loam	ML	A-4	0	0	95-100	90-100	70-90	55-80	20-40	NP-5
	2-5	Ashy fine sandy loam	ML	A-4	0-5	0-5	90-100	85-100	70-90	50-80	20-40	NP-5
	5-13	Ashy fine sandy loam, gravelly ashy fine sandy loam, stony ashy fine sandy loam, gravelly ashy sandy loam, stony ashy sandy loam	ML, SM	A-4	0-25	0-10	85-100	75-90	60-90	40-75	20-40	NP-5
	13-32	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-40	45-65	35-55	20-40	10-35	10-20	NP-10
	32-47	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-40	35-60	30-55	15-40	10-30	10-20	NP-10
	47-60	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-40	35-60	30-55	15-40	10-30	10-20	NP-10
Histic Cryaquepts-----	0-8	Mucky peat	PT	A-8	0	0	100	100	60-100	50-90	---	---
	8-10	Silt loam	CL, CL-ML	A-4	0	0	90-100	80-100	65-95	50-85	15-25	5-15
	10-15	Ashy fine sandy loam, ashy sandy loam	SC-SM, CL, ML, SM	A-4, A-2	0	0	90-100	75-100	55-70	40-55	15-25	NP-10
	15-21	Very gravelly sandy loam, very gravelly coarse sandy loam, gravelly sandy loam	SC-SM, GC-GM	A-1, A-2	0	0-5	50-80	45-75	30-55	15-35	15-25	NP-10
	21-34	Gravelly sandy loam, very gravelly sandy loam, very gravelly coarse sandy loam	SC-SM, GC-GM	A-1, A-2	0	0-5	50-80	45-75	30-55	15-35	15-25	NP-10
	34-60	Very gravelly loamy sand, gravelly coarse sand, very gravelly coarse sand	GP-GM, GP, SP, SP-SM	A-1	0	0-5	40-65	35-55	5-30	0-15	5-15	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
393: Cryohemists-----	0-14	Mucky peat	PT	A-8	0	0	100	100	85-100	80-100	---	---
	14-19	Muck	PT	A-8	0	0	100	100	85-100	80-100	---	---
	19-26	Fine sandy loam, gravelly sandy loam, very gravelly sandy loam	SC-SM, ML, GC-GM	A-4, A-1, A-2	0	0	55-100	45-100	30-75	20-55	15-25	NP-10
	26-33	Gravelly sandy loam, fine sandy loam, very gravelly sandy loam	SC-SM, GC-GM, ML	A-4, A-1, A-2	0	0	55-100	45-100	30-75	20-55	15-25	NP-10
	33-60	Very gravelly loamy sand, gravelly loamy sand, very gravelly sandy loam	SC-SM, GC-GM, GM, SM	A-1	0	0	50-80	45-75	20-50	5-25	10-20	NP-10
394: Myerscreek, moist-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Ashy silt loam	ML	A-4	0	0	95-100	90-100	70-90	55-80	20-40	NP-5
	2-5	Ashy fine sandy loam	ML	A-4	0-5	0-5	90-100	85-100	70-90	50-80	20-40	NP-5
	5-13	Ashy fine sandy loam, gravelly ashy fine sandy loam, stony ashy fine sandy loam, gravelly ashy sandy loam, stony ashy sandy loam	ML, SM	A-4	0-25	0-10	85-100	75-90	60-90	40-75	20-40	NP-5
	13-32	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-40	45-65	35-55	20-40	10-35	10-20	NP-10
	32-47	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-40	35-60	30-55	15-40	10-30	10-20	NP-10
	47-60	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-40	35-60	30-55	15-40	10-30	10-20	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
394: Manley-----	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-3	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	3-5	Ashy silt loam	ML	A-4	0	0	100	100	75-90	50-80	20-40	NP-5
	5-16	Ashy fine sandy loam	ML	A-4	0	0	90-100	85-100	75-90	50-80	20-40	NP-5
	16-24	Ashy fine sandy loam, gravelly ashy fine sandy loam	ML, SM	A-4	0	0	85-100	70-100	65-90	40-70	20-40	NP-5
	24-37	Very cobbly sandy loam, very gravelly sandy loam	GC-GM, SC-SM	A-1, A-2	0-10	10-35	35-75	25-65	15-50	10-35	10-20	NP-10
	37-60	Very gravelly sandy loam, very cobbly sandy loam, very gravelly loamy sand	GC-GM, SC-SM	A-1	0-10	10-35	35-75	25-65	10-40	5-25	10-20	NP-10
395: Myerscreek-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Ashy silt loam	ML	A-4	0	0	95-100	90-100	70-90	55-80	20-40	NP-5
	2-5	Ashy fine sandy loam	ML	A-4	0-5	0-5	90-100	85-100	70-90	50-80	20-40	NP-5
	5-13	Ashy fine sandy loam, gravelly ashy fine sandy loam, stony ashy fine sandy loam, gravelly ashy sandy loam, stony ashy sandy loam	ML, SM	A-4	0-25	0-10	85-100	75-90	60-90	40-75	20-40	NP-5
	13-32	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-40	45-65	35-55	20-40	10-35	10-20	NP-10
	32-47	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-40	35-60	30-55	15-40	10-30	10-20	NP-10
	47-60	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-40	35-60	30-55	15-40	10-30	10-20	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
395: Twentymile-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Ashy silt loam	ML	A-4	0	0	100	100	75-90	60-80	25-40	NP-5
	2-5	Stony ash fine sandy loam	SM, SC-SM	A-4	10-25	0-10	70-85	65-80	50-65	30-45	20-40	NP-5
	5-14	Gravelly ash fine sandy loam, ash fine sandy loam	ML, SM	A-4	0	0-5	85-100	75-90	60-90	40-75	20-40	NP-5
	14-32	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-35	45-65	35-55	20-40	10-35	10-20	NP-10
	32-45	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-35	35-60	30-55	15-40	10-30	10-20	NP-10
	45-60	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-35	35-60	30-55	15-40	10-30	10-20	NP-10
396: Nahahum, moist--	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-5	Ashy loam	ML	A-4	0	0	100	100	75-90	60-75	15-30	NP-5
	5-14	Ashy loam	ML	A-4	0	0	80-100	75-100	60-90	55-70	15-30	NP-5
	14-22	Gravelly clay loam, gravelly loam	CL	A-6, A-4	0	0-10	70-85	65-80	60-75	55-65	30-40	10-15
	22-36	Gravelly clay loam, gravelly sandy clay loam	GC, CL, SC	A-6, A-2	0	0-15	60-80	55-75	40-70	30-65	30-40	10-15
	36-46	Gravelly clay loam, gravelly sandy clay loam	GC, CL, SC	A-6, A-2	0	0-15	60-80	55-75	40-70	30-65	30-40	10-15
	46-60	Gravelly loam, gravelly clay loam, gravelly sandy clay loam	CL, GC, SC	A-6	0	0-10	65-85	60-75	45-70	35-65	30-40	10-15

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
					Pct	Pct					Pct	
397: Nahahum, cool---	In											
	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-5	Ashy loam	ML	A-4	0	0	100	100	75-90	60-75	15-30	NP-5
	5-14	Ashy loam	ML	A-4	0	0	80-100	75-100	60-90	55-70	15-30	NP-5
	14-22	Gravelly clay loam, gravelly loam	CL	A-6, A-4	0	0-10	70-85	65-80	60-75	55-65	30-40	10-15
	22-36	Gravelly clay loam, gravelly sandy clay loam	GC, CL, SC	A-6, A-2	0	0-15	60-80	55-75	40-70	30-65	30-40	10-15
	36-46	Gravelly clay loam, gravelly sandy clay loam	GC, CL, SC	A-6, A-2	0	0-15	60-80	55-75	40-70	30-65	30-40	10-15
	46-60	Gravelly loam, gravelly clay loam, gravelly sandy clay loam	CL, GC, SC	A-6	0	0-10	65-85	60-75	45-70	35-65	30-40	10-15
398: Nahahum-----	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-5	Ashy loam	ML	A-4	0	0	100	100	75-90	60-75	15-30	NP-5
	5-14	Ashy loam	ML	A-4	0	0	80-100	75-100	60-90	55-70	15-30	NP-5
	14-22	Gravelly clay loam, gravelly loam	CL	A-6, A-4	0	0-10	70-85	65-80	60-75	55-65	30-40	10-15
	22-36	Gravelly clay loam, gravelly sandy clay loam	GC, CL, SC	A-6, A-2	0	0-15	60-80	55-75	40-70	30-65	30-40	10-15
	36-46	Gravelly clay loam, gravelly sandy clay loam	GC, CL, SC	A-6, A-2	0	0-15	60-80	55-75	40-70	30-65	30-40	10-15
	46-60	Gravelly loam, gravelly clay loam, gravelly sandy clay loam	CL, GC, SC	A-6	0	0-10	65-85	60-75	45-70	35-65	30-40	10-15

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
398: Coxit-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Gravelly ashy sandy loam	SC-SM, GC-GM	A-2, A-4, A-1	0	0-5	65-80	60-75	45-65	20-50	15-30	NP-10
	2-8	Gravelly ashy sandy loam	SC-SM, GC-GM	A-2, A-1, A-4	0	0-5	65-80	60-75	45-65	20-50	15-30	NP-5
	8-24	Very cobbly ashy sandy loam, very gravelly ashy sandy loam	GC-GM, SC-SM	A-1, A-2	0-5	5-30	50-70	45-65	35-55	15-35	15-30	NP-5
	24-35	Very cobbly ashy sandy loam, very gravelly ashy sandy loam	GC-GM, SC-SM	A-1, A-2	0-5	5-30	50-70	45-65	35-55	15-35	15-30	NP-5
	35-49	Very cobbly sandy loam, very gravelly sandy loam	GC-GM, SC-SM	A-1, A-2	0-5	5-35	35-70	30-65	20-55	10-35	15-25	NP-10
	49-60	Extremely cobbly sandy loam, very gravelly sandy loam	GC-GM, SC-SM	A-1, A-2	0-5	5-35	35-70	30-65	20-55	10-35	15-25	NP-10
399: Nahahum-----	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-5	Ashy loam	ML	A-4	0	0	100	100	75-90	60-75	15-30	NP-5
	5-14	Ashy loam	ML	A-4	0	0	80-100	75-100	60-90	55-70	15-30	NP-5
	14-22	Gravelly clay loam, gravelly loam	CL	A-6, A-4	0	0-10	70-85	65-80	60-75	55-65	30-40	10-15
	22-36	Gravelly clay loam, gravelly sandy clay loam	GC, CL, SC	A-6, A-2	0	0-15	60-80	55-75	40-70	30-65	30-40	10-15
	36-46	Gravelly clay loam, gravelly sandy clay loam	GC, CL, SC	A-6, A-2	0	0-15	60-80	55-75	40-70	30-65	30-40	10-15
	46-60	Gravelly loam, gravelly clay loam, gravelly sandy clay loam	CL, GC, SC	A-6	0	0-10	65-85	60-75	45-70	35-65	30-40	10-15

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
399: Coxit-----	In											
	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Gravelly ashy sandy loam	SC-SM, GC-GM	A-2, A-1, A-4	0	0-5	65-80	60-75	45-65	20-50	15-30	NP-10
	2-8	Gravelly ashy sandy loam	SC-SM, GC-GM	A-2, A-1, A-4	0	0-5	65-80	60-75	45-65	20-50	15-30	NP-5
	8-24	Very cobbly ashy sandy loam, very gravelly ashy sandy loam	GC-GM, SC-SM	A-1, A-2	0-5	5-30	50-70	45-65	35-55	15-35	15-30	NP-5
	24-35	Very cobbly ashy sandy loam, very gravelly ashy sandy loam	GC-GM, SC-SM	A-1, A-2	0-5	5-30	50-70	45-65	35-55	15-35	15-30	NP-5
	35-49	Very cobbly sandy loam, very gravelly sandy loam	GC-GM, SC-SM	A-1, A-2	0-5	5-35	35-70	30-65	20-55	10-35	15-25	NP-10
	49-60	Extremely cobbly sandy loam, very gravelly sandy loam	GC-GM, SC-SM	A-1, A-2	0-5	5-35	35-70	30-65	20-55	10-35	15-25	NP-10
400: Nevine-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Ashy fine sandy loam	ML	A-4	0	0-10	90-100	85-100	70-90	50-80	20-40	NP-5
	4-9	Ashy fine sandy loam	ML, SM	A-4	0	0-10	85-100	75-90	55-75	40-70	20-40	NP-5
	9-21	Gravelly ashy fine sandy loam, ashy fine sandy loam	ML, SM	A-4	0	0-10	85-100	65-90	55-75	40-70	20-40	NP-5
	21-38	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-2, A-4, A-1	0-15	10-25	45-75	40-70	30-55	20-45	10-20	NP-10
	38-51	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-25	10-40	40-70	35-65	25-45	10-35	10-20	NP-10
	51-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-25	10-40	40-70	35-65	25-45	10-35	10-20	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
400: Nevine, warm----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Ashy fine sandy loam	ML	A-4	0	0-10	90-100	85-100	70-90	50-80	20-40	NP-5
	4-9	Ashy fine sandy loam	ML, SM	A-4	0	0-10	85-100	75-90	55-75	40-70	20-40	NP-5
	9-21	Gravelly ashy fine sandy loam, ashy fine sandy loam	ML, SM	A-4	0	0-10	85-100	65-90	55-75	40-70	20-40	NP-5
	21-38	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-2, A-4, A-1	0-15	10-25	45-75	40-70	30-55	20-45	10-20	NP-10
	38-51	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-25	10-40	40-70	35-65	25-45	10-35	10-20	NP-10
	51-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-25	10-40	40-70	35-65	25-45	10-35	10-20	NP-10
401: Nevine-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Ashy fine sandy loam	ML	A-4	0	0-10	90-100	85-100	70-90	50-80	20-40	NP-5
	4-9	Ashy fine sandy loam	ML, SM	A-4	0	0-10	85-100	75-90	55-75	40-70	20-40	NP-5
	9-21	Gravelly ashy fine sandy loam, ashy fine sandy loam	ML, SM	A-4	0	0-10	85-100	65-90	55-75	40-70	20-40	NP-5
	21-38	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-2, A-4, A-1	0-15	10-25	45-75	40-70	30-55	20-45	10-20	NP-10
	38-51	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-25	10-40	40-70	35-65	25-45	10-35	10-20	NP-10
	51-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-25	10-40	40-70	35-65	25-45	10-35	10-20	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
401: Nevine, warm----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Ashy fine sandy loam	ML	A-4	0	0-10	90-100	85-100	70-90	50-80	20-40	NP-5
	4-9	Ashy fine sandy loam	ML, SM	A-4	0	0-10	85-100	75-90	55-75	40-70	20-40	NP-5
	9-21	Gravelly ash fine sandy loam, ash fine sandy loam	ML, SM	A-4	0	0-10	85-100	65-90	55-75	40-70	20-40	NP-5
	21-38	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-2, A-4, A-1	0-15	10-25	45-75	40-70	30-55	20-45	10-20	NP-10
	38-51	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-25	10-40	40-70	35-65	25-45	10-35	10-20	NP-10
	51-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-25	10-40	40-70	35-65	25-45	10-35	10-20	NP-10
402: Nevine, cool----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Ashy fine sandy loam	ML	A-4	0	0-10	90-100	85-100	70-90	50-80	20-40	NP-5
	4-9	Ashy fine sandy loam	ML, SM	A-4	0	0-10	85-100	75-90	55-75	40-70	20-40	NP-5
	9-21	Gravelly ash fine sandy loam, ash fine sandy loam	ML, SM	A-4	0	0-10	85-100	65-90	55-75	40-70	20-40	NP-5
	21-38	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-2, A-4, A-1	0-15	10-25	45-75	40-70	30-55	20-45	10-20	NP-10
	38-51	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-25	10-40	40-70	35-65	25-45	10-35	10-20	NP-10
	51-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-25	10-40	40-70	35-65	25-45	10-35	10-20	NP-10
Louploup-----	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-8	Ashy fine sandy loam	ML, SM	A-4	0	0	90-100	85-100	60-80	40-65	20-40	NP-5
	8-23	Ashy fine sandy loam	ML, SM	A-4	0	0	90-100	85-100	60-80	40-65	20-40	NP-5
	23-43	Gravelly sandy loam, sandy loam	SC-SM	A-2, A-1	0	0-5	75-90	70-85	40-60	20-35	10-20	NP-10
	43-60	Gravelly sandy loam, gravelly coarse sandy loam	SC-SM, GC-GM	A-1, A-2	0-5	5-15	60-80	55-75	30-55	15-30	10-20	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
403: Nevine-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Ashy fine sandy loam	ML	A-4	0	0-10	90-100	85-100	70-90	50-80	20-40	NP-5
	4-9	Ashy fine sandy loam	ML, SM	A-4	0	0-10	85-100	75-90	55-75	40-70	20-40	NP-5
	9-21	Gravelly ash fine sandy loam, ash fine sandy loam	ML, SM	A-4	0	0-10	85-100	65-90	55-75	40-70	20-40	NP-5
	21-38	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-2, A-4, A-1	0-15	10-25	45-75	40-70	30-55	20-45	10-20	NP-10
	38-51	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-25	10-40	40-70	35-65	25-45	10-35	10-20	NP-10
	51-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-25	10-40	40-70	35-65	25-45	10-35	10-20	NP-10
Louploup, dry---	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-8	Ashy fine sandy loam	ML, SM	A-4	0	0	90-100	85-100	60-80	40-65	20-40	NP-5
	8-23	Ashy fine sandy loam	ML, SM	A-4	0	0	90-100	85-100	60-80	40-65	20-40	NP-5
	23-43	Gravelly sandy loam, sandy loam	SC-SM	A-2, A-1	0	0-5	75-90	70-85	40-60	20-35	10-20	NP-10
	43-60	Gravelly sandy loam, gravelly coarse sandy loam	SC-SM, GC-GM	A-1, A-2	0-5	5-15	60-80	55-75	30-55	15-30	10-20	NP-10
404: Nevine, moist---	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Ashy fine sandy loam	ML	A-4	0	0-10	90-100	85-100	70-90	50-80	20-40	NP-5
	4-9	Ashy fine sandy loam	ML, SM	A-4	0	0-10	85-100	75-90	55-75	40-70	20-40	NP-5
	9-21	Gravelly ash fine sandy loam, ash fine sandy loam	ML, SM	A-4	0	0-10	85-100	65-90	55-75	40-70	20-40	NP-5
	21-38	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-2, A-4, A-1	0-15	10-25	45-75	40-70	30-55	20-45	10-20	NP-10
	38-51	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-25	10-40	40-70	35-65	25-45	10-35	10-20	NP-10
	51-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-25	10-40	40-70	35-65	25-45	10-35	10-20	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
404: Louploup, moist	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-8	Ashy fine sandy loam	ML, SM	A-4	0	0	90-100	85-100	60-80	40-65	20-40	NP-5
	8-23	Ashy fine sandy loam	ML, SM	A-4	0	0	90-100	85-100	60-80	40-65	20-40	NP-5
	23-43	Gravelly sandy loam, sandy loam	SC-SM	A-2, A-1	0	0-5	75-90	70-85	40-60	20-35	10-20	NP-10
	43-60	Gravelly sandy loam, gravelly coarse sandy loam	SC-SM, GC-GM	A-1, A-2	0-5	5-15	60-80	55-75	30-55	15-30	10-20	NP-10
405: Nevine-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Ashy fine sandy loam	ML	A-4	0	0-10	90-100	85-100	70-90	50-80	20-40	NP-5
	4-9	Ashy fine sandy loam	ML, SM	A-4	0	0-10	85-100	75-90	55-75	40-70	20-40	NP-5
	9-21	Gravelly ashy fine sandy loam, ashy fine sandy loam	ML, SM	A-4	0	0-10	85-100	65-90	55-75	40-70	20-40	NP-5
	21-38	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-2, A-4, A-1	0-15	10-25	45-75	40-70	30-55	20-45	10-20	NP-10
	38-51	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-25	10-40	40-70	35-65	25-45	10-35	10-20	NP-10
	51-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-25	10-40	40-70	35-65	25-45	10-35	10-20	NP-10
Merkel-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-6	Ashy sandy loam	SM	A-2	0	0-5	95-100	80-95	50-60	25-35	20-30	NP-5
	6-12	Gravelly ashy sandy loam, ashy sandy loam, ashy fine sandy loam	SM	A-2, A-1	0	0-15	70-90	60-80	40-55	20-35	20-30	NP-5
	12-29	Gravelly ashy sandy loam, ashy sandy loam, ashy fine sandy loam	SM	A-1, A-2	0-5	0-15	60-80	50-70	30-50	10-30	20-30	NP-5
	29-35	Very gravelly sandy loam, very cobbly sandy loam	SM	A-1, A-2	0-5	15-30	50-75	40-60	35-45	15-30	20-30	NP-5
	35-60	Very gravelly coarse sandy loam, very cobbly sandy loam, very cobbly loamy coarse sand	GP-GM, GM, SM, SP-SM	A-1	0-5	15-30	50-65	40-60	20-35	5-15	0-14	NP

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
406: Nevine-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Ashy fine sandy loam	ML	A-4	0	0-10	90-100	85-100	70-90	50-80	20-40	NP-5
	4-9	Ashy fine sandy loam	ML, SM	A-4	0	0-10	85-100	75-90	55-75	40-70	20-40	NP-5
	9-21	Gravelly ash fine sandy loam, ash fine sandy loam	ML, SM	A-4	0	0-10	85-100	65-90	55-75	40-70	20-40	NP-5
	21-38	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-2, A-4, A-1	0-15	10-25	45-75	40-70	30-55	20-45	10-20	NP-10
	38-51	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-25	10-40	40-70	35-65	25-45	10-35	10-20	NP-10
	51-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-25	10-40	40-70	35-65	25-45	10-35	10-20	NP-10
Merkel-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-6	Ashy sandy loam	SM	A-2	0	0-5	95-100	80-95	50-60	25-35	20-30	NP-5
	6-12	Gravelly ash sandy loam, ash sandy loam, ashy fine sandy loam	SM	A-2, A-1	0	0-15	70-90	60-80	40-55	20-35	20-30	NP-5
	12-29	Gravelly ash sandy loam, ash sandy loam, ashy fine sandy loam	SM	A-1, A-2	0-5	0-15	60-80	50-70	30-50	10-30	20-30	NP-5
	29-35	Very gravelly sandy loam, very cobbly sandy loam	SM	A-1, A-2	0-5	15-30	50-75	40-60	35-45	15-30	20-30	NP-5
	35-60	Very gravelly coarse sandy loam, very cobbly sandy loam, very cobbly loamy coarse sand	GP-GM, GM, SM, SP-SM	A-1	0-5	15-30	50-65	40-60	20-35	5-15	0-14	NP

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
407: Nevine-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Ashy fine sandy loam	ML	A-4	0	0-10	90-100	85-100	70-90	50-80	20-40	NP-5
	4-9	Ashy fine sandy loam	ML, SM	A-4	0	0-10	85-100	75-90	55-75	40-70	20-40	NP-5
	9-21	Gravelly ash fine sandy loam, ash fine sandy loam	ML, SM	A-4	0	0-10	85-100	65-90	55-75	40-70	20-40	NP-5
	21-38	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-2, A-4, A-1	0-15	10-25	45-75	40-70	30-55	20-45	10-20	NP-10
	38-51	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-25	10-40	40-70	35-65	25-45	10-35	10-20	NP-10
	51-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-25	10-40	40-70	35-65	25-45	10-35	10-20	NP-10
Oxerine-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Gravelly ash fine sandy loam	SM	A-4	0	0-5	70-90	50-75	40-60	35-50	20-40	NP-5
	5-11	Gravelly ash fine sandy loam	SM	A-4	0	0-5	70-90	50-75	40-60	35-50	20-40	NP-5
	11-20	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-2, A-1, A-4	0-5	15-30	45-70	35-60	25-50	15-40	10-20	NP-10
	20-32	Extremely cobbly sandy loam, extremely gravelly sandy loam, very gravelly sandy loam, extremely flaggy sandy loam	GC-GM, SC-SM	A-1, A-2	0-15	15-50	25-60	15-50	10-40	5-30	10-20	NP-10
	32-36	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
408: Nevine-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Ashy fine sandy loam	ML	A-4	0	0-10	90-100	85-100	70-90	50-80	20-40	NP-5
	4-9	Ashy fine sandy loam	ML, SM	A-4	0	0-10	85-100	75-90	55-75	40-70	20-40	NP-5
	9-21	Gravelly ash fine sandy loam, ash fine sandy loam	ML, SM	A-4	0	0-10	85-100	65-90	55-75	40-70	20-40	NP-5
	21-38	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-2, A-4, A-1	0-15	10-25	45-75	40-70	30-55	20-45	10-20	NP-10
	38-51	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-25	10-40	40-70	35-65	25-45	10-35	10-20	NP-10
	51-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-25	10-40	40-70	35-65	25-45	10-35	10-20	NP-10
Nevine, warm----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Ashy fine sandy loam	ML	A-4	0	0-10	90-100	85-100	70-90	50-80	20-40	NP-5
	4-9	Ashy fine sandy loam	ML, SM	A-4	0	0-10	85-100	75-90	55-75	40-70	20-40	NP-5
	9-21	Gravelly ash fine sandy loam, ash fine sandy loam	ML, SM	A-4	0	0-10	85-100	65-90	55-75	40-70	20-40	NP-5
	21-38	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-2, A-4, A-1	0-15	10-25	45-75	40-70	30-55	20-45	10-20	NP-10
	38-51	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-25	10-40	40-70	35-65	25-45	10-35	10-20	NP-10
	51-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-25	10-40	40-70	35-65	25-45	10-35	10-20	NP-10
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
409: Nevine-----	In											
	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Ashy fine sandy loam	ML	A-4	0	0-10	90-100	85-100	70-90	50-80	20-40	NP-5
	4-9	Ashy fine sandy loam	ML, SM	A-4	0	0-10	85-100	75-90	55-75	40-70	20-40	NP-5
	9-21	Gravelly ashy fine sandy loam, ashy fine sandy loam	ML, SM	A-4	0	0-10	85-100	65-90	55-75	40-70	20-40	NP-5
	21-38	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-2, A-4, A-1	0-15	10-25	45-75	40-70	30-55	20-45	10-20	NP-10
	38-51	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-25	10-40	40-70	35-65	25-45	10-35	10-20	NP-10
	51-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-25	10-40	40-70	35-65	25-45	10-35	10-20	NP-10
Nevine, warm----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Ashy fine sandy loam	ML	A-4	0	0-10	90-100	85-100	70-90	50-80	20-40	NP-5
	4-9	Ashy fine sandy loam	ML, SM	A-4	0	0-10	85-100	75-90	55-75	40-70	20-40	NP-5
	9-21	Gravelly ashy fine sandy loam, ashy fine sandy loam	ML, SM	A-4	0	0-10	85-100	65-90	55-75	40-70	20-40	NP-5
	21-38	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-2, A-4, A-1	0-15	10-25	45-75	40-70	30-55	20-45	10-20	NP-10
	38-51	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-25	10-40	40-70	35-65	25-45	10-35	10-20	NP-10
	51-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-25	10-40	40-70	35-65	25-45	10-35	10-20	NP-10
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
410: Nevine-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Ashy fine sandy loam	ML	A-4	0	0-10	90-100	85-100	70-90	50-80	20-40	NP-5
	4-9	Ashy fine sandy loam	ML, SM	A-4	0	0-10	85-100	75-90	55-75	40-70	20-40	NP-5
	9-21	Gravelly ash fine sandy loam, ash fine sandy loam	ML, SM	A-4	0	0-10	85-100	65-90	55-75	40-70	20-40	NP-5
	21-38	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-2, A-4, A-1	0-15	10-25	45-75	40-70	30-55	20-45	10-20	NP-10
	38-51	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-25	10-40	40-70	35-65	25-45	10-35	10-20	NP-10
	51-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-25	10-40	40-70	35-65	25-45	10-35	10-20	NP-10
Wilma-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Gravelly ash fine sandy loam	ML, SM	A-4	0-5	0-5	80-95	70-85	60-75	45-60	25-35	NP-5
	7-13	Gravelly ash fine sandy loam	ML, SM	A-4	0-5	0-5	75-95	65-85	55-70	40-60	25-35	NP-5
	13-18	Very gravelly fine sandy loam, very gravelly sandy loam, very cobbly sandy loam, very cobbly fine sandy loam	GM, SM	A-2, A-1, A-4	0-10	15-30	45-65	40-60	30-55	15-45	10-20	NP-5
	18-29	Extremely gravelly coarse sandy loam, very gravelly sandy loam, very cobbly coarse sandy loam	GM, GP-GM	A-1	0-10	15-30	35-50	30-45	15-35	5-25	10-20	NP-5
	29-33	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
411: Nevine-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Ashy fine sandy loam	ML	A-4	0	0-10	90-100	85-100	70-90	50-80	20-40	NP-5
	4-9	Ashy fine sandy loam	ML, SM	A-4	0	0-10	85-100	75-90	55-75	40-70	20-40	NP-5
	9-21	Gravelly ash fine sandy loam, ash fine sandy loam	ML, SM	A-4	0	0-10	85-100	65-90	55-75	40-70	20-40	NP-5
	21-38	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-2, A-4, A-1	0-15	10-25	45-75	40-70	30-55	20-45	10-20	NP-10
	38-51	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-25	10-40	40-70	35-65	25-45	10-35	10-20	NP-10
	51-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-25	10-40	40-70	35-65	25-45	10-35	10-20	NP-10
Wilma, dry-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Gravelly ash fine sandy loam	ML, SM	A-4	0-5	0-5	80-95	70-85	60-75	45-60	25-35	NP-5
	7-13	Gravelly ash fine sandy loam	ML, SM	A-4	0-5	0-5	75-95	65-85	55-70	40-60	25-35	NP-5
	13-18	Very gravelly fine sandy loam, very gravelly sandy loam, very cobbly sandy loam, very cobbly fine sandy loam	GM, SM	A-2, A-1, A-4	0-10	15-30	45-65	40-60	30-55	15-45	10-20	NP-5
	18-29	Extremely gravelly coarse sandy loam, very gravelly sandy loam, very cobbly coarse sandy loam	GM, GP-GM	A-1	0-10	15-30	35-50	30-45	15-35	5-25	10-20	NP-5
	29-33	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
						Pct	Pct					Pct
412: Nevine-----	In											
	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Ashy fine sandy loam	ML	A-4	0	0-10	90-100	85-100	70-90	50-80	20-40	NP-5
	4-9	Ashy fine sandy loam	ML, SM	A-4	0	0-10	85-100	75-90	55-75	40-70	20-40	NP-5
	9-21	Gravelly ash fine sandy loam, ash fine sandy loam	ML, SM	A-4	0	0-10	85-100	65-90	55-75	40-70	20-40	NP-5
	21-38	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-2, A-4, A-1	0-15	10-25	45-75	40-70	30-55	20-45	10-20	NP-10
	38-51	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-25	10-40	40-70	35-65	25-45	10-35	10-20	NP-10
	51-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-25	10-40	40-70	35-65	25-45	10-35	10-20	NP-10
Wilma-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Gravelly ash fine sandy loam	ML, SM	A-4	0-5	0-5	80-95	70-85	60-75	45-60	25-35	NP-5
	7-13	Gravelly ash fine sandy loam	ML, SM	A-4	0-5	0-5	75-95	65-85	55-70	40-60	25-35	NP-5
	13-18	Very gravelly fine sandy loam, very gravelly sandy loam, very cobbly sandy loam, very cobbly fine sandy loam	GM, SM	A-2, A-1, A-4	0-10	15-30	45-65	40-60	30-55	15-45	10-20	NP-5
	18-29	Extremely gravelly coarse sandy loam, very gravelly sandy loam, very cobbly coarse sandy loam	GM, GP-GM	A-1	0-10	15-30	35-50	30-45	15-35	5-25	10-20	NP-5
	29-33	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
413: Newbon-----	0-2	Loam	CL-ML	A-4	0	0	80-100	75-100	65-75	50-60	20-30	NP-10
	2-13	Loam	CL-ML	A-4	0	0	80-100	75-100	65-75	50-60	20-30	NP-10
	13-25	Gravelly loam, gravelly silt loam	GC-GM	A-4	0	0-5	55-65	50-60	45-55	35-45	20-30	NP-10
	25-60	Very gravelly loam, gravelly loam, gravelly silt loam	GC-GM	A-2, A-4	0	0-5	45-75	40-60	35-45	30-40	20-30	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
414: Newbon-----	In											
	0-2	Gravelly loam	SC-SM	A-4	0	0	70-80	65-75	60-70	40-50	20-30	NP-10
	2-13	Gravelly loam	SC-SM	A-4	0	0	70-80	65-75	60-70	40-50	20-30	NP-10
	13-25	Gravelly loam, gravelly silt loam	GC-GM	A-4	0	0-5	55-65	50-60	45-55	35-45	20-30	NP-10
	25-60	Very gravelly loam, gravelly loam, gravelly silt loam	GC-GM	A-2, A-4	0	0-5	45-75	40-60	35-45	30-40	20-30	NP-10
415: Newbon-----												
	0-2	Gravelly loam	SC-SM	A-4	0	0	70-80	65-75	60-70	40-50	20-30	NP-10
	2-13	Gravelly loam	SC-SM	A-4	0	0	70-80	65-75	60-70	40-50	20-30	NP-10
	13-25	Gravelly loam, gravelly silt loam	GC-GM	A-4	0	0-5	55-65	50-60	45-55	35-45	20-30	NP-10
	25-60	Very gravelly loam, gravelly loam, gravelly silt loam	GC-GM	A-2, A-4	0	0-5	45-75	40-60	35-45	30-40	20-30	NP-10
416: Newbon-----												
	0-5	Gravelly loam	SC-SM	A-4	0	0	70-80	65-75	60-70	40-50	20-30	NP-10
	5-13	Gravelly loam	SC-SM	A-4	0	0	70-80	65-75	60-70	40-50	20-30	NP-10
	13-25	Gravelly loam, gravelly silt loam	GC-GM	A-4	0	0-5	55-65	50-60	45-55	35-45	20-30	NP-10
	25-60	Very gravelly loam, gravelly loam, gravelly silt loam	GC-GM	A-2, A-4	0	0-5	45-75	40-60	35-45	30-40	20-30	NP-10
417: Newbon-----												
	0-2	Gravelly loam	SC-SM	A-4	0	0	70-80	65-75	60-70	40-50	20-30	NP-10
	2-13	Gravelly loam	SC-SM	A-4	0	0	70-80	65-75	60-70	40-50	20-30	NP-10
	13-25	Gravelly loam, gravelly silt loam	GC-GM	A-4	0	0-5	55-65	50-60	45-55	35-45	20-30	NP-10
	25-60	Very gravelly loam, gravelly loam, gravelly silt loam	GC-GM	A-2, A-4	0	0-5	45-75	40-60	35-45	30-40	20-30	NP-10
418: Newbon, extremely stony surface-----												
	0-2	Gravelly loam	SC-SM	A-4	0	0	70-80	65-75	60-70	40-50	20-30	NP-10
	2-13	Gravelly loam	SC-SM	A-4	0	0	70-80	65-75	60-70	40-50	20-30	NP-10
	13-25	Gravelly loam, gravelly silt loam	GC-GM	A-4	0	0-5	55-65	50-60	45-55	35-45	20-30	NP-10
	25-60	Very gravelly loam, gravelly loam, gravelly silt loam	GC-GM	A-2, A-4	0	0-5	45-75	40-60	35-45	30-40	20-30	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
419: Newbon, eroded--	0-1	Very gravelly loam	GC-GM	A-2, A-4	0	0	45-55	40-50	35-45	30-40	20-30	NP-10
	1-13	Very gravelly loam	GC-GM	A-2, A-4	0	0	45-55	40-50	35-45	30-40	20-30	NP-10
	13-25	Gravelly loam, gravelly silt loam	GC-GM	A-4	0	0-5	55-65	50-60	45-55	35-45	20-30	NP-10
	25-60	Very gravelly loam, gravelly loam, gravelly silt loam	GC-GM	A-2, A-4	0	0-5	45-75	40-60	35-45	30-40	20-30	NP-10
420: Newhorn-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Ashy fine sandy loam	ML, SM	A-4	0	0	95-100	85-100	65-90	40-70	20-40	NP-5
	5-14	Ashy fine sandy loam	ML, SM	A-4	0	0-10	85-100	75-90	60-80	35-65	20-40	NP-5
	14-29	Very gravelly sandy loam, very gravelly fine sandy loam	GC-GM, SC-SM	A-1, A-2	0	0-15	45-65	40-60	25-45	15-35	15-25	NP-10
	29-37	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0	10-20	45-65	40-60	25-45	15-35	15-25	NP-10
	37-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0	10-20	40-65	35-60	20-45	10-30	15-25	NP-10
421: Newhorn, moist--	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Ashy fine sandy loam	ML, SM	A-4	0	0	95-100	85-100	65-90	40-70	20-40	NP-5
	5-14	Ashy fine sandy loam	ML, SM	A-4	0	0-10	85-100	75-90	60-80	35-65	20-40	NP-5
	14-29	Very gravelly sandy loam, very gravelly fine sandy loam	GC-GM, SC-SM	A-1, A-2	0	0-15	45-65	40-60	25-45	15-35	15-25	NP-10
	29-37	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0	10-20	45-65	40-60	25-45	15-35	15-25	NP-10
	37-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0	10-20	40-65	35-60	20-45	10-30	15-25	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
422: Nicmar-----	In											
	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Ashy loam	ML	A-4	0	0	85-100	80-95	75-90	65-80	20-35	NP-5
	5-17	Gravelly ashly loam, ashly loam	ML	A-4	0	0-15	70-85	65-80	60-75	50-65	20-35	NP-5
	17-24	Very cobbly clay loam, very cobbly sandy clay loam	ML, CL, GM	A-4, A-6	0-15	25-55	50-70	45-65	40-60	40-55	30-40	5-15
	24-34	Very cobbly clay loam, very cobbly sandy clay loam	GM, CL	A-4, A-6	0-15	25-55	50-70	45-65	40-60	40-55	30-40	5-15
	34-60	Very gravelly sandy clay loam, gravelly sandy clay loam	GM, CL	A-4, A-6	0-15	0-25	45-70	40-65	40-60	40-55	30-40	5-15
423: Nicmar-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Gravelly ashly loam	ML	A-4	0	0	85-100	60-75	50-65	40-65	20-35	NP-5
	5-17	Gravelly ashly loam, ashly loam	ML	A-4	0	0-15	70-85	65-80	60-75	50-65	20-35	NP-5
	17-24	Very cobbly clay loam, very cobbly sandy clay loam	ML, CL, GM	A-4, A-6	0-15	25-55	50-70	45-65	40-60	40-55	30-40	5-15
	24-34	Very cobbly clay loam, very cobbly sandy clay loam	GM, CL	A-4, A-6	0-15	25-55	50-70	45-65	40-60	40-55	30-40	5-15
	34-60	Very gravelly sandy clay loam, gravelly sandy clay loam	GM, CL	A-4, A-6	0-15	0-25	45-70	40-65	40-60	40-55	30-40	5-15

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
424: Nicmar, warm----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Ashy loam	ML	A-4	0	0	85-100	80-95	75-90	65-80	20-35	NP-5
	5-17	Gravelly ashy loam, ashy loam	ML	A-4	0	0-15	70-85	65-80	60-75	50-65	20-35	NP-5
	17-24	Very cobbly clay loam, very cobbly sandy clay loam	ML, CL, GM	A-4, A-6	0-15	25-55	50-70	45-65	40-60	40-55	30-40	5-15
	24-34	Very cobbly clay loam, very cobbly sandy clay loam	GM, CL	A-4, A-6	0-15	25-55	50-70	45-65	40-60	40-55	30-40	5-15
	34-60	Very gravelly sandy clay loam, gravelly sandy clay loam	GM, CL	A-4, A-6	0-15	0-25	45-70	40-65	40-60	40-55	30-40	5-15
Baldknob-----	0-3	Gravelly ashy loam	CL	A-4	0	0-15	65-80	60-75	50-65	40-55	20-30	5-10
	3-12	Very flaggy loam, very channery loam, very flaggy sandy loam	GC-GM	A-2, A-1	15-40	35-60	35-50	30-45	30-45	20-35	20-30	5-10
	12-16	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
425: Nicmar-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Ashy loam	ML	A-4	0	0	85-100	80-95	75-90	65-80	20-35	NP-5
	5-17	Gravelly ashy loam, ashy loam	ML	A-4	0	0-15	70-85	65-80	60-75	50-65	20-35	NP-5
	17-24	Very cobbly clay loam, very cobbly sandy clay loam	ML, CL, GM	A-4, A-6	0-15	25-55	50-70	45-65	40-60	40-55	30-40	5-15
	24-34	Very cobbly clay loam, very cobbly sandy clay loam	GM, CL	A-4, A-6	0-15	25-55	50-70	45-65	40-60	40-55	30-40	5-15
	34-60	Very gravelly sandy clay loam, gravelly sandy clay loam	GM, CL	A-4, A-6	0-15	0-25	45-70	40-65	40-60	40-55	30-40	5-15

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
425: Santop-----	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-7	Gravelly ashy sandy loam	SC-SM, GC-GM	A-2, A-4	0	0-5	65-80	60-75	40-60	25-40	15-30	NP-10
	7-17	Very gravelly ashy sandy loam, very cobbly ashy sandy loam	GC-GM, SC-SM	A-1, A-2	0-5	5-25	45-65	40-60	30-45	15-35	15-30	NP-10
	17-36	Very stony sandy loam, very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	5-25	40-65	35-60	20-40	10-30	15-25	NP-10
	36-40	Unweathered bedrock			---	---	---	---	---	---	---	---
426: Nighthawk-----	0-4	Loam	CL, CL-ML	A-4, A-6	0-5	0-5	80-100	75-95	60-80	50-65	25-35	5-15
	4-8	Gravelly loam	CL, CL-ML	A-4, A-6	0-5	0-5	75-90	65-75	55-65	50-55	25-35	5-15
	8-13	Gravelly loam, gravelly silt loam, very gravelly silt loam, very gravelly loam	GC, CL, GC-GM	A-4, A-6, A-2	0	0-15	60-85	40-70	35-65	35-55	20-30	5-15
	13-22	Very gravelly loam, gravelly silt loam, very gravelly silt loam, gravelly loam	GC, GC-GM, CL	A-4, A-1, A-6	0-5	0-15	50-80	30-65	30-60	20-55	20-30	5-15
	22-32	Very gravelly loam, very gravelly coarse sandy loam	GC-GM, GC, GM	A-1, A-2	0-5	0-5	20-30	15-25	15-25	15-25	15-25	NP-10
	32-60	Very gravelly coarse sandy loam, very gravelly loam	GC-GM, GC, GM	A-1, A-2	0-5	0-5	20-30	15-25	15-25	15-25	15-25	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
427: Nighthawk-----	0-4	Loam	CL, CL-ML	A-4, A-6	0-5	0-5	80-100	75-95	60-80	50-65	25-35	5-15
	4-8	Gravelly loam	CL, CL-ML	A-4, A-6	0-5	0-5	75-90	65-75	55-65	50-55	25-35	5-15
	8-13	Gravelly loam, gravelly silt loam, very gravelly silt loam, very gravelly loam	SC, CL, GC-GM	A-4, A-6, A-2	0-5	0-15	60-85	40-70	35-65	35-55	20-30	5-15
	13-22	Very gravelly loam, gravelly silt loam, very gravelly silt loam, gravelly loam	GC, CL, GC-GM	A-4, A-1, A-6	0-5	0-15	50-80	30-65	30-60	20-55	20-30	5-15
	22-32	Very gravelly loam, very gravelly coarse sandy loam	GC-GM, GC, GM	A-1, A-2	0-5	0-5	20-30	15-25	15-25	15-25	15-25	NP-10
	32-60	Very gravelly coarse sandy loam, very gravelly loam	GC-GM, GC, GM	A-1, A-2	0-5	0-5	20-30	15-25	15-25	15-25	15-25	NP-10
428: Nighthawk-----	0-4	Loam	CL, CL-ML	A-4, A-6	0-5	0-5	80-100	75-95	60-80	50-65	25-35	5-15
	4-8	Gravelly loam	CL, CL-ML	A-4, A-6	0-5	0-5	75-90	65-75	55-65	50-55	25-35	5-15
	8-13	Gravelly loam, gravelly silt loam, very gravelly silt loam, very gravelly loam	GC, CL, GC-GM	A-4, A-6, A-2	0-5	0-15	60-85	40-70	35-65	35-55	20-30	5-15
	13-22	Very gravelly loam, gravelly silt loam, very gravelly silt loam, gravelly loam	GC, CL, GC-GM	A-4, A-1, A-6	0-5	0-15	50-80	30-65	30-60	20-55	20-30	5-15
	22-32	Very gravelly loam, very gravelly coarse sandy loam	GC-GM, GC, GM	A-1, A-2	0-5	0-5	20-30	15-25	15-25	15-25	15-25	NP-10
	32-60	Very gravelly coarse sandy loam, very gravelly loam	GC-GM, GC, GM	A-1, A-2	0-5	0-5	20-30	15-25	15-25	15-25	15-25	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
429: Nighthawk, extremely stony surface-----	0-4	Gravelly loam	CL, CL-ML	A-4, A-6	0-5	0-5	80-90	65-75	55-65	50-55	25-35	5-15
	4-8	Gravelly loam, gravelly silt loam	CL, CL-ML	A-4, A-6	0-5	0-5	80-90	65-75	55-70	50-65	25-35	5-15
	8-13	Gravelly loam, gravelly silt loam, very gravelly silt loam, very gravelly loam	SC, CL, GC-GM	A-4, A-6, A-2	0-3	0-15	60-85	40-70	35-65	35-55	20-30	5-15
	13-22	Very gravelly loam, gravelly silt loam, very gravelly silt loam, gravelly loam	GC, CL, GC-GM	A-4, A-1, A-6	0-3	0-15	50-80	30-65	30-60	20-55	20-30	5-15
	22-32	Very gravelly loam, very gravelly coarse sandy loam	GC-GM, GC, GM	A-1, A-2	0-3	0-10	20-30	15-25	15-25	15-25	15-25	NP-10
	32-60	Very gravelly coarse sandy loam, very gravelly loam	GC-GM, GC, GM	A-1, A-2	0-3	0-10	20-30	15-25	15-25	15-25	15-25	NP-10
430: Nighthawk, extremely stony surface-----	0-4	Gravelly loam	CL, CL-ML	A-4, A-6	0-5	0-5	80-90	65-75	55-65	50-55	25-35	5-15
	4-8	Gravelly loam, gravelly silt loam	CL, CL-ML	A-4, A-6	0-5	0-5	80-90	65-75	55-70	50-65	25-35	5-15
	8-13	Gravelly loam, gravelly silt loam, very gravelly silt loam, very gravelly loam	GC, GC-GM, CL	A-4, A-6, A-2	0-5	0-15	60-85	40-70	35-65	35-55	20-30	5-15
	13-22	Very gravelly loam, gravelly silt loam, very gravelly silt loam, gravelly loam	GC, CL, GC-GM	A-4, A-1, A-6	0-5	0-15	50-80	30-65	30-60	20-55	20-30	5-15
	22-32	Very gravelly loam, very gravelly coarse sandy loam	GC-GM, GC, GM	A-1, A-2	0-5	0-5	20-30	15-25	15-25	15-25	15-25	NP-10
	32-60	Very gravelly coarse sandy loam, very gravelly loam	GC-GM, GC, GM	A-1, A-2	0-5	0-5	20-30	15-25	15-25	15-25	15-25	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
431: Okanogan-----	0-3	Loam	CL	A-4, A-6	0	0	100	90-100	80-90	70-80	15-30	5-15
	3-14	Loam, very fine sandy loam, silt loam	CL-ML, CL, ML	A-4	0	0	100	90-100	80-90	75-85	15-25	NP-10
	14-31	Loam, very fine sandy loam, silt loam	CL-ML, CL, ML	A-4	0	0	100	90-100	80-90	70-80	15-25	NP-10
	31-45	Silt loam, sandy loam, fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-70	0-10	NP-5
	45-48	Sandy loam, silt loam, fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-70	0-5	NP-5
	48-60	Sandy loam, silt loam	SM, SC-SM	A-2, A-4	0	0	90-100	85-100	60-70	30-40	0-5	NP-5
432: Okanogan-----	0-3	Loam	CL	A-4, A-6	0	0	100	90-100	80-90	70-80	15-30	5-15
	3-14	Loam, very fine sandy loam, silt loam	CL-ML, CL, ML	A-4	0	0	100	90-100	80-90	75-85	15-25	NP-10
	14-31	Loam, silt loam, very fine sandy loam	CL-ML, CL, ML	A-4	0	0	100	90-100	80-90	70-80	15-25	NP-10
	31-45	Silt loam, sandy loam, fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-70	0-10	NP-5
	45-48	Sandy loam	SM	A-2	0	0	100	100	60-70	30-40	0-5	NP-5
	48-60	Sand	SP-SM, SC-SM	A-2, A-1	0	0	100	100	50-70	5-15	0-5	NP-5
433: Owhi-----	0-5	Ashy fine sandy loam	SM, SC-SM	A-2	0	0-5	85-100	80-100	60-70	15-30	10-20	NP-5
	5-11	Ashy fine sandy loam, ashy sandy loam	SM, CL-ML	A-4, A-2	0	0-5	85-100	75-100	50-85	35-55	10-20	NP-5
	11-24	Gravelly sandy loam, very cobbly sandy loam	GP-GM, GC-GM	A-1	0	0-30	40-55	35-50	25-40	10-15	10-20	NP-5
	24-31	Very gravelly loamy sand, very gravelly coarse sand	GP, GP-GC	A-1	0	5-25	35-50	30-45	15-30	0-5	0-5	NP-5
	31-60	Extremely gravelly coarse sand, extremely cobbly coarse sand	GP, GP-GC	A-1	0	15-35	30-45	25-40	15-30	0-5	0-5	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
434: Owhi-----	0-5	Ashy fine sandy loam	SM, SC-SM	A-2	0	0-5	85-100	80-100	60-70	15-30	10-20	NP-5
	5-11	Ashy fine sandy loam, ashy sandy loam	SM, CL-ML	A-4, A-2	0	0-5	85-100	75-100	50-85	35-55	10-20	NP-5
	11-24	Gravelly sandy loam, very cobbly sandy loam	GP-GM, GC-GM	A-1	0	0-30	40-55	35-50	25-40	10-15	10-20	NP-5
	24-31	Very gravelly loamy sand, very gravelly coarse sand	GP, GP-GC	A-1	0	5-25	35-50	30-45	15-30	0-5	0-5	NP-5
	31-60	Extremely gravelly coarse sand, extremely cobbly coarse sand	GP, GP-GC	A-1	0	15-35	30-45	25-40	15-30	0-5	0-5	NP-5
435: Owhi, extremely stony surface--	0-5	Ashy fine sandy loam	SM, SC-SM	A-2	0	0-5	85-100	80-100	60-70	15-30	10-20	NP-5
	5-11	Ashy fine sandy loam, ashy sandy loam	SM, CL-ML	A-4, A-2	0	0-5	85-100	75-100	50-85	35-55	10-20	NP-5
	11-24	Gravelly sandy loam, very cobbly sandy loam	GP-GM, GC-GM	A-1	0	0-30	40-55	35-50	25-40	10-15	10-20	NP-5
	24-31	Very gravelly loamy sand, very gravelly coarse sand	GP, GP-GC	A-1	0	5-25	35-50	30-45	15-30	0-5	0-5	NP-5
	31-60	Extremely gravelly coarse sand, extremely cobbly coarse sand	GP, GP-GC	A-1	0	15-35	30-45	25-40	15-30	0-5	0-5	NP-5
436: Owhi, extremely stony surface--	0-5	Ashy fine sandy loam	SM, SC-SM	A-2	0	0-5	85-100	80-100	60-70	15-30	10-20	NP-5
	5-11	Ashy fine sandy loam, ashy sandy loam	SM, CL-ML	A-4, A-2	0	0-5	85-100	75-100	50-85	35-55	10-20	NP-5
	11-24	Gravelly sandy loam, very cobbly sandy loam	GP-GM, GC-GM	A-1	0	0-30	40-55	35-50	25-40	10-15	10-20	NP-5
	24-31	Very gravelly loamy sand, very gravelly coarse sand	GP, GP-GC	A-1	0	5-25	35-50	30-45	15-30	0-5	0-5	NP-5
	31-60	Extremely gravelly coarse sand, extremely cobbly coarse sand	GP, GP-GC	A-1	0	15-35	30-45	25-40	15-30	0-5	0-5	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
437: Owhi-----	0-5	Gravelly ashy fine sandy loam	SM, SC-SM	A-4, A-2	0	0-5	75-90	55-75	45-60	30-50	10-20	NP-5
	5-11	Ashy fine sandy loam, ashy sandy loam	SM, CL-ML	A-4, A-2	0	0-5	85-100	75-100	50-85	35-55	10-20	NP-5
	11-24	Gravelly sandy loam, very cobbly sandy loam	GP-GM, GC-GM	A-1	0	0-30	40-55	35-50	25-40	10-15	10-20	NP-5
	24-31	Very gravelly loamy sand, very gravelly coarse sand	GP, GP-GC	A-1	0	5-25	35-50	30-45	15-30	0-5	0-5	NP-5
	31-60	Extremely gravelly coarse sand, extremely cobbly coarse sand	GP, GP-GC	A-1	0	15-35	30-45	25-40	15-30	0-5	0-5	NP-5
438: Owhi-----	0-5	Ashy fine sandy loam	SM, SC-SM	A-2	0	0-5	85-100	80-100	60-70	15-30	10-20	NP-5
	5-11	Ashy fine sandy loam, ashy sandy loam	SM, CL-ML	A-4, A-2	0	0-5	85-100	75-100	50-85	35-55	10-20	NP-5
	11-24	Gravelly sandy loam, very cobbly sandy loam	GP-GM, GC-GM	A-1	0	0-30	40-55	35-50	25-40	10-15	10-20	NP-5
	24-31	Very gravelly loamy sand, very gravelly coarse sand	GP, GP-GC	A-1	0	5-25	35-50	30-45	15-30	0-5	0-5	NP-5
	31-60	Extremely gravelly coarse sand, extremely cobbly coarse sand	GP, GP-GC	A-1	0	15-35	30-45	25-40	15-30	0-5	0-5	NP-5
Haley-----	0-8	Ashy fine sandy loam	SM, ML	A-4	0	0	100	90-100	75-90	40-50	0-10	NP
	8-12	Ashy fine sandy loam, ashy sandy loam	SM, ML	A-4	0	0	100	90-100	75-90	40-50	0-10	NP
	12-25	Ashy fine sandy loam, ashy sandy loam	SM, ML	A-4	0	0	100	90-100	75-90	40-50	0-10	NP
	25-60	Sand, coarse sand, loamy sand	SP-SM	A-3, A-2, A-1	0	0	100	90-100	50-65	5-15	0-10	NP

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>											
439: Owhi-----	0-5	Ashy fine sandy loam	SM, SC-SM	A-2	0	0-5	85-100	80-100	60-70	15-30	10-20	NP-5
	5-11	Ashy fine sandy loam, ashy sandy loam	SM, CL-ML	A-4, A-2	0	0-5	85-100	75-100	50-85	35-55	10-20	NP-5
	11-24	Gravelly sandy loam, very cobbly sandy loam	GP-GM, GC-GM	A-1	0	0-30	40-55	35-50	25-40	10-15	10-20	NP-5
	24-31	Very gravelly loamy sand, very gravelly coarse sand	GP, GP-GC	A-1	0	5-25	35-50	30-45	15-30	0-5	0-5	NP-5
	31-60	Extremely gravelly coarse sand, extremely cobbly coarse sand	GP, GP-GC	A-1	0	15-35	30-45	25-40	15-30	0-5	0-5	NP-5
Haley-----	0-8	Ashy fine sandy loam	SM, ML	A-4	0	0	100	90-100	75-90	40-50	0-10	NP
	8-12	Ashy fine sandy loam, ashy sandy loam	SM, ML	A-4	0	0	100	90-100	75-90	40-50	0-10	NP
	12-25	Ashy fine sandy loam, ashy sandy loam	SM, ML	A-4	0	0	100	90-100	75-90	40-50	0-10	NP
	25-60	Sand, coarse sand, loamy sand	SP-SM	A-3, A-2, A-1	0	0	100	90-100	50-65	5-15	0-10	NP
440: Owhi-----	0-5	Ashy fine sandy loam	SM, SC-SM	A-2	0	0-5	85-100	80-100	60-70	15-30	10-20	NP-5
	5-11	Ashy fine sandy loam, ashy sandy loam	SM, CL-ML	A-4, A-2	0	0-5	85-100	75-100	50-85	35-55	10-20	NP-5
	11-24	Gravelly sandy loam, very cobbly sandy loam	GP-GM, GC-GM	A-1	0	0-30	40-55	35-50	25-40	10-15	10-20	NP-5
	24-31	Very gravelly loamy sand, very gravelly coarse sand	GP, GP-GC	A-1	0	5-25	35-50	30-45	15-30	0-5	0-5	NP-5
	31-60	Extremely gravelly coarse sand, extremely cobbly coarse sand	GP, GP-GC	A-1	0	15-35	30-45	25-40	15-30	0-5	0-5	NP-5
Haley-----	0-8	Ashy fine sandy loam	SM, ML	A-4	0	0	100	90-100	75-90	40-50	0-10	NP
	8-12	Ashy fine sandy loam, ashy sandy loam	SM, ML	A-4	0	0	100	90-100	75-90	40-50	0-10	NP
	12-25	Ashy fine sandy loam, ashy sandy loam	SM, ML	A-4	0	0	100	90-100	75-90	40-50	0-10	NP
	25-60	Sand	SP-SM	A-3, A-1, A-2	0	0	100	90-100	50-65	5-15	0-10	NP

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
441: Oxerine-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Ashy fine sandy loam	SM	A-4	0	0-5	70-90	50-75	40-60	35-50	20-40	NP-5
	5-11	Gravelly ash fine sandy loam	SM	A-4	0	0-5	70-90	50-75	40-60	35-50	20-40	NP-5
	11-20	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-2, A-1, A-4	0-5	15-30	45-70	35-60	25-50	15-40	10-20	NP-10
	20-32	Extremely cobbly sandy loam, extremely gravelly sandy loam, very gravelly sandy loam, extremely flaggy sandy loam	GC-GM, SC-SM	A-1, A-2	0-15	15-50	25-60	15-50	10-40	5-30	10-20	NP-10
	32-36	Unweathered bedrock			---	---	---	---	---	---	---	---
442: Oxerine, warm---	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Gravelly ash fine sandy loam	SM	A-4	0	0-5	70-90	50-75	40-60	35-50	20-40	NP-5
	5-11	Gravelly ash fine sandy loam	SM	A-4	0	0-5	70-90	50-75	40-60	35-50	20-40	NP-5
	11-20	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-2, A-1, A-4	0-5	15-30	45-70	35-60	25-50	15-40	10-20	NP-10
	20-32	Extremely cobbly sandy loam, extremely gravelly sandy loam, very gravelly sandy loam, extremely flaggy sandy loam	GC-GM, SC-SM	A-1, A-2	0-15	15-50	25-60	15-50	10-40	5-30	10-20	NP-10
	32-36	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
442: Lithic Haploxerepts, forested, cool	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Cobbly ashy sandy loam	ML	A-4	0-5	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	4-13	Cobbly ashy sandy loam, very gravelly ashy sandy loam, stony ashy loam	ML	A-4	0-15	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	13-19	Very gravelly sandy loam, gravelly sandy loam, very cobbly sandy loam	SM, GM	A-2, A-1, A-4	0-5	5-30	45-100	35-90	25-70	15-50	15-25	NP-5
	19-23	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
443: Oxerine, warm---	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Gravelly ashy fine sandy loam	SM	A-4	0	0-5	70-90	50-75	40-60	35-50	20-40	NP-5
	5-11	Gravelly ashy fine sandy loam	SM	A-4	0	0-5	70-90	50-75	40-60	35-50	20-40	NP-5
	11-20	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-2, A-1, A-4	0-5	15-30	45-70	35-60	25-50	15-40	10-20	NP-10
	20-32	Extremely cobbly sandy loam, extremely gravelly sandy loam, very gravelly sandy loam, extremely flaggy sandy loam	GC-GM, SC-SM	A-1, A-2	0-15	15-50	25-60	15-50	10-40	5-30	10-20	NP-10
	32-36	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
443: Nevine, warm----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Ashy fine sandy loam	ML	A-4	0	0-10	90-100	85-100	70-90	50-80	20-40	NP-5
	4-9	Ashy fine sandy loam	ML, SM	A-4	0	0-10	85-100	75-90	55-75	40-70	20-40	NP-5
	9-21	Gravelly ashy fine sandy loam, ashy fine sandy loam	ML, SM	A-4	0	0-10	85-100	65-90	55-75	40-70	20-40	NP-5
	21-38	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-2, A-4, A-1	0-15	10-25	45-75	40-70	30-55	20-45	10-20	NP-10
	38-51	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-25	10-40	40-70	35-65	25-45	10-35	10-20	NP-10
	51-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-25	10-40	40-70	35-65	25-45	10-35	10-20	NP-10
444: Oxerine, cool----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Gravelly ashy fine sandy loam	SM	A-4	0	0-5	70-90	50-75	40-60	35-50	20-40	NP-5
	5-11	Gravelly ashy fine sandy loam	SM	A-4	0	0-5	70-90	50-75	40-60	35-50	20-40	NP-5
	11-20	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-2, A-1, A-4	0-5	15-30	45-70	35-60	25-50	15-40	10-20	NP-10
	20-32	Extremely cobbly sandy loam, extremely gravelly sandy loam, very gravelly sandy loam, extremely flaggy sandy loam	GC-GM, SC-SM	A-1, A-2	0-15	15-50	25-60	15-50	10-40	5-30	10-20	NP-10
	32-36	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
445: Pebcreek-----	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-7	Stony ashy sandy loam	SC-SM, ML, SM	A-4, A-2	5-15	0-10	75-90	65-85	40-65	25-55	15-30	NP-10
	7-13	Gravelly ashy sandy loam, ashy sandy loam	SC-SM, ML, SM, GM, GC- GM	A-4, A-2	0	0-10	65-80	60-80	40-65	25-55	15-30	NP-10
	13-39	Very gravelly sand, very gravelly loamy sand	GM, GP-GM	A-1	0	0-10	25-55	20-45	10-30	5-20	0-5	NP-5
	39-44	Very gravelly loamy sand, very gravelly sand, extremely gravelly loamy sand	GP-GM, GM, GP	A-1	0-10	0-10	15-45	10-40	5-30	0-20	0-10	NP-5
	44-60	Gravelly sandy loam, very gravelly sandy loam, very gravelly loamy sand	GC-GM, GP-GM, SP, SP-SM, SM, GP, GM, SC-SM	A-1	0-10	0-15	25-60	20-55	10-40	0-25	5-15	NP-10
446: Pebcreek-----	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-7	Ashy sandy loam	SC-SM, ML, SM	A-4, A-2	0	0-5	85-100	75-100	40-65	25-55	15-30	NP-10
	7-13	Gravelly ashy sandy loam, ashy sandy loam	SC-SM, ML, SM, GM, GC-GM	A-4, A-2	0	0-10	65-80	60-80	40-65	25-55	15-30	NP-10
	13-39	Very gravelly sand, very gravelly loamy sand	GM, GP-GM	A-1	0	0-10	25-55	20-45	10-30	5-20	0-5	NP-5
	39-44	Very gravelly loamy sand, very gravelly sand, extremely gravelly loamy sand	GP-GM, GM, GP	A-1	0-10	0-10	15-45	10-40	5-30	0-20	0-10	NP-5
	44-60	Gravelly sandy loam, very gravelly sandy loam, very gravelly loamy sand	GC-GM, GP-GM, SP, SP-SM, SM, GP, GM, SC-SM	A-1	0-10	0-15	25-60	20-55	10-40	0-25	5-15	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
446: Brevco, cool----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Stony ash coarse sandy loam	SC-SM	A-1, A-2	10-20	0-10	70-80	65-75	30-50	15-35	15-30	NP-10
	4-12	Gravelly ash coarse sandy loam, gravelly ashy sandy loam	SC-SM	A-1, A-2	0-5	0-15	65-80	60-75	25-50	10-35	15-30	NP-10
	12-26	Very gravelly sandy loam, very gravelly coarse sandy loam, very cobble coarse sandy loam	GC-GM, GP-GM, SM, SP-SM	A-1, A-2	0-5	10-45	30-65	25-60	15-50	5-35	15-25	NP-10
	26-39	Very cobble coarse sandy loam, very gravelly coarse sandy loam, very gravelly sandy loam	GC-GM, GP-GM, SM, SP-SM	A-1, A-2	0-5	10-45	30-60	25-55	15-45	5-30	15-25	NP-10
	39-43	Unweathered bedrock			---	---	---	---	---	---	---	---
447: Pebcreek-----	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-7	Ashy sandy loam	SC-SM, ML, SM	A-4, A-2	0	0-5	85-100	75-100	40-65	25-55	15-30	NP-10
	7-13	Gravelly ash sandy loam, ash sandy loam	SC-SM, ML, SM, GM, GC-GM	A-4, A-2	0	0-10	65-80	60-80	40-65	25-55	15-30	NP-10
	13-39	Very gravelly sand, very gravelly loamy sand	GM, GP-GM	A-1	0	0-10	25-55	20-45	10-30	5-20	0-5	NP-5
	39-44	Very gravelly loamy sand, very gravelly sand, extremely gravelly loamy sand	GP-GM, GM, GP	A-1	0-10	0-10	15-45	10-40	5-30	0-20	0-10	NP-5
	44-60	Gravelly sandy loam, very gravelly sandy loam, very gravelly loamy sand	GC-GM, GP-GM, SP, SP-SM, SM, GP, GM, SC-SM	A-1	0-10	0-15	25-60	20-55	10-40	0-25	5-15	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
447: Brevco, cool----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Stony ashy coarse sandy loam	SC-SM	A-1, A-2	10-20	0-10	70-80	65-75	30-50	15-35	15-30	NP-10
	4-12	Gravelly ashy coarse sandy loam, gravelly ashy sandy loam	SC-SM	A-1, A-2	0-5	0-15	65-80	60-75	25-50	10-35	15-30	NP-10
	12-26	Very gravelly sandy loam, very gravelly coarse sandy loam, very cobble coarse sandy loam	GC-GM, GP-GM, SM, SP-SM	A-1, A-2	0-5	10-45	30-65	25-60	15-50	5-35	15-25	NP-10
	26-39	Very cobbly coarse sandy loam, very gravelly coarse sandy loam, very gravelly sandy loam	GC-GM, GP-GM, SM, SP-SM	A-1, A-2	0-5	10-45	30-60	25-55	15-45	5-30	15-25	NP-10
	39-43	Unweathered bedrock			---	---	---	---	---	---	---	---
448: Pebcreek, dry---	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-7	Stony ashy sandy loam	SC-SM, ML, SM	A-4, A-2	5-15	0-10	75-90	65-85	40-65	25-55	15-30	NP-10
	7-13	Gravelly ashy sandy loam, ashy sandy loam	SC-SM, ML, SM, GM, GC- GM	A-4, A-2	0	0-10	65-80	60-80	40-65	25-55	15-30	NP-10
	13-39	Very gravelly sand, very gravelly loamy sand	GM, GP-GM	A-1	0	0-10	25-55	20-45	10-30	5-20	0-5	NP-5
	39-44	Very gravelly loamy sand, very gravelly sand, extremely gravelly loamy sand	GP-GM, GP, GM	A-1	0-10	0-10	15-45	10-40	5-30	0-20	0-10	NP-5
	44-60	Gravelly sandy loam, very gravelly sandy loam, very gravelly loamy sand	GC-GM, GM, SP, SP-SM, SM, GP, GP-GM, SC-SM	A-1	0-10	0-15	25-60	20-55	10-40	0-25	5-15	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
448: Lithic Haploxerepts, forested, dry---	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Cobbly ashy sandy loam	ML	A-4	0-5	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	4-13	Cobbly ashy sandy loam, very gravelly ashy sandy loam, stony ashy loam	ML	A-4	0-15	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	13-19	Very gravelly sandy loam, gravelly sandy loam, very cobbly sandy loam	SM, GM	A-2, A-1, A-4	0-5	5-30	45-100	35-90	25-70	15-50	15-25	NP-5
	19-23	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
449: Peka-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Stony ashy sandy loam	SC-SM, ML	A-4	10-15	0-5	70-85	65-80	40-65	25-55	15-30	NP-10
	7-16	Gravelly ashy sandy loam	SC-SM	A-2, A-4	0-5	0-5	70-90	65-85	45-70	25-40	15-30	NP-10
	16-25	Very cobbly sandy loam, very gravelly sandy loam	GC-GM, SC-SM	A-1	0-5	10-30	40-70	35-65	25-40	15-25	15-25	NP-10
	25-50	Very cobbly sandy loam, very gravelly sandy loam	GM, SM	A-1	0-5	10-30	40-70	35-65	25-40	15-25	15-25	NP-5
	50-60	Very gravelly sandy loam	GM, SM	A-1	0	0-25	45-60	40-55	25-45	10-20	15-25	NP-5
450: Peka, moist-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Stony ashy sandy loam	SC-SM, ML	A-4	10-15	0-5	70-85	65-80	40-65	25-55	15-30	NP-10
	7-16	Gravelly ashy sandy loam	SC-SM	A-2, A-4	0-5	0-5	70-90	65-85	45-70	25-40	15-30	NP-10
	16-25	Very cobbly sandy loam, very gravelly sandy loam	GC-GM, SC-SM	A-1	0-5	10-30	40-70	35-65	25-40	15-25	15-25	NP-10
	25-50	Very cobbly sandy loam, very gravelly sandy loam	GM, SM	A-1	0-5	10-30	40-70	35-65	25-40	15-25	15-25	NP-5
	50-60	Very gravelly sandy loam	GM, SM	A-1	0	0-25	45-60	40-55	25-45	10-20	15-25	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
450: Donavan-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Stony ashy loam	ML, SM	A-4	5-25	0-5	90-100	85-90	50-80	40-75	20-35	NP-10
	7-11	Gravelly ashy loam, gravelly ashy sandy loam, ashy loam	ML, SM	A-4	0	0-5	70-95	65-90	40-75	35-65	20-35	NP-10
	11-16	Gravelly ashy sandy loam, ashy loam, gravelly ashy loam	CL-ML, SC-SM	A-4	0	0-5	70-95	65-90	40-75	35-65	15-30	NP-10
	16-27	Gravelly sandy loam	SC-SM, SM	A-2, A-4	0	0-5	70-90	65-85	35-70	25-45	15-25	NP-10
	27-34	Gravelly sandy loam	SC-SM, SM	A-2, A-4	0	0-5	70-90	65-85	35-70	25-45	15-25	NP-10
	34-60	Gravelly sandy loam	SC-SM, SM	A-2, A-4	0	0-5	70-90	65-85	35-70	25-45	15-25	NP-10
451: Peka-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Stony ashy sandy loam	SC-SM, ML	A-4	10-15	0-5	70-85	65-80	40-65	25-55	15-30	NP-10
	7-16	Gravelly ashy sandy loam	SC-SM	A-2, A-4	0-5	0-5	70-90	65-85	45-70	25-40	15-30	NP-10
	16-25	Very cobbly sandy loam, very gravelly sandy loam	GC-GM, SC-SM	A-1	0-5	10-30	40-70	35-65	25-40	15-25	15-25	NP-10
	25-50	Very cobbly sandy loam, very gravelly sandy loam	GM, SM	A-1	0-5	10-30	40-70	35-65	25-40	15-25	15-25	NP-5
	50-60	Very gravelly sandy loam	GM, SM	A-1	0	0-25	45-60	40-55	25-45	10-20	15-25	NP-5
Swakane-----	0-4	Very stony ashy sandy loam	SC-SM, GC-GM	A-2, A-1, A-4	25-45	0-25	55-85	45-80	35-55	20-40	10-20	NP-10
	4-11	Very cobbly ashy sandy loam, very gravelly ashy sandy loam	SC-SM, GC-GM	A-1, A-2	0-15	0-25	45-80	40-75	30-55	15-30	10-20	NP-10
	11-17	Very gravelly sandy loam, very cobbly sandy loam, extremely gravelly sandy loam	GC-GM, SC-SM	A-1	0-15	15-30	35-70	30-65	20-40	5-25	10-20	NP-10
	17-21	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
452: Pelican-----	0-11	Gravelly ashy loam	ML	A-4	0	0-5	90-100	85-95	60-90	55-80	15-30	NP-5
	11-18	Gravelly sandy loam, very gravelly sandy loam	GC-GM, SC-SM	A-2, A-1, A-4	0	0-15	55-80	45-75	35-60	20-50	10-20	NP-10
	18-28	Very gravelly sandy loam	GC-GM, SC-SM	A-1, A-2	0	0-15	45-65	35-50	25-45	10-35	10-20	NP-10
	28-37	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0	0-40	40-65	30-50	20-45	10-35	10-20	NP-10
	37-46	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0	0-40	40-65	30-50	20-45	10-35	10-20	NP-10
	46-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0	0-40	40-65	30-50	20-45	10-35	10-20	NP-10
453: Pettijohn-----	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-6	Stony ashy fine sandy loam	SC-SM	A-4, A-2	10-20	10-20	85-95	80-90	55-75	30-50	15-30	NP-10
	6-26	Very cobbly ashy fine sandy loam, extremely stony ashy fine sandy loam	SC-SM	A-2, A-4	15-45	14-50	70-80	65-75	50-60	30-40	10-20	NP-10
	26-44	Very stony ashy fine sandy loam, very cobbly ashy fine sandy loam	GC-GM	A-1, A-2	15-30	35-45	50-60	45-55	35-45	20-30	10-20	NP-10
	44-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	5-15	10-30	45-65	40-60	25-40	10-30	10-20	NP-10
Mineral-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Stony ashy loam	GC-GM, SC-SM	A-4, A-2	10-15	10-15	55-80	50-75	40-60	30-45	15-30	NP-10
	7-13	Very gravelly ashy loam, very stony ashy sandy loam, very cobbly ashy sandy loam	GC-GM, SC-SM	A-2, A-1, A-4	5-30	5-40	40-70	35-65	25-55	15-40	15-30	NP-10
	13-24	Very stony sandy loam, very cobbly sandy loam	SC-SM, GC-GM	A-1, A-2	5-30	15-40	55-75	45-65	20-55	10-35	15-25	NP-10
	24-28	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
454: Pettijohn-----	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-6	Stony ashy fine sandy loam	SC-SM	A-4, A-2	10-20	10-20	85-95	80-90	55-75	30-50	15-30	NP-10
	6-26	Very cobbly ashy fine sandy loam, extremely stony ashy fine sandy loam	SC-SM	A-2, A-4	15-45	15-50	70-80	65-75	50-60	30-40	10-20	NP-10
	26-44	Very stony ashy fine sandy loam, very cobbly ashy fine sandy loam	GC-GM	A-1, A-2	15-30	35-45	50-60	45-55	35-45	20-30	10-20	NP-10
	44-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	5-15	10-30	45-65	40-60	25-40	10-30	10-20	NP-10
Wilma-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Gravelly ashy fine sandy loam	ML, SM	A-4	0-5	0-5	80-95	70-85	60-75	45-60	25-35	NP-5
	7-13	Gravelly ashy fine sandy loam	ML, SM	A-4	0-10	0-5	75-95	65-85	55-70	40-60	25-35	NP-5
	13-18	Very gravelly fine sandy loam, very gravelly sandy loam, very cobbly sandy loam, very cobbly fine sandy loam	GM, SM	A-2, A-1, A-4	0-10	15-30	45-65	40-60	30-55	15-45	10-20	NP-5
	18-29	Extremely gravelly coarse sandy loam, very gravelly sandy loam, very cobbly coarse sandy loam	GM, GP-GM	A-1	0-10	15-30	35-50	30-45	15-35	5-25	10-20	NP-5
	29-33	Unweathered bedrock			---	---	---	---	---	---	---	---
455: Pogue-----	0-6	Fine sandy loam	CL-ML	A-4	0	0	100	95-100	70-85	40-55	15-25	2-6
	6-12	Gravelly fine sandy loam	GC-GM	A-2	0	0	60-70	55-65	40-50	25-35	15-25	2-6
	12-29	Gravelly fine sandy loam, gravelly loam, cobbly fine sandy loam	GM	A-1, A-2	0	0-15	55-65	50-60	30-45	20-30	5-15	1-5
	29-60	Very gravelly sand, very cobbly sand, very gravelly loamy sand, extremely gravelly loamy coarse sand	GP-GM	A-1	0	0-25	40-50	35-45	20-30	0-15	0-5	NP

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
456: Pogue-----	0-6	Fine sandy loam	CL-ML	A-4	0	0	100	95-100	70-85	40-55	15-25	2-6
	6-12	Gravelly fine sandy loam	GC-GM	A-2	0	0	60-70	55-65	40-50	25-35	15-25	2-6
	12-29	Gravelly fine sandy loam, gravelly loam, cobbly fine sandy loam	GM	A-1, A-2	0	0-15	55-65	50-60	30-45	20-30	5-15	1-5
	29-60	Very gravelly sand, very cobbly sand, very gravelly loamy sand, extremely gravelly loamy coarse sand	GP-GM	A-1	0	0-25	40-50	35-45	20-30	0-15	0-5	NP
457: Pogue-----	0-6	Fine sandy loam	CL-ML	A-4	0	0	100	95-100	70-85	40-55	15-25	2-6
	6-12	Gravelly fine sandy loam	GC-GM	A-2	0	0	60-70	55-65	40-50	25-35	15-25	2-6
	12-29	Gravelly fine sandy loam, gravelly loam, cobbly fine sandy loam	GM	A-1, A-2	0	0-15	55-65	50-60	30-45	20-30	5-15	1-5
	29-60	Very gravelly sand, very cobbly sand, very gravelly loamy sand, extremely gravelly loamy coarse sand	GP-GM	A-1	0	0-25	40-50	35-45	20-30	0-15	0-5	NP
458: Pogue-----	0-6	Fine sandy loam	CL-ML, ML	A-4	0	0	100	95-100	70-85	40-55	15-25	2-6
	6-12	Gravelly fine sandy loam	GC-GM	A-2	0	0	60-70	55-65	40-50	25-35	15-25	2-6
	12-29	Gravelly fine sandy loam, gravelly loam, cobbly fine sandy loam	GM	A-1, A-2	0	0-15	55-65	50-60	30-45	20-30	5-15	1-5
	29-60	Very gravelly sand, very cobbly sand, very gravelly loamy sand, extremely gravelly loamy coarse sand	GP-GM	A-1	0	0-25	40-50	35-45	20-30	0-15	0-5	NP

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
459: Pogue, extremely stony surface--	0-6	Gravelly fine sandy loam	GC-GM	A-2	0	0	60-70	55-65	40-50	25-35	15-25	2-6
	6-12	Gravelly fine sandy loam	GC-GM	A-2	0	0	60-70	55-65	40-50	25-35	15-25	2-6
	12-29	Gravelly fine sandy loam, gravelly loam, cobble fine sandy loam	GM	A-1, A-2	0	0-15	55-65	50-60	30-45	20-30	5-15	1-5
	29-60	Very gravelly sand, very cobble sand, very gravelly loamy sand, extremely gravelly loamy coarse sand	GP-GM	A-1	0	0-25	40-50	35-45	20-30	0-15	0-5	NP
460: Pogue, extremely stony surface--	0-6	Gravelly fine sandy loam	GC-GM	A-2	0	0	60-70	55-65	40-50	25-35	15-25	2-6
	6-12	Gravelly fine sandy loam	GC-GM	A-2	0	0	60-70	55-65	40-50	25-35	15-25	2-6
	12-29	Gravelly fine sandy loam, gravelly loam, cobble fine sandy loam	GM	A-1, A-2	0	0-15	55-65	50-60	30-45	20-30	5-15	1-5
	29-60	Very gravelly sand, very cobble sand, very gravelly loamy sand, extremely gravelly loamy coarse sand	GP-GM	A-1	0	0-25	40-50	35-45	20-30	0-15	0-5	NP
461: Pogue-----	0-6	Gravelly fine sandy loam	GC-GM	A-2	0	0	60-70	55-65	40-50	25-35	15-25	2-6
	6-12	Gravelly fine sandy loam	GC-GM	A-2	0	0	60-70	55-65	40-50	25-35	15-25	2-6
	12-29	Gravelly fine sandy loam, gravelly loam, cobble fine sandy loam	GM	A-1, A-2	0	0-15	55-65	50-60	30-45	20-30	5-15	1-5
	29-60	Very gravelly sand, very cobble sand, very gravelly loamy sand, extremely gravelly loamy coarse sand	GP-GM	A-1	0	0-25	40-50	35-45	20-30	0-15	0-5	NP

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
462: Pogue-----	0-6	Gravelly fine sandy loam	GC-GM	A-2	0	0	60-70	55-65	40-50	25-35	15-25	2-6
	6-12	Gravelly fine sandy loam	GC-GM	A-2	0	0	60-70	55-65	40-50	25-35	15-25	2-6
	12-29	Gravelly fine sandy loam, gravelly loam, cobbly fine sandy loam	GM	A-1, A-2	0	0-15	55-65	50-60	30-45	20-30	5-15	1-5
	29-60	Very gravelly sand, very cobbly sand, very gravelly loamy sand, extremely gravelly loamy coarse sand	GP-GM	A-1	0	0-25	40-50	35-45	20-30	0-15	0-5	NP
463: Radercreek-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-6	Gravelly ashly sandy loam	SC-SM	A-1, A-2	0	0	75-90	70-75	40-60	20-35	15-30	NP-10
	6-13	Gravelly ashly sandy loam, very gravelly ashly sandy loam	SC-SM, GC-GM	A-1, A-2	0	0-15	50-80	45-75	35-55	15-35	15-30	NP-10
	13-18	Very gravelly ashly sandy loam, gravelly ashly sandy loam	GC-GM, SC-SM	A-1, A-2	0	0-15	50-80	45-75	35-55	15-35	15-30	NP-10
	18-25	Very cobbly sandy loam, very cobbly loam, very gravelly sandy loam	GC-GM	A-1, A-2	0-5	15-45	35-55	30-50	20-45	10-35	15-30	NP-10
	25-44	Very cobbly sandy loam, very cobbly loam, very gravelly sandy loam	GC-GM	A-1, A-2	0-5	15-45	35-55	30-50	20-45	10-35	10-20	NP-10
	44-48	Unweathered bedrock			---	---	---	---	---	---	---	---
Santop-----	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-7	Gravelly ashly sandy loam	SC-SM, GC-GM	A-2, A-4	0	0-5	65-80	60-75	40-60	25-40	15-30	NP-10
	7-17	Very gravelly ashly sandy loam, very cobbly ashly sandy loam	GC-GM, SC-SM	A-1, A-2	0-5	5-25	45-65	40-60	30-45	15-35	15-30	NP-10
	17-36	Very stony sandy loam, very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	5-25	40-65	35-60	20-40	10-30	15-25	NP-10
	36-40	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
464: Redpeak-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Gravelly ashy sandy loam	SC-SM, ML, SM	A-4	0	0	75-80	70-75	45-60	35-55	15-30	NP-10
	5-10	Gravelly ashy sandy loam, gravelly ashy loam, very gravelly ashy sandy loam	GC-GM, GM, ML, SM, SC-SM	A-4, A-2	0	0-5	60-80	45-75	40-55	30-55	15-30	NP-10
	10-17	Very gravelly ashy sandy loam, gravelly ashy sandy loam, gravelly ashy loam	GC-GM, GM, SM, ML, SC-SM	A-4, A-2	0	0-5	60-80	45-75	40-55	30-55	15-30	NP-10
	17-29	Very gravelly sandy loam, very gravelly loam	GC-GM	A-1, A-2	0	0-10	40-60	35-55	25-45	10-35	10-20	NP-10
	29-36	Very gravelly sandy loam, very gravelly loam	GC-GM	A-1, A-2	0	0-10	40-60	35-55	25-45	10-35	10-20	NP-10
	36-40	Unweathered bedrock			---	---	---	---	---	---	---	---
Ontrail-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Gravelly ashy sandy loam	SC-SM, ML	A-4	0	0	75-80	70-75	60-65	40-55	15-30	NP-10
	5-17	Gravelly ashy sandy loam	GC-GM, ML, SC-SM	A-4, A-2	0	0	55-80	50-75	40-65	30-55	15-30	NP-10
	17-33	Very gravelly sandy loam, very cobbly sandy loam	GC-GM	A-1, A-2	0	10-30	45-60	40-55	25-45	15-30	15-25	NP-10
	33-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM	A-1, A-2	0	10-30	45-60	40-55	25-45	15-30	15-25	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
465: Rommel-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Very stony ashy sandy loam	SM, ML	A-4, A-2	25-40	10-25	65-85	60-80	45-70	30-60	20-40	NP-5
	5-9	Gravelly ashy sandy loam, very gravelly ashy sandy loam	GM, ML, SM	A-4, A-2	0-5	0-5	60-80	45-75	40-60	30-55	20-40	NP-5
	9-14	Very gravelly ashy sandy loam, gravelly ashy sandy loam	GM, ML, SM	A-4, A-2	0-5	0-5	60-80	45-75	40-60	30-55	20-40	NP-5
	14-30	Very cobbly sandy loam, very gravelly sandy loam, very cobbly coarse sandy loam	GM	A-1, A-2	0-5	10-30	35-60	30-55	20-45	15-35	20-40	NP-5
	30-42	Very cobbly sandy loam, extremely cobbly sandy loam, very gravelly sandy loam	GC-GM	A-1	0-5	10-30	35-55	30-45	15-35	10-25	10-20	NP-10
	42-60	Very cobbly loamy coarse sand, extremely gravelly loamy coarse sand	GW-GC, GM	A-1	0-5	15-35	30-45	25-40	5-30	5-15	10-20	NP-10
Devore, cold----	0-3	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	3-4	Stony ashy sandy loam	ML	A-4	5-25	0-5	95-100	90-100	70-90	60-80	25-40	NP-5
	4-7	Very stony ashy fine sandy loam, very stony ashy sandy loam	SM, ML, GM	A-4, A-2	25-35	10-25	70-85	65-80	45-70	30-55	20-40	NP-5
	7-14	Very stony ashy fine sandy loam, very stony ashy sandy loam	SM, ML, GM	A-4, A-2	25-35	15-35	70-85	65-80	45-70	30-55	20-40	NP-5
	14-26	Extremely stony coarse sandy loam, very stony sandy loam, very cobbly sandy loam	SC-SM, GC-GM	A-1, A-2	25-45	30-50	45-95	40-70	20-45	10-30	10-20	NP-10
	26-35	Extremely stony coarse sandy loam, very stony sandy loam, very cobbly sandy loam	SC-SM, GC-GM	A-1, A-2	25-45	30-50	45-95	40-70	20-45	10-30	10-20	NP-10
	35-39	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
466: Rendovy-----	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-7	Gravelly ash fine sandy loam	GM, ML, SM	A-4	0	0	65-80	60-75	55-70	40-55	20-40	NP-5
	7-14	Gravelly ash sandy loam, gravelly ash fine sandy loam	SM, ML	A-4, A-2	0	0	65-80	60-75	35-70	30-55	20-40	NP-5
	14-26	Very gravelly sandy loam, very gravelly sandy clay loam	GC-GM, SC-SM	A-1, A-2, A-4	0	0-10	50-65	45-55	20-55	10-40	10-20	NP-10
	26-37	Very gravelly sandy clay loam, very cobbly sandy clay loam, very gravelly clay loam	GC, SC	A-2, A-6	0	10-30	40-60	40-60	25-60	15-40	25-35	10-20
	37-48	Very gravelly sandy clay loam, very cobbly sandy clay loam, very gravelly clay loam	GC, SC	A-2, A-6	0	10-30	40-60	40-60	25-60	15-40	25-35	10-20
	48-60	Very gravelly sandy clay loam, very cobbly sandy clay loam, very gravelly clay loam	GC, SC	A-2, A-6	0	10-30	40-60	40-60	25-60	15-40	25-35	10-20
Goshawk-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-10	Gravelly ash sandy loam	GM, ML, SM	A-4, A-2	0	0-5	65-75	60-70	40-65	30-55	20-40	NP-5
	10-15	Gravelly ash sandy loam, gravelly ash loam	GM, ML, SM	A-4, A-2	0	0-5	65-80	60-75	40-70	30-65	20-40	NP-5
	15-21	Extremely gravelly loam, very gravelly loam, very gravelly sandy loam	GC, GC-GM	A-2, A-1, A- 4, A-6	0	5-45	35-60	30-55	20-50	20-45	20-30	5-15
	21-28	Extremely gravelly loam, very gravelly loam, very gravelly sandy loam	GC, GC-GM	A-2, A-1, A-4	0	5-45	35-60	30-55	20-50	20-45	20-30	5-15
	28-36	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
467: Republic-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Ashy loam	ML, SM	A-4	0	0	85-100	75-100	60-85	45-70	20-35	NP-10
	7-16	Ashy sandy loam	SC-SM, SM, ML	A-4, A-2	0	0	80-100	75-100	50-80	30-65	15-30	NP-10
	16-29	Sandy loam, loam, gravelly sandy loam	SC-SM, ML, SM	A-4, A-2	0	0-15	75-95	65-95	45-75	25-65	10-20	NP-10
	29-36	Gravelly sandy loam, sandy loam, loam	SC-SM, GM, ML, SM, GC-GM	A-4, A-2	0	0-15	65-95	60-90	35-75	25-55	10-20	NP-10
	36-60	Very gravelly sandy loam, sandy loam	SC-SM, GM, SM, GC-GM	A-2, A-1, A-4	0	0-15	50-85	45-80	30-70	15-45	10-20	NP-10
468: Republic-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Ashy loam	ML, SM	A-4	0	0	85-100	75-100	60-85	45-70	20-35	NP-10
	7-16	Ashy sandy loam	SC-SM, ML, SM	A-4, A-2	0	0	80-100	75-100	50-80	30-65	15-30	NP-10
	16-29	Sandy loam, loam, gravelly sandy loam	SC-SM, SM, ML	A-4, A-2	0	0-15	75-95	65-95	45-75	25-65	10-20	NP-10
	29-36	Gravelly sandy loam, sandy loam, loam	SC-SM, GM, ML, SM, GC-GM	A-4, A-2	0	0-15	65-95	60-90	35-75	25-55	10-20	NP-10
	36-60	Very gravelly sandy loam, sandy loam	SC-SM, GM, SM, GC-GM	A-2, A-1, A-4	0	0-15	50-85	45-80	30-70	15-45	10-20	NP-10
469: Republic-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Ashy loam	ML, SM	A-4	0	0	85-100	75-100	60-85	45-70	20-35	NP-10
	7-16	Ashy sandy loam	SC-SM, ML, SM	A-4, A-2	0	0	80-100	75-100	50-80	30-65	15-30	NP-10
	16-29	Sandy loam, loam, gravelly sandy loam	SC-SM, ML, SM	A-4, A-2	0	0-15	75-95	65-95	45-75	25-65	10-20	NP-10
	29-36	Gravelly sandy loam, sandy loam, loam	SC-SM, GM, ML, SM, GC-GM	A-4, A-2	0	0-15	65-95	60-90	35-75	25-55	10-20	NP-10
	36-60	Very gravelly sandy loam, sandy loam	SC-SM, GM, SM, GC-GM	A-2, A-1, A-4	0	0-15	50-85	45-80	30-70	15-45	10-20	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
470: Republic-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Ashy loam	ML, SM	A-4	0	0	85-100	75-100	60-85	45-70	20-35	NP-10
	7-16	Ashy sandy loam	SC-SM, ML, SM	A-4, A-2	0	0	80-100	75-100	50-80	30-65	15-30	NP-10
	16-29	Sandy loam, loam, gravelly sandy loam	SC-SM, ML, SM	A-4, A-2	0	0-15	75-95	65-95	45-75	25-65	10-20	NP-10
	29-36	Gravelly sandy loam, sandy loam, loam	SC-SM, ML, SM, GM, GC-GM	A-4, A-2	0	0-15	65-95	60-90	35-75	25-55	10-20	NP-10
	36-60	Very gravelly sandy loam, sandy loam	SC-SM, GM, SM, GC-GM	A-2, A-1, A-4	0	0-15	50-85	45-80	30-70	15-45	10-20	NP-10
471: Republic, extremely stony surface-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Ashy loam	ML, SM	A-4	0	0	85-100	75-100	60-85	45-70	20-35	NP-10
	7-16	Ashy sandy loam	SC-SM, SM, ML	A-4, A-2	0	0	80-100	75-100	50-80	30-65	15-30	NP-10
	16-29	Sandy loam, loam, gravelly sandy loam	SC-SM, ML, SM	A-4, A-2	0	0-15	75-95	65-95	45-75	25-65	10-20	NP-10
	29-36	Gravelly sandy loam, sandy loam, loam	SC-SM, ML, SM, GM, GC-GM	A-4, A-2	0	0-15	65-95	60-90	35-75	25-55	10-20	NP-10
	36-60	Very gravelly sandy loam, sandy loam	SC-SM, GM, SM, GC-GM	A-2, A-1, A-4	0	0-15	50-85	45-80	30-70	15-45	10-20	NP-10
472: Resner-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Ashy silt loam	ML	A-4	0	0	90-100	85-100	80-90	65-80	25-40	NP-5
	2-6	Ashy fine sandy loam	ML, SM	A-4	0	0	90-100	85-100	60-85	40-65	20-40	NP-5
	6-19	Ashy fine sandy loam, gravelly ash fine sandy loam	SM, ML	A-4, A-2	0	0	80-100	70-100	50-85	30-55	20-40	NP-5
	19-60	Very cobbly loamy sand, extremely cobbly loamy sand, extremely gravelly coarse sand	GP-GM, SM, GM, GP, SP, SP-SM	A-1	0-5	15-50	30-55	25-50	15-35	0-15	0-10	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
473: Resner, cool----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Ashy silt loam	ML	A-4	0	0	90-100	85-100	80-90	65-80	25-40	NP-5
	2-6	Ashy fine sandy loam	ML, SM	A-4	0	0	90-100	85-100	60-85	40-65	20-40	NP-5
	6-19	Ashy fine sandy loam, gravelly ash fine sandy loam	SM, ML	A-4, A-2	0	0	80-100	70-100	50-85	30-55	20-40	NP-5
	19-60	Very cobbly loamy sand, extremely cobbly loamy sand, extremely gravelly coarse sand	GP-GM, GM, GP, SM, SP, SP-SM	A-1	0-5	15-50	30-55	25-50	15-35	0-15	0-10	NP-5
Sitdown, cold---	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-5	Gravelly ash sandy loam	SM, ML	A-4, A-2	0-5	0-5	65-90	60-85	40-70	30-55	20-40	NP-5
	5-13	Gravelly ash sandy loam, stony ash sandy loam	SM, GM, ML	A-4, A-2	0-25	0-10	60-90	55-85	40-65	30-55	20-40	NP-5
	13-26	Very cobbly loamy sand, very stony loamy sand, extremely gravelly sand, extremely gravelly loamy sand	GP-GM, GM, GP	A-1	0-30	10-30	25-55	20-45	10-35	0-15	0-10	NP-5
	26-60	Extremely gravelly loamy sand, extremely gravelly sand, very stony loamy sand, extremely cobbly loamy sand	GP-GM, GM, GP	A-1	0-30	10-30	25-45	20-40	5-35	0-15	0-10	NP-5
474: Resner-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Ashy silt loam	ML	A-4	0	0	90-100	85-100	80-90	65-80	25-40	NP-5
	2-6	Ashy fine sandy loam	ML, SM	A-4	0	0	90-100	85-100	60-85	40-65	20-40	NP-5
	6-19	Ashy fine sandy loam, gravelly ash fine sandy loam	SM, ML	A-4, A-2	0	0	80-100	70-100	50-85	30-55	20-40	NP-5
	19-60	Very cobbly loamy sand, extremely cobbly loamy sand, extremely gravelly coarse sand	GP-GM, SM, GP, GM, SP, SP-SM	A-1	0-5	15-50	30-55	25-50	15-35	0-15	0-10	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
474: Sitdown-----	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-5	Gravelly ashy sandy loam	SM, ML	A-4, A-2	0-5	0-5	65-90	60-85	40-70	30-55	20-40	NP-5
	5-13	Gravelly ashy sandy loam, stony ashy sandy loam	SM, GM, ML	A-4, A-2	0-25	0-10	60-90	55-85	40-65	30-55	20-40	NP-5
	13-26	Very cobbly loamy sand, very stony loamy sand, extremely gravelly sand, extremely gravelly loamy sand	GP-GM, GM, GP	A-1	0-30	10-30	25-55	20-45	10-35	0-15	0-10	NP-5
	26-60	Extremely gravelly loamy sand, extremely gravelly sand, very stony loamy sand, extremely cobbly loamy sand	GP-GM, GP, GM	A-1	0-30	10-30	25-45	20-40	5-35	0-15	0-10	NP-5
475: Riverwash-----	0-60	Stratified sand to extremely cobbly sand			---	---	---	---	---	---	---	---
476: Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
477: Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
Donavan-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Stony ashy loam	ML, SM	A-4	5-25	0-5	90-100	85-90	50-80	40-75	20-35	NP-10
	7-11	Gravelly ashy loam, gravelly ashy sandy loam, ashy loam	ML, SM	A-4	0	0-5	70-95	65-90	40-75	35-65	20-35	NP-10
	11-16	Gravelly ashy sandy loam, ashy loam, gravelly ashy loam	CL-ML, SC-SM	A-4	0	0-5	70-95	65-90	40-75	35-65	15-30	NP-10
	16-27	Gravelly sandy loam	SC-SM, SM	A-2, A-4	0	0-5	70-90	65-85	35-70	25-45	15-25	NP-10
	27-34	Gravelly sandy loam	SC-SM, SM	A-2, A-4	0	0-5	70-90	65-85	35-70	25-45	15-25	NP-10
	34-60	Gravelly sandy loam	SC-SM, SM	A-2, A-4	0	0-5	70-90	65-85	35-70	25-45	15-25	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
477: Peka-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Stony ashy sandy loam	SC-SM, ML	A-4	10-15	0-5	70-85	65-80	40-65	25-55	15-30	NP-10
	7-16	Gravelly ashy sandy loam	SC-SM	A-2, A-4	0-5	0-5	70-90	65-85	45-70	25-40	15-30	NP-10
	16-25	Very cobbly sandy loam, very gravelly sandy loam	GC-GM, SC-SM	A-1	0-5	10-30	40-70	35-65	25-40	15-25	15-25	NP-10
	25-50	Very cobbly sandy loam, very gravelly sandy loam	GM, SM	A-1	0-5	10-30	40-70	35-65	25-40	15-25	15-25	NP-5
	50-60	Very gravelly sandy loam	GM, SM	A-1	0	0-25	45-60	40-55	25-45	10-20	15-25	NP-5
478: Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
Lithic Haplocryepts, xeric, forested	0-4	Ashy fine sandy loam	SM	A-2	0-5	0-15	85-100	80-95	50-70	25-35	20-40	NP-5
	4-16	Very stony sandy loam, very gravelly fine sandy loam, extremely cobbly fine sandy loam, gravelly fine sandy loam	SM	A-1	0-35	15-25	65-85	55-75	35-50	15-30	20-40	NP-5
	16-20	Unweathered bedrock			---	---	---	---	---	---	---	---
Rubble land----	0-60	Fragmental material			---	---	---	---	---	---	---	---
479: Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
Rubble land----	0-60	Fragmental material			---	---	---	---	---	---	---	---
480: Rufus-----	0-6	Flaggy ashy sandy loam	GM, SM	A-4, A-2	5-25	15-30	60-80	55-75	40-60	30-50	15-30	NP-5
	6-14	Very channery ashy sandy loam, very flaggy ashy sandy loam, extremely flaggy ashy sandy loam	GM, GP-GM, SM, SP-SM	A-1, A-2	15-45	50-60	25-55	20-50	10-40	5-35	15-30	NP-5
	14-18	Extremely flaggy ashy sandy loam, very channery ashy sandy loam, very flaggy ashy sandy loam	GM, SM, SP-SM, GP-GM	A-1, A-2	25-60	30-55	25-55	20-50	10-40	5-35	15-30	NP-5
	18-28	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
480:												
Wynhoff-----	0-5	Gravelly sandy loam	GM, SM	A-4, A-2	0	0-5	60-80	55-75	40-60	30-50	15-25	NP-5
	5-9	Gravelly sandy loam	GM, SM	A-4, A-2	0	0-5	60-80	55-75	40-60	30-50	15-25	NP-5
	9-18	Very gravelly sandy loam, very cobbly sandy loam	GM, GP-GM, SM	A-1, A-2, A-4	0	10-30	35-70	30-65	20-50	10-40	15-25	NP-5
	18-24	Extremely gravelly sandy loam, very cobbly sandy loam, extremely cobbly sandy loam	GM, GP-GM	A-1, A-2	0-5	15-35	30-55	25-50	15-40	10-35	15-25	NP-5
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
481:												
Rufus-----	0-6	Flaggy ash sandy loam	GM, SM	A-4, A-2	5-25	15-30	60-80	55-75	40-60	30-50	15-30	NP-5
	6-14	Very channery ash sandy loam, very flaggy ash sandy loam, extremely flaggy ash sandy loam	GM, GP-GM, SM, SP-SM	A-1, A-2	15-45	50-60	25-55	20-50	10-40	5-35	15-30	NP-5
	14-18	Extremely flaggy ash sandy loam, very channery ash sandy loam, very flaggy ash sandy loam	GM, SM, SP-SM, GP-GM	A-1, A-2	25-60	30-55	25-55	20-50	10-40	5-35	15-30	NP-5
	18-28	Unweathered bedrock			---	---	---	---	---	---	---	---
Wynhoff-----	0-5	Gravelly sandy loam	GM, SM	A-4, A-2	0	0-5	60-80	55-75	40-60	30-50	15-25	NP-5
	5-9	Gravelly sandy loam	GM, SM	A-4, A-2	0	0-5	60-80	55-75	40-60	30-50	15-25	NP-5
	9-18	Very gravelly sandy loam, very cobbly sandy loam	GM, GP-GM, SM	A-1, A-2, A-4	0	10-30	35-70	30-65	20-50	10-40	15-25	NP-5
	18-24	Extremely gravelly sandy loam, very cobbly sandy loam, extremely cobbly sandy loam	GM, GP-GM	A-1, A-2	0-5	15-35	30-55	25-50	15-40	10-35	15-25	NP-5
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

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Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
482: Sacheen-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-6	Loamy sand	SM, SP-SM	A-1, A-2	0	0	80-100	75-100	45-60	10-15	5-15	NP-5
	6-16	Loamy sand, sand, gravelly sand	SP-SM, SM	A-1, A-2	0	0	75-90	70-90	40-55	10-15	5-15	NP-5
	16-60	Loamy sand, sand, gravelly sand	SP-SM, SM	A-1, A-2	0	0	75-90	70-90	40-55	10-15	5-15	NP-5
483: Salcreek-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Ashy loam	ML	A-4	0	0	90-100	85-100	70-90	60-80	25-35	NP-5
	7-14	Ashy loam, ashy sandy loam	ML	A-4	0	0	80-95	75-90	60-80	50-70	25-35	NP-5
	14-21	Gravelly ashy sandy loam, gravelly ashy loam	SM, GM, ML	A-4, A-2	0	0	65-80	60-75	45-60	30-55	25-35	NP-5
	21-29	Gravelly sandy loam, gravelly sandy clay loam, gravelly clay loam	GC-GM, GC, SC, CL, SC-SM	A-4, A-2	0	0-5	60-80	55-75	40-65	30-60	10-20	NP-10
	29-36	Gravelly clay loam, gravelly sandy loam, gravelly sandy clay loam	GC, CL, SC	A-6, A-7	0	0-5	60-80	55-75	45-70	30-65	35-45	10-20
	36-45	Gravelly clay loam, gravelly sandy loam, gravelly sandy clay loam	GC, CL, SC	A-6, A-7	0	0-5	60-80	55-75	45-70	30-65	35-45	10-20
	45-60	Gravelly clay loam, gravelly sandy loam, gravelly sandy clay loam	GC, CL, SC	A-6, A-7	0	0-5	60-80	55-75	45-70	30-65	35-45	10-20

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
484: Salcreek-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Ashy loam	ML	A-4	0	0	90-100	85-100	70-90	60-80	25-35	NP-5
	7-14	Ashy loam, ashy sandy loam	ML	A-4	0	0	80-95	75-90	60-80	50-70	25-35	NP-5
	14-21	Gravelly ashy sandy loam, gravelly ashy loam	SM, GM, ML	A-4, A-2	0	0	65-80	60-75	45-60	30-55	25-35	NP-5
	21-29	Gravelly sandy loam, gravelly sandy clay loam, gravelly clay loam	GC-GM, CL, SC, GC, SC-SM	A-4, A-2	0	0-5	60-80	55-75	40-65	30-60	10-20	NP-10
	29-37	Gravelly clay loam, gravelly sandy loam, gravelly sandy clay loam	GC, CL, SC	A-6, A-7	0	0-5	60-80	55-75	45-70	30-65	35-45	10-20
	37-45	Gravelly clay loam, gravelly sandy loam, gravelly sandy clay loam	GC, CL, SC	A-6, A-7	0	0-5	60-80	55-75	45-70	30-65	35-45	10-20
	45-60	Gravelly clay loam, gravelly sandy loam, gravelly sandy clay loam	GC, CL, SC	A-6, A-7	0	0-5	60-80	55-75	45-70	30-65	35-45	10-20
485: Scheiner-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-3	Ashy sandy loam	SC-SM	A-2	0	0	85-100	80-100	55-65	15-25	15-30	NP-10
	3-8	Ashy sandy loam	SC-SM	A-2	0	0	85-100	80-100	55-65	15-25	15-30	NP-10
	8-13	Ashy sandy loam, gravelly ashy sandy loam	SC-SM	A-1	0	0	75-100	70-90	45-55	15-25	15-30	NP-10
	13-17	Loamy sand, sand, gravelly sand, coarse sand	SC-SM	A-1, A-2	0	0-15	75-90	65-85	40-60	10-20	5-15	NP-10
	17-49	Sand, gravelly sand, coarse sand	SP-SM, SP, SM, SW-SM	A-1, A-3	0	0-15	75-90	65-85	40-55	0-15	0-10	NP-5
	49-60	Gravelly sand, sand, coarse sand	SP-SM, SP, SW	A-1	0	0-15	75-90	65-85	30-50	0-15	0-10	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
485: Myerscreek-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Ashy silt loam	ML	A-4	0	0	95-100	90-100	70-90	55-80	20-40	NP-5
	2-5	Ashy fine sandy loam	ML	A-4	0-5	0-5	90-100	85-100	70-90	50-80	20-40	NP-5
	5-13	Ashy fine sandy loam, gravelly ashy fine sandy loam, stony ashy fine sandy loam, gravelly ashy sandy loam, stony ashy sandy loam	ML, SM	A-4	0-25	0-10	85-100	75-90	60-90	40-75	20-40	NP-5
	13-32	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-40	45-65	35-55	20-40	10-35	10-20	NP-10
	32-47	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-40	35-60	30-55	15-40	10-30	10-20	NP-10
	47-60	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-40	35-60	30-55	15-40	10-30	10-20	NP-10
486: Scoap-----	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-9	Gravelly ashy loam	CL-ML, SC-SM, GC-GM	A-4	0	0-5	65-80	60-75	45-70	35-65	15-30	NP-10
	9-22	Gravelly ashy sandy loam	CL-ML, GC-GM, SC-SM	A-4	0	0-5	65-80	60-75	40-70	35-65	15-30	NP-10
	22-34	Very gravelly sandy loam, very cobbly sandy loam, gravelly loam	GC-GM, SC-SM, ML	A-4, A-2	0	0-30	50-80	45-75	40-65	30-55	15-30	NP-10
	34-44	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-2, A-4	0-5	5-35	45-80	40-75	35-65	25-45	10-20	NP-10
	44-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM	A-2, A-4, A-1	0-5	5-35	40-60	35-55	25-50	20-45	10-20	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
487: Setill-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Ashy loam	ML	A-4	0	0	90-100	85-100	65-90	55-75	20-35	NP-10
	7-11	Ashy loam	ML, SM	A-4	0	0	90-100	85-100	55-80	45-70	20-35	NP-10
	11-20	Gravelly ashy loam	GM, ML, SM	A-4, A-2	0	0-10	55-80	50-75	40-60	30-55	20-35	NP-10
	20-27	Very gravelly loam, very gravelly clay loam	GC	A-2, A-6	0	0-10	45-60	40-55	30-45	25-40	30-40	10-20
	27-39	Very gravelly clay loam, very gravelly sandy clay loam	GC	A-2, A-6	0	0-15	40-60	35-55	25-40	15-40	30-40	10-20
	39-60	Very gravelly clay loam, very gravelly sandy clay loam	GC	A-2, A-6	0	0-15	40-60	35-55	25-40	15-40	30-40	10-20
Johntom-----	0-3	Gravelly loam	SM	A-4	0	0	75-90	65-75	50-65	40-50	15-25	NP-5
	3-12	Very flaggy loam, very flaggy sandy loam	GM, SM	A-1	0-5	50-60	50-60	45-55	20-35	15-25	15-25	NP-5
	12-16	Unweathered bedrock			---	---	---	---	---	---	---	---
488: Shalrock, cool--	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-8	Very stony ashy sandy loam	GC-GM, ML, SC-SM	A-4, A-2	25-45	0-10	60-80	55-75	40-65	30-55	15-30	NP-10
	8-11	Gravelly ashy sandy loam	SC-SM, GC-GM, ML	A-4, A-2	0-5	0-5	65-90	60-75	45-70	30-60	15-30	NP-10
	11-16	Very cobbly ashy sandy loam, very gravelly ashy sandy loam	GC-GM	A-2, A-4	0-5	10-25	55-65	50-60	40-55	25-40	15-30	NP-10
	16-25	Very cobbly sandy loam, very gravelly sandy loam	GC-GM, SC-SM	A-1, A-2	0-5	25-50	40-65	35-60	25-45	15-30	10-20	NP-10
	25-29	Unweathered bedrock			---	---	---	---	---	---	---	---
Johntom-----	0-3	Gravelly loam	SM	A-4	0	0	75-90	65-75	50-65	40-50	15-25	NP-5
	3-12	Very flaggy loam, very flaggy sandy loam	GM, SM	A-1	0-5	50-60	50-60	45-55	20-35	15-25	15-25	NP-5
	12-16	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
489: Shalrock-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-8	Very stony ashy sandy loam	GC-GM, ML, SC-SM	A-4, A-2	25-45	0-10	60-80	55-75	40-65	30-55	15-30	NP-10
	8-11	Gravelly ashy sandy loam	SC-SM, GC-GM, ML	A-4, A-2	0-5	0-5	65-90	60-75	45-70	30-60	15-30	NP-10
	11-16	Very cobbly ashy sandy loam, very gravelly ashy sandy loam	GC-GM	A-2, A-4	0-5	10-25	55-65	50-60	40-55	25-40	15-30	NP-10
	16-25	Very cobbly sandy loam, very gravelly sandy loam	GC-GM, SC-SM	A-1, A-2	0-5	25-50	40-65	35-60	25-45	15-30	10-20	NP-10
	25-29	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
490: Shalrock-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-8	Very stony ashy sandy loam	GC-GM, ML, SC-SM	A-4, A-2	25-45	0-10	60-80	55-75	40-65	30-55	15-30	NP-10
	8-11	Gravelly ashy sandy loam	SC-SM, GC-GM, ML	A-4, A-2	0-5	0-5	65-90	60-75	45-70	30-60	15-30	NP-10
	11-16	Very cobbly ashy sandy loam, very gravelly ashy sandy loam	GC-GM	A-2, A-4	0-5	5-25	55-65	50-60	40-55	25-40	15-30	NP-10
	16-25	Very cobbly sandy loam, very gravelly sandy loam	GC-GM, SC-SM	A-1, A-2	0-5	25-50	40-65	35-60	25-45	15-30	10-20	NP-10
	25-29	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
491: Sinlahekin-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Cobbly ashy sandy loam	SC-SM	A-2, A-4, A-1	0	15-25	65-85	60-80	45-65	25-40	15-30	NP-10
	7-14	Gravelly ashy very fine sandy loam, cobbly ashy sandy loam	SC-SM, GM	A-2, A-1, A-4	0	0-25	65-85	60-80	45-65	25-45	15-30	NP-10
	14-23	Cobbly sandy loam, gravelly very fine sandy loam	SM, GM	A-1, A-2	0-15	0-30	60-80	55-75	35-55	15-30	0-10	NP-5
	23-35	Extremely gravelly very fine sandy loam, extremely cobbly sandy loam	GM	A-1	0-15	0-35	25-45	20-40	20-40	10-20	0-10	NP-5
	35-60	Extremely gravelly fine sand, extremely gravelly coarse sand, extremely gravelly sandy loam	GP-GM, GW-GM, GP	A-1	0-15	0-35	20-45	15-40	15-35	0-10	0-10	NP-5
Peka-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Stony ashy sandy loam	SC-SM, ML	A-4	10-15	0-5	70-85	65-80	40-65	25-55	15-30	NP-10
	7-16	Gravelly ashy sandy loam	SC-SM	A-2, A-4	0-5	0-5	70-90	65-85	45-70	25-40	15-30	NP-10
	16-25	Very cobbly sandy loam, very gravelly sandy loam	GC-GM, SC-SM	A-1	0-5	10-30	40-70	35-65	25-40	15-25	15-25	NP-10
	25-50	Very cobbly sandy loam, very gravelly sandy loam	GM, SM	A-1	0-5	10-30	40-70	35-65	25-40	15-25	15-25	NP-5
	50-60	Very gravelly sandy loam	GM, SM	A-1	0	0-25	45-60	40-55	25-45	10-20	15-25	NP-5
Hodgson-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Ashy silt loam	CL	A-4	0	0	100	95-100	90-100	70-90	20-35	NP-10
	7-10	Ashy silt loam	CL	A-4	0	0	100	95-100	90-100	70-90	20-35	NP-10
	10-16	Silt loam, silty clay loam	CL	A-4, A-6	0	0	100	95-100	90-100	70-90	10-25	5-15
	16-26	Silt loam, silty clay loam	CL	A-4, A-6	0	0	100	90-100	90-100	70-90	10-25	5-15
	26-41	Silty clay loam, silty clay	CL	A-6	0	0	100	90-100	90-100	85-95	30-40	10-20
	41-60	Silty clay loam, silty clay	CL	A-6	0	0	100	90-100	90-100	85-95	30-40	10-20

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
492: Sitdown, cool---	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-5	Stony ashy sandy loam	SM, ML	A-4, A-2	10-25	0-10	65-90	60-85	40-70	30-55	20-40	NP-5
	5-13	Gravelly ashy sandy loam, stony ashy sandy loam	SM, GM, ML	A-4, A-2	0-25	0-10	60-90	55-85	40-65	30-55	20-40	NP-5
	13-26	Very cobbly loamy sand, very stony loamy sand, extremely gravelly sand, extremely gravelly loamy sand	GP-GM, GM, GP	A-1	0-30	10-30	25-55	20-45	10-35	0-15	0-10	NP-5
	26-60	Extremely gravelly loamy sand, extremely gravelly sand, very stony loamy sand, extremely cobbly loamy sand	GP-GM, GM, GP	A-1	0-30	10-30	25-45	20-40	5-35	0-15	0-10	NP-5
493: Sitdown, cool---	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-5	Stony ashy sandy loam	SM	A-4	10-25	0-10	65-90	60-85	40-70	30-55	20-40	NP-5
	5-13	Gravelly ashy sandy loam, stony ashy sandy loam	SM, GM, ML	A-4, A-2	0-15	0-10	60-90	55-85	40-65	30-55	20-40	NP-5
	13-26	Very cobbly loamy sand, very stony loamy sand, extremely gravelly sand, extremely gravelly loamy sand	GP-GM, GM, GP	A-1	0-30	10-30	25-55	20-45	10-35	0-15	0-10	NP-5
	26-60	Extremely gravelly loamy sand, extremely gravelly sand, very stony loamy sand, extremely cobbly loamy sand	GP-GM, GM, GP	A-1	0-30	10-30	25-45	20-40	5-35	0-15	0-10	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
494: Sitdown-----	In											
	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-5	Stony ashy sandy loam	SM, ML	A-4, A-2	10-25	0-10	65-90	60-85	40-70	30-55	20-40	NP-5
	5-13	Gravelly ashy sandy loam, stony ashy sandy loam	SM, GM, ML	A-4, A-2	0-25	0-10	60-90	55-85	40-65	30-55	20-40	NP-5
	13-26	Very cobbly loamy sand, very stony loamy sand, extremely gravelly sand, extremely gravelly loamy sand	GP-GM, GP, GM	A-1	0-30	10-30	25-55	20-45	10-35	0-15	0-10	NP-5
	26-60	Extremely gravelly loamy sand, extremely gravelly sand, very stony loamy sand, extremely cobbly loamy sand	GP-GM, GM, GP	A-1	0-30	10-30	25-45	20-40	5-35	0-15	0-10	NP-5
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
495: Sitdown, cool---	In											
	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-5	Stony ashy sandy loam	SM, ML	A-4, A-2	10-25	0-10	65-90	60-85	40-70	30-55	20-40	NP-5
	5-13	Gravelly ashy sandy loam, stony ashy sandy loam	SM, GM, ML	A-4, A-2	0-25	0-10	60-90	55-85	40-65	30-55	20-40	NP-5
	13-26	Very cobbly loamy sand, very stony loamy sand, extremely gravelly sand, extremely gravelly loamy sand	GP-GM, GM, GP	A-1	0-30	10-30	25-55	20-45	10-35	0-15	0-10	NP-5
	26-60	Extremely gravelly loamy sand, extremely gravelly sand, very stony loamy sand, extremely cobbly loamy sand	GP-GM, GM, GP	A-1	0-30	10-30	25-45	20-40	5-35	0-15	0-10	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
495: Wellsfar-----	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-5	Gravelly ashly sandy loam	SM	A-2	0	0-5	60-88	55-75	35-50	25-35	15-30	NP-5
	5-10	Gravelly ashly sandy loam	GM	A-2	0	0-5	55-75	50-70	35-50	25-35	15-30	NP-5
	10-18	Very gravelly coarse sandy loam, very gravelly sandy loam	GM	A-1	0	0-5	40-55	35-50	20-35	10-25	15-25	NP-5
	18-27	Very gravelly coarse sandy loam, very cobbly sandy loam	GM	A-1	0	0-30	40-55	35-50	20-35	10-25	15-25	NP-5
	27-37	Weathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
496: Skaha-----	0-7	Gravelly loamy sand	SM	A-1	0	0	60-80	50-75	25-35	10-20	0-5	NP
	7-13	Gravelly loamy sand, gravelly loamy coarse sand, gravelly coarse sand, very gravelly loamy sand	GP-GM	A-1	0	0-25	45-60	40-55	20-30	5-15	0-5	NP
	13-23	Very gravelly loamy sand, gravelly loamy sand, very gravelly coarse sand	GW-GM, GM	A-1	0-5	0-25	35-50	30-45	15-25	5-15	0-5	NP
	23-60	Extremely gravelly coarse sand, extremely cobbly sand, very gravelly coarse sand	GP	A-1	0-15	5-45	15-30	10-25	5-15	0-5	0-5	NP
497: Skaha-----	0-7	Gravelly loamy sand	SM	A-1	0	0	60-80	50-75	25-35	10-20	0-5	NP
	7-13	Gravelly loamy sand, gravelly loamy coarse sand, gravelly coarse sand, very gravelly loamy sand	GP-GM	A-1	0	0-25	45-60	40-55	20-30	5-15	0-5	NP
	13-23	Very gravelly loamy sand, gravelly loamy sand, very gravelly coarse sand	GW-GM, GM	A-1	0-5	0-25	35-50	30-45	15-25	5-15	0-5	NP
	23-60	Extremely gravelly coarse sand, extremely cobbly sand, very gravelly coarse sand	GP	A-1	0-15	5-45	15-30	10-25	5-15	0-5	0-5	NP

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
498: Skaha-----	0-7	Gravelly loamy sand	SM	A-1	0	0	60-80	50-75	25-35	10-20	0-5	NP
	7-13	Gravelly loamy sand, gravelly coarse sand, very gravelly loamy sand, gravelly loamy coarse sand	GP-GM	A-1	0	0-25	45-60	40-55	20-30	5-15	0-5	NP
	13-23	Very gravelly loamy sand, gravelly loamy sand, very gravelly coarse sand	GW-GM, GM	A-1	0-5	0-25	35-50	30-45	15-25	5-15	0-5	NP
	23-60	Extremely gravelly coarse sand, extremely cobble sand, very gravelly coarse sand	GP	A-1	0-15	5-45	15-30	10-25	5-15	0-5	0-5	NP
499: Smokejump-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Stony ash fine sandy loam	SM, GM	A-2, A-4	10-25	0-15	65-90	60-85	45-65	25-45	20-40	NP-5
	5-14	Very stony ash sandy loam, very cobbly ash sandy loam	SM, GM	A-2, A-1, A-4	15-30	15-30	60-85	55-80	40-60	20-40	20-40	NP-5
	14-29	Very stony sandy loam, extremely stony sandy loam, very cobbly sandy loam, extremely stony coarse sandy loam, very stony coarse sandy loam	SM, GM	A-1	15-45	15-45	50-75	45-70	20-40	10-25	5-20	NP-5
	29-33	Extremely stony sandy loam, very stony sandy loam, very cobbly sandy loam, extremely stony coarse sandy loam, very stony coarse sandy loam	SM, GM	A-1	15-45	15-45	50-75	45-70	20-40	10-25	5-20	NP-5
	33-37	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
499: Jantill-----	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-4	Stony ashy silt loam	ML, SM	A-4	5-15	5-15	75-90	70-85	55-70	40-60	25-40	NP-5
	4-6	Stony ashy sandy loam	SM, GM, ML	A-4, A-2	5-15	5-15	65-90	60-85	40-70	25-55	25-40	NP-5
	6-13	Stony ashy sandy loam, gravelly ashy sandy loam	SM, ML, GM	A-2, A-1, A-4	0-30	0-10	55-90	50-85	35-65	20-50	25-40	NP-5
	13-29	Very stony loamy sand, very gravelly loamy sand, very cobbly loamy sand	GM, GP-GM, SM, SP-SM	A-1	0-30	5-30	35-60	30-55	10-30	5-20	0-10	NP-5
	29-60	Very stony loamy sand, very cobbly loamy sand	GM, GP-GM, SM, SP-SM	A-1	5-25	5-30	35-60	30-55	10-30	5-20	0-10	NP-5
500: Smokejump-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Stony ashy fine sandy loam	SM, GM	A-2, A-4	10-25	0-15	65-90	60-85	45-65	25-45	20-40	NP-5
	5-14	Very stony ashy sandy loam, very cobbly ashy sandy loam	SM, GM	A-2, A-1, A-4	15-30	15-30	60-85	55-80	40-60	20-40	20-40	NP-5
	14-29	Very stony sandy loam, extremely stony sandy loam, very cobbly sandy loam, extremely stony coarse sandy loam, very stony coarse sandy loam	SM, GM	A-1	15-45	15-45	50-75	45-70	20-40	10-25	5-20	NP-5
	29-33	Extremely stony sandy loam, very stony sandy loam, very cobbly sandy loam, extremely stony coarse sandy loam, very stony coarse sandy loam	SM, GM	A-1	15-45	15-45	50-75	45-70	20-40	10-25	5-20	NP-5
	33-37	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
501: Smokejump-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Stony ash fine sandy loam	SM, GM	A-2, A-4	10-25	0-15	65-90	60-85	45-65	25-45	20-40	NP-5
	5-14	Very stony ash fine sandy loam, very cobbly ash sandy loam	SM, GM	A-2, A-1, A-4	15-30	15-30	60-85	55-80	40-60	20-40	20-40	NP-5
	14-29	Very stony sandy loam, extremely stony sandy loam, very cobbly sandy loam, extremely stony coarse sandy loam, very stony coarse sandy loam	SM, GM	A-1	15-45	15-45	50-75	45-70	20-40	10-25	5-20	NP-5
	29-33	Extremely stony sandy loam, very stony sandy loam, very cobbly sandy loam, extremely stony coarse sandy loam, very stony coarse sandy loam	SM, GM	A-1	15-45	15-45	50-75	45-70	20-40	10-25	5-20	NP-5
	33-37	Unweathered bedrock			---	---	---	---	---	---	---	---
	Twentymile-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---
1-2		Ashy silt loam	ML	A-4	0	0	100	100	75-90	60-80	25-40	NP-5
2-5		Stony ash fine sandy loam	SM, SC-SM	A-4	10-25	0-10	70-85	65-80	50-65	30-45	20-40	NP-5
5-14		Gravelly ash fine sandy loam, ash fine sandy loam	ML, SM	A-4	0	0-5	85-100	75-90	60-90	40-75	20-40	NP-5
14-32		Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-35	45-65	35-55	20-40	10-35	10-20	NP-10
32-45		Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-35	35-60	30-55	15-40	10-30	10-20	NP-10
45-60		Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-35	35-60	30-55	15-40	10-30	10-20	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
502: Stapaloop-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Ashy fine sandy loam	CL-ML, ML, SM	A-4	0	0	90-100	85-100	65-80	45-65	15-30	NP-10
	4-14	Ashy fine sandy loam, ashy sandy loam	CL-ML, SC, SC-SM	A-4	0	0	85-100	80-100	60-75	40-60	15-30	NP-10
	14-22	Ashy fine sandy loam, ashy sandy loam	CL-ML, SC-SM	A-4	0	0	85-100	80-100	60-75	40-60	15-30	NP-10
	22-35	Fine sandy loam, very fine sandy loam	CL-ML, SC-SM	A-4	0	0	85-100	80-100	60-75	40-60	10-20	NP-10
	35-51	Very fine sandy loam, gravelly sandy loam	CL-ML, SC-SM	A-4	0	0-5	75-100	70-100	55-75	40-60	10-20	NP-10
	51-60	Gravelly very fine sandy loam, gravelly fine sandy loam, gravelly loamy fine sand	SC-SM, GM	A-2, A-4	0	0-5	65-100	60-100	45-70	25-45	10-20	NP-10
503: Stemilt-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-8	Gravelly ashy sandy loam	SM, GM	A-1, A-2	0	0	55-80	50-75	30-50	15-30	20-30	NP-5
	8-13	Gravelly ashy sandy loam	SM, GM	A-1, A-2	0	0	55-80	50-75	30-50	15-30	25-35	NP-5
	13-22	Very gravelly ashy sandy loam, very gravelly ashy loam	GC	A-2, A-1	0	0-25	40-65	40-60	25-50	15-35	20-30	5-10
	22-33	Very gravelly clay loam, very gravelly sandy clay loam	GC	A-2	0-10	0-25	35-55	30-50	25-50	15-35	30-40	10-20
	33-47	Very gravelly clay loam, very gravelly sandy clay loam	GC	A-2	0-10	0-25	35-55	30-50	25-50	15-35	30-40	10-20
	47-60	Very gravelly clay loam, very gravelly sandy clay loam	GC	A-2	0-10	0-25	35-55	30-50	25-50	15-35	30-40	10-20

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
503: Midpeak-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Gravelly ashly sandy loam	GC-GM, SM, ML	A-4	0	0-5	65-80	60-75	50-65	40-55	15-30	NP-10
	7-16	Very gravelly ashly sandy loam	GC-GM, ML, SM	A-4	0	0-5	60-80	55-75	45-65	35-55	15-30	NP-10
	16-24	Very gravelly sandy loam, very cobbly sandy loam	GC-GM	A-2	0	5-30	50-60	45-55	35-45	25-35	15-25	NP-10
	24-37	Extremely gravelly sandy loam, very gravelly sandy loam, very cobbly sandy loam	GC-GM	A-1, A-2	0	5-30	35-60	30-55	20-45	10-35	15-25	NP-10
	37-41	Unweathered bedrock			---	---	---	---	---	---	---	---
504: Stepstone-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Ashy fine sandy loam	CL-ML	A-4	0	0	90-100	85-100	70-90	50-75	15-30	NP-10
	2-6	Ashy fine sandy loam, gravelly ashly fine sandy loam	CL-ML	A-4	0	0-15	90-100	70-100	70-85	50-75	15-30	NP-10
	6-19	Ashy fine sandy loam, gravelly ashly fine sandy loam	SC-SM, ML	A-4, A-2	0	0-15	90-100	70-100	70-85	30-60	15-30	NP-10
	19-23	Very gravelly sandy loam, gravelly sandy loam	GC-GM, SC-SM	A-2, A-1, A-4	0	0-25	55-70	50-65	35-55	20-45	10-20	NP-10
	23-39	Very gravelly loamy sand, extremely gravelly loamy sand, very cobbly loamy sand	GC-GM, SC-SM	A-1, A-2	0-15	10-30	45-60	40-55	20-35	10-25	10-20	NP-10
	39-60	Very gravelly loamy sand	GC-GM	A-1, A-2	0-15	10-30	35-50	30-45	15-30	5-20	10-20	NP-10

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Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
505: Stepstone, dry--	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Ashy fine sandy loam	CL-ML	A-4	0	0	90-100	85-100	70-90	50-75	15-30	NP-10
	2-6	Ashy fine sandy loam, gravelly ashy fine sandy loam	CL-ML	A-4	0	0-15	90-100	70-100	70-85	50-75	15-30	NP-10
	6-19	Ashy fine sandy loam, gravelly ashy fine sandy loam	SC-SM, ML	A-4, A-2	0	0-15	90-100	70-100	70-85	30-60	15-30	NP-10
	19-23	Very gravelly sandy loam, gravelly sandy loam	GC-GM, SC-SM	A-2, A-1, A-4	0	0-25	55-70	50-65	35-55	20-45	10-20	NP-10
	23-39	Very gravelly loamy sand, extremely gravelly loamy sand, very cobbly loamy sand	GC-GM, SC-SM	A-1, A-2	0-15	10-30	45-60	40-55	20-35	10-25	10-20	NP-10
	39-60	Very gravelly loamy sand	GC-GM	A-1, A-2	0-15	10-30	35-50	30-45	15-30	5-20	10-20	NP-10
506: Stepstone-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Ashy fine sandy loam	CL-ML	A-4	0	0	90-100	85-100	70-90	50-75	15-30	NP-10
	2-6	Ashy fine sandy loam, gravelly ashy fine sandy loam	CL-ML	A-4	0	0-15	90-100	70-100	70-85	50-75	15-30	NP-10
	6-19	Ashy fine sandy loam, gravelly ashy fine sandy loam	SC-SM, ML	A-4, A-2	0	0-15	90-100	70-100	70-85	30-60	15-30	NP-10
	19-23	Very gravelly sandy loam, gravelly sandy loam	GC-GM, SC-SM	A-2, A-1, A-4	0	0-25	55-70	50-65	35-55	20-45	10-20	NP-10
	23-39	Very gravelly loamy sand, extremely gravelly loamy sand, very cobbly loamy sand	GC-GM, SC-SM	A-1, A-2	0-15	10-30	45-60	40-55	20-35	10-25	10-20	NP-10
	39-60	Very gravelly loamy sand	GC-GM	A-1, A-2	0-15	10-30	35-50	30-45	15-30	5-20	10-20	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
506: Torboy-----	In											
	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-6	Ashy sandy loam	CL-ML, SC-SM	A-4	0	0	90-100	85-100	65-80	40-60	15-30	NP-10
	6-11	Ashy sandy loam, gravelly ashy sandy loam	SC-SM, ML	A-4	0	0	75-100	70-100	55-80	35-60	15-30	NP-10
	11-19	Ashy sandy loam, gravelly ashy sandy loam	SC-SM, ML	A-4	0	0	75-100	70-100	55-80	35-60	15-30	NP-10
	19-28	Loamy sand, gravelly loamy sand	SM, GM	A-2, A-4, A-1	0	0	60-90	55-85	25-55	15-40	5-15	NP-5
	28-38	Loamy sand, gravelly loamy sand	SM, GM	A-1, A-2	0	0	60-90	55-85	25-55	15-35	5-15	NP-5
	38-60	Gravelly loamy sand, gravelly sand, loamy sand	SM, GM, SP-SM, GP-GM	A-1	0	0	50-85	45-80	20-45	5-25	5-15	NP-5
507: Storer-----	0-5	Gravelly sandy loam	SC-SM, CL-ML	A-4	0	0	75-90	70-75	55-70	35-60	15-30	NP-10
	5-12	Very gravelly sandy loam	GC-GM	A-2, A-4, A-1	0	0	40-60	35-55	30-45	20-40	10-20	NP-10
	12-19	Very gravelly sandy loam	GC-GM	A-2, A-1, A-4	0	0-10	40-60	35-55	30-45	20-40	10-20	NP-10
	19-31	Extremely gravelly sandy loam, very gravelly sandy loam, channery sandy loam	GC-GM	A-1, A-2	0	15-55	30-50	25-45	20-40	15-35	10-20	NP-10
	31-42	Extremely channery sandy loam, very gravelly sandy loam, extremely gravelly sandy loam	GC-GM	A-1, A-2	0	15-55	25-50	20-45	15-35	10-30	10-20	NP-10
	42-46	Unweathered bedrock			---	---	---	---	---	---	---	---
Swakane-----	0-4	Very stony ashy sandy loam	SC-SM, GC-GM	A-2, A-1, A-4	25-45	0-25	55-85	45-80	35-55	20-40	10-20	NP-10
	4-11	Very cobbly ashy sandy loam, very gravelly ashy sandy loam	SC-SM, GC-GM	A-1, A-2	0-15	0-25	45-80	40-75	30-55	15-30	10-20	NP-10
	11-17	Very gravelly sandy loam, very cobbly sandy loam, extremely gravelly sandy loam	GC-GM, SC-SM	A-1	0-15	15-30	35-70	30-65	20-40	5-25	10-20	NP-10
	17-21	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

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Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
508: Strat-----	0-10	Gravelly fine sandy loam	SC-SM	A-2	0	0-5	65-75	60-70	45-55	25-35	20-30	5-9
	10-18	Very gravelly fine sandy loam, very cobbly loam, very gravelly loam	GC-GM	A-1, A-2	0	20-35	40-50	35-45	25-40	15-25	20-26	4-8
	18-22	Very gravelly fine sandy loam, very cobbly loam, very gravelly loam	GC-GM	A-1, A-2	0	20-35	40-50	35-45	25-40	15-25	20-26	4-8
	22-60	Extremely gravelly loamy sand, extremely gravelly sand, extremely cobbly coarse sand	GP	A-1	0-5	10-35	20-30	15-25	10-20	0-5	0-5	NP-2
509: Swakane-----	0-4	Very stony ashy sandy loam	SC-SM, GC-GM	A-2, A-1, A-4	25-45	0-25	55-85	45-80	35-55	20-40	10-20	NP-10
	4-11	Very cobbly ashy sandy loam, very gravelly ashy sandy loam	SC-SM, GC-GM	A-1, A-2	0-15	0-25	45-80	40-75	30-55	15-30	10-20	NP-10
	11-17	Very gravelly sandy loam, very cobbly sandy loam, extremely gravelly sandy loam	GC-GM, SC-SM	A-1	0-15	15-30	35-70	30-65	20-40	5-25	10-20	NP-10
	17-21	Unweathered bedrock			---	---	---	---	---	---	---	---
Peka, moist-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Stony ashy sandy loam	SC-SM, ML	A-4	10-15	0-5	70-85	65-80	40-65	25-55	15-30	NP-10
	7-16	Gravelly ashy sandy loam	SC-SM	A-2, A-4	0-5	0-5	70-90	65-85	45-70	25-40	15-30	NP-10
	16-25	Very cobbly sandy loam, very gravelly sandy loam	GC-GM, SC-SM	A-1	0-5	10-30	40-70	35-65	25-40	15-25	15-25	NP-10
	25-50	Very cobbly sandy loam, very gravelly sandy loam	GM, SM	A-1	0-5	10-30	40-70	35-65	25-40	15-25	15-25	NP-5
	50-60	Very gravelly sandy loam	GM, SM	A-1	0	0-25	45-60	40-55	25-45	10-20	15-25	NP-5
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
510: Swakane-----	0-4	Very stony ashy sandy loam	SC-SM, GC-GM	A-2, A-1, A-4	25-45	0-25	55-85	45-80	35-55	20-40	10-20	NP-10
	4-11	Very cobbly ashy sandy loam, very gravelly ashy sandy loam	SC-SM, GC-GM	A-1, A-2	0-15	0-25	45-80	40-75	30-55	15-30	10-20	NP-10
	11-17	Very gravelly sandy loam, very cobbly sandy loam, extremely gravelly sandy loam	GC-GM, SC-SM	A-1	0-15	15-30	35-70	30-65	20-40	5-25	10-20	NP-10
	17-21	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
511: Swakane-----	0-4	Very stony ashy sandy loam	SC-SM, GC-GM	A-2, A-1, A-4	25-45	0-25	55-85	45-80	35-55	20-40	10-20	NP-10
	4-11	Very cobbly ashy sandy loam, very gravelly ashy sandy loam	SC-SM, GC-GM	A-1, A-2	0-5	0-10	45-80	40-75	30-55	15-30	10-20	NP-10
	11-17	Very gravelly sandy loam, very cobbly sandy loam, extremely gravelly sandy loam	GC-GM, SC-SM	A-1	0-15	15-30	35-70	30-65	20-40	5-25	10-20	NP-10
	17-21	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
Peka, moist-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Stony ashy sandy loam	SC-SM, ML	A-4	10-15	0-5	70-85	65-80	40-65	25-55	15-30	NP-10
	7-16	Gravelly ashy sandy loam	SC-SM	A-2, A-4	0-5	0-5	70-90	65-85	45-70	25-40	15-30	NP-10
	16-25	Very cobbly sandy loam, very gravelly sandy loam	GC-GM, SC-SM	A-1	0-5	10-30	40-70	35-65	25-40	15-25	15-25	NP-10
	25-50	Very cobbly sandy loam, very gravelly sandy loam	GM, SM	A-1	0-5	10-30	40-70	35-65	25-40	15-25	15-25	NP-5
	50-60	Very gravelly sandy loam	GM, SM	A-1	0	0-25	45-60	40-55	25-45	10-20	15-25	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
					Pct	Pct					Pct	
512: Sycreek-----	In 0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-8	Ashy loam	ML	A-4	0	0	95-100	90-100	70-90	60-85	25-35	NP-10
	8-16	Ashy loam	ML	A-4	0	0	80-95	75-90	65-80	55-70	25-35	NP-10
	16-27	Very gravelly sandy clay loam, very gravelly clay loam	GC, SC	A-2, A-6	0	0-15	50-65	45-60	30-55	25-40	30-40	10-20
	27-44	Very gravelly sandy clay loam, very gravelly clay loam	GC	A-2, A-6	0	0-15	50-65	45-60	30-55	25-40	30-40	10-20
	44-60	Very gravelly clay loam, very gravelly sandy clay loam	GC	A-2, A-6	0	10-15	45-65	40-60	25-55	20-40	30-40	10-20
513: Synarep-----	0-8	Ashy silt loam	ML	A-4	0	0	100	100	95-100	75-90	30-40	5-10
	8-33	Ashy silt loam, ashy very fine sandy loam	ML	A-4	0	0	100	100	90-100	80-90	30-40	5-10
	33-46	Ashy silt loam, ashy very fine sandy loam	ML	A-4	0	0	100	100	90-100	80-90	30-40	5-10
	46-60	Sandy loam, fine sandy loam, silt loam	ML, SM	A-4	0	0	100	85-100	60-95	40-65	15-20	NP-5
Colville, poorly drained-----	0-4	Silt loam	ML	A-4	0	0	95-100	90-100	85-100	80-95	20-35	NP-10
	4-9	Silt loam, silty clay loam	ML	A-4	0	0	95-100	90-100	85-100	80-95	20-35	NP-10
	9-17	Silty clay loam, silt loam	ML	A-4	0	0	95-100	90-100	85-100	80-95	20-35	NP-10
	17-21	Silt loam	CL	A-6, A-4, A-7	0	0	95-100	90-100	85-100	80-95	30-45	10-20
	21-33	Silty clay loam, clay loam	CL	A-6, A-4, A-7	0	0	95-100	90-100	85-100	80-95	30-45	10-20
	33-43	Silty clay loam, silt loam	CL	A-6, A-4, A-7	0	0	95-100	90-100	85-100	80-95	30-45	10-20
	43-60	Silty clay loam, silt loam	CL	A-6, A-4, A-7	0	0	95-100	90-100	85-100	80-95	30-45	10-20
Xerofluvents----	0-8	Sandy loam	SM	A-4	0	0	100	90-100	80-90	40-50	0-14	NP
	8-30	Sandy loam	ML, SM	A-4	0	0	100	85-100	85-95	45-55	0-14	NP
	30-60	Loamy sand, sand	SM	A-2, A-1	0	0	100	80-100	50-60	10-20	0-14	NP

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
514: Thout-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Gravelly ashy sandy loam	SC-SM, ML	A-4	0	0-15	70-90	65-85	45-75	35-55	15-30	NP-10
	5-12	Very gravelly ashy sandy loam, very cobbly ashy sandy loam, very gravelly ashy loam	GC-GM, SC-SM	A-2, A-1, A-4	0	0-25	45-70	40-65	30-65	20-45	15-30	NP-10
	12-25	Very gravelly sandy loam, very cobbly sandy loam, very gravelly loam	GC-GM, SC-SM	A-2, A-1, A-4	0	0-25	45-70	40-65	30-65	20-45	15-30	NP-10
	25-29	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
515: Thow-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-6	Ashy loamy fine sand	SM	A-2, A-4	0	0	100	100	50-70	25-40	25-35	NP-5
	6-12	Ashy sandy loam, paragravelly ashy coarse sandy loam, ashy coarse sandy loam	SM	A-2, A-1	0	0	100	100	30-65	15-35	25-35	NP-5
	12-38	Paragravelly ashy coarse sandy loam, ashy coarse sandy loam, ashy sandy loam, paragravelly ashy loamy coarse sand	SM	A-1, A-2	0	0	100	100	25-55	10-30	25-35	NP-5
	38-51	Paragravelly ashy loamy coarse sand, ashy coarse sandy loam, ashy sandy loam, paragravelly ashy coarse sandy loam	SM	A-1, A-2	0	0	100	100	25-55	10-30	25-35	NP-5
	51-60	Paragravelly ashy loamy sand, very paragravelly ashy coarse sandy loam, very paragravelly ashy loamy coarse sand	SP-SM, GP-GM	A-1	0	0	40-100	85-100	15-40	5-25	20-30	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
515: Vingulch-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Ashy loamy very fine sand	ML, SM	A-4	0	0	100	100	75-95	40-60	20-40	NP-5
	4-12	Ashy coarse sandy loam, paragravelly ashy sandy loam, paragravelly ashy coarse sandy loam, ashy sandy loam	SM	A-2, A-4, A-1	0	0	100	100	45-65	15-40	20-40	NP-5
	12-22	Paragravelly ashy coarse sandy loam, paragravelly ashy sandy loam, ashy coarse sandy loam, ashy sandy loam	SM	A-1, A-2	0	0	100	100	25-50	10-30	20-40	NP-5
	22-28	Paragravelly ashy coarse sandy loam, paragravelly ashy sandy loam, ashy coarse sandy loam, ashy sandy loam	SM	A-1, A-2	0	0	100	100	25-50	10-30	20-40	NP-5
	28-34	Paragravelly ashy loamy coarse sand, paragravelly ashy sandy loam, ashy coarse sandy loam, ashy sandy loam	SM	A-1, A-2	0	0	100	100	20-45	10-30	0-10	NP-5
	34-39	Very gravelly sandy loam, very gravelly loamy sand, very gravelly loamy coarse sand, very gravelly coarse sandy loam	GP-GC, SP-SC	A-1	0	0-20	30-60	25-50	10-35	5-20	15-25	NP-10
	39-43	Unweathered bedrock			---	---	---	---	---	---	---	---

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Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
516: Thrapp-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Ashy loam	ML	A-4	0	0	95-100	90-100	70-85	55-70	20-35	NP-10
	5-13	Ashy loam	ML, SM	A-4	0	0	90-100	85-100	60-85	45-70	20-35	NP-10
	13-23	Sandy loam, gravelly sandy loam	CL-ML, ML	A-4	0	0	80-100	70-100	55-85	35-65	10-20	NP-10
	23-30	Gravelly sandy loam, gravelly coarse sandy loam	GC-GM, CL	A-4, A-2	0	0	60-80	55-75	35-60	30-55	10-20	5-10
	30-37	Gravelly sandy loam, gravelly coarse sandy loam	GC-GM, SC-SM, CL	A-4, A-2	0	0	60-80	55-75	35-60	30-55	10-20	5-10
	37-60	Gravelly sandy loam, gravelly coarse sandy loam, gravelly loamy sand	SC-SM, GC-GM, ML	A-2, A-4, A-1	0	0	60-90	55-75	25-60	15-55	10-20	5-10
Aquandic Xerofluvents---	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Ashy sandy loam	SM	A-2	0	0	100	100	60-70	20-30	20-40	NP-5
	5-9	Ashy sandy loam	SM	A-2	0	0	100	100	60-70	20-30	20-30	NP-5
	9-14	Ashy sandy loam	SM	A-2	0	0	100	100	60-70	20-30	20-40	NP-5
	14-25	Gravelly loamy sand	SM	A-1	0	0-5	70-85	50-80	40-50	10-20	10-20	NP-5
	25-45	Sandy loam	SC-SM	A-1, A-2	0	0	75-90	75-85	45-55	15-25	15-25	NP-10
	45-51	Very gravelly loamy sand	GM	A-1	0	0	45-60	40-50	30-40	10-20	10-20	NP-5
	51-60	Very gravelly loamy sand	GM	A-1	0	0	35-50	30-45	25-35	10-20	10-20	NP-5
517: Thuso-----	0-12	Ashy loam	SM	A-4, A-2	0	0-5	80-100	75-100	50-70	25-45	15-25	NP-5
	12-25	Gravelly ashly sandy loam, very cobbly ashly sandy loam	SP-SM, SM, SW-SM	A-1	0	0-35	60-70	55-65	25-40	5-15	15-25	NP-5
	25-37	Very cobbly sandy loam, very cobbly loamy sand, very gravelly sandy loam	GP-GM, GM, GW-GM, SM, SP-SM, SW-SM	A-1	0	15-45	50-60	45-55	20-35	5-15	15-25	NP-5
	37-61	Very cobbly sandy loam, very gravelly sandy loam	GP-GM, GM, GW-GM, SM, SP-SM, SW-SM	A-1	0	15-45	45-55	40-50	20-35	5-15	15-25	NP-5

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Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
518: Thuso-----	0-12	Ashy loam	SM	A-4, A-2	0	0-5	80-100	75-100	50-70	25-45	15-25	NP-5
	12-25	Gravelly ashly sandy loam, very cobbly ashly sandy loam	SP-SM, SM, SW-SM	A-1	0	0-35	60-70	55-65	25-40	5-15	15-25	NP-5
	25-37	Very cobbly sandy loam, very cobbly loamy sand, very gravelly sandy loam	GP-GM, GM, GW-GM, SM, SP-SM, SW-SM	A-1	0	15-45	50-60	45-55	20-35	5-15	15-25	NP-5
	37-61	Very cobbly sandy loam, very gravelly sandy loam	GP-GM, GM, GW-GM, SM, SP-SM, SW-SM	A-1	0	15-45	45-55	40-50	20-35	5-15	15-25	NP-5
519: Thuso, cool-----	0-12	Ashy sandy loam	SM	A-4, A-2	0	0-5	80-100	75-100	50-70	25-45	15-25	NP-5
	12-25	Gravelly ashly sandy loam, very cobbly ashly sandy loam	SP-SM, SM, SW-SM	A-1	0	0-35	60-70	55-65	25-40	5-15	15-25	NP-5
	25-37	Very cobbly sandy loam, very cobbly loamy sand, very gravelly sandy loam	GP-GM, GM, GW-GM, SM, SP-SM, SW-SM	A-1	0	15-45	50-60	45-55	20-35	5-15	15-25	NP-5
	37-61	Very cobbly sandy loam, very gravelly sandy loam	GP-GM, GM, GW-GM, SM, SP-SM, SW-SM	A-1	0	15-45	45-55	40-50	20-35	5-15	15-25	NP-5
520: Thuso-----	0-12	Ashy loam	SM	A-4, A-2	0	0-5	80-100	75-100	50-70	25-45	15-25	NP-5
	12-25	Gravelly ashly sandy loam, very cobbly ashly sandy loam	SP-SM, SM, SW-SM	A-1	0	0-35	60-70	55-65	25-40	5-15	15-25	NP-5
	25-37	Very cobbly sandy loam, very cobbly loamy sand, very gravelly sandy loam	GP-GM, GM, GW-GM, SM, SP-SM, SW-SM	A-1	0	15-45	50-60	45-55	20-35	5-15	15-25	NP-5
	37-61	Very cobbly sandy loam, very gravelly sandy loam	GP-GM, GM, GW-GM, SM, SP-SM, SW-SM	A-1	0	15-45	45-55	40-50	20-35	5-15	15-25	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
520: Lithic Haploxerepts, range, moist----	0-3	Cobbly ashy sandy loam	ML	A-4	0-5	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	3-12	Cobbly ashy sandy loam, very gravelly ashy sandy loam, stony ashy loam	ML	A-4	0-15	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	12-18	Very gravelly sandy loam, gravelly sandy loam, very cobbly sandy loam	SM, GM	A-2, A-1, A-4	0-5	5-30	45-100	35-90	25-70	15-50	15-25	NP-5
	18-22	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
521: Toats-----	0-5	Ashy loam	ML	A-4	0	0	85-100	80-95	65-80	55-70	25-35	NP-10
	5-14	Ashy loam	ML	A-4	0	0	85-95	80-90	60-80	50-70	25-35	NP-10
	14-23	Very cobbly loam, very gravelly sandy loam, gravelly loam	GC-GM, ML	A-4, A-2	0-5	0-30	60-80	55-75	40-65	30-55	10-20	NP-10
	23-40	Very cobbly sandy loam, extremely stony sandy loam, very stony sandy loam	GC-GM, SC-SM	A-2, A-4, A-1	10-40	30-40	50-75	45-70	30-60	20-45	10-20	NP-10
	40-52	Extremely stony sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-2, A-4, A-1	15-45	30-40	50-75	45-70	25-55	15-40	10-20	NP-10
	52-60	Extremely stony sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	15-45	25-40	50-70	40-65	30-60	15-35	10-20	NP-10

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Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
					Pct	Pct					Pct	
521: Longswamp-----	In											
	0-7	Ashy loam	ML	A-4	0	0	95-100	90-100	70-90	60-80	20-35	NP-10
	7-20	Ashy loam	ML	A-4	0	0	90-100	85-100	65-90	55-75	20-35	NP-10
	20-25	Gravelly sandy clay loam, cobbly sandy clay loam, gravelly loam	CL, SC	A-4, A-6	0-5	0-15	80-95	75-90	55-75	40-65	25-35	5-15
	25-39	Gravelly sandy clay loam, gravelly loam, clay loam	CL, SC, GC	A-4, A-6	0-5	0-5	60-80	55-75	40-75	35-65	25-35	5-15
	39-60	Gravelly silt loam, gravelly sandy clay loam, gravelly clay loam	GC, SC, CL	A-4, A-6	0-5	0-5	50-80	45-75	40-70	35-60	25-35	5-15
522: Tonasket-----												
	0-8	Silt loam	CL-ML	A-4	0	0	100	100	90-100	65-80	15-25	NP-10
	8-15	Silt loam, loam, very fine sandy loam	CL-ML	A-4	0	0	100	100	90-100	65-80	15-25	NP-10
	15-28	Silt loam, very fine sandy loam, loam	CL-ML	A-4	0	0	100	90-100	80-95	60-70	15-25	NP-10
	28-41	Stratified fine sand to silt loam	CL-ML	A-4	0	0	95-100	90-100	80-90	55-75	15-25	NP-10
	41-65	Stratified fine sand to silt loam	CL-ML	A-4	0	0	95-100	90-100	80-90	55-75	15-25	NP-10
523: Tonasket-----												
	0-8	Silt loam	CL-ML	A-4	0	0	100	100	90-100	65-80	15-25	NP-10
	8-15	Silt loam, loam, very fine sandy loam	CL-ML	A-4	0	0	100	100	90-100	65-80	15-25	NP-10
	15-28	Silt loam, very fine sandy loam, loam	CL-ML	A-4	0	0	100	90-100	80-95	60-70	15-25	NP-10
	28-41	Stratified fine sand to silt loam	CL-ML	A-4	0	0	95-100	90-100	80-90	55-75	15-25	NP-10
	41-65	Stratified fine sand to silt loam	CL-ML	A-4	0	0	95-100	90-100	80-90	55-75	15-25	NP-10
524: Tonasket-----												
	0-8	Silt loam	CL-ML	A-4	0	0	100	100	90-100	65-80	15-25	NP-10
	8-15	Silt loam, loam, very fine sandy loam	CL-ML	A-4	0	0	100	100	90-100	65-80	15-25	NP-10
	15-28	Silt loam, loam, very fine sandy loam	CL-ML	A-4	0	0	100	90-100	80-95	60-70	15-25	NP-10
	28-41	Stratified fine sand to silt loam	CL-ML	A-4	0	0	95-100	90-100	80-90	55-75	15-25	NP-10
	41-65	Stratified fine sand to silt loam	CL-ML	A-4	0	0	95-100	90-100	80-90	55-75	15-25	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
525: Tonasket-----	In											
	0-8	Silt loam	CL-ML	A-4	0	0	100	100	90-100	65-80	15-25	NP-10
	8-15	Silt loam, loam, very fine sandy loam	CL-ML	A-4	0	0	100	100	90-100	65-80	15-25	NP-10
	15-28	Silt loam, very fine sandy loam, loam	CL-ML	A-4	0	0	100	90-100	80-95	60-70	15-25	NP-10
	28-41	Stratified fine sand to silt loam	CL-ML	A-4	0	0	95-100	90-100	80-90	55-75	15-25	NP-10
	41-65	Stratified fine sand to silt loam	CL-ML	A-4	0	0	95-100	90-100	80-90	55-75	15-25	NP-10
526: Tonasket-----												
	0-8	Silt loam	CL-ML	A-4	0	0	100	100	90-100	65-80	15-25	NP-10
	8-15	Silt loam, loam, very fine sandy loam	CL-ML	A-4	0	0	100	100	90-100	65-80	15-25	NP-10
	15-28	Silt loam, loam, very fine sandy loam	CL-ML	A-4	0	0	100	90-100	80-95	60-70	15-25	NP-10
	28-41	Stratified fine sand to silt loam	CL-ML	A-4	0	0	95-100	90-100	80-90	55-75	15-25	NP-10
	41-65	Stratified fine sand to silt loam	CL-ML	A-4	0	0	95-100	90-100	80-90	55-75	15-25	NP-10
527: Tonasket, extremely stony surface-----												
	0-8	Silt loam	CL-ML	A-4	0	0	100	100	90-100	65-80	15-25	NP-10
	8-15	Silt loam, very fine sandy loam, loam	CL-ML	A-4	0	0	100	100	90-100	65-80	15-25	NP-10
	15-28	Silt loam, loam, very fine sandy loam	CL-ML	A-4	0	0	100	90-100	80-95	60-70	15-25	NP-10
	28-41	Stratified fine sand to silt loam	CL-ML	A-4	0	0	95-100	90-100	80-90	55-75	15-25	NP-10
	41-65	Stratified fine sand to silt loam	CL-ML	A-4	0	0	95-100	90-100	80-90	55-75	15-25	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
528: Twentymile-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Ashy silt loam	ML	A-4	0	0	100	100	75-90	60-80	25-40	NP-5
	2-5	Stony ashy fine sandy loam	SM, SC-SM	A-4	10-25	0-10	70-85	65-80	50-65	30-45	20-40	NP-5
	5-14	Gravelly ashy fine sandy loam, ashy fine sandy loam	ML, SM	A-4	0	0-5	85-100	75-90	60-90	40-75	20-40	NP-5
	14-32	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-35	45-65	35-55	20-40	10-35	10-20	NP-10
	32-45	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-35	35-60	30-55	15-40	10-30	10-20	NP-10
	45-60	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-35	35-60	30-55	15-40	10-30	10-20	NP-10
529: Twentymile-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-2	Ashy silt loam	ML	A-4	0	0	100	100	75-90	60-80	25-40	NP-5
	2-5	Stony ashy fine sandy loam	SM, SC-SM	A-4	10-25	0-10	70-85	65-80	50-65	30-45	20-40	NP-5
	5-14	Gravelly ashy fine sandy loam, ashy fine sandy loam	ML, SM	A-4	0	0-5	85-100	75-90	60-90	40-75	20-40	NP-5
	14-32	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-35	45-65	35-55	20-40	10-35	10-20	NP-10
	32-45	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-35	35-60	30-55	15-40	10-30	10-20	NP-10
	45-60	Very gravelly sandy loam, very cobbly sandy loam, very stony sandy loam	GC-GM, SC-SM	A-1, A-2	0-30	0-35	35-60	30-55	15-40	10-30	10-20	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
529: Smokejump-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Stony ash fine sandy loam	SM, GM	A-2, A-4	10-25	0-15	65-90	60-85	45-65	25-45	20-40	NP-5
	5-14	Very stony ash sandy loam, very cobbly ash sandy loam	SM, GM	A-2, A-1, A-4	15-30	15-30	60-85	55-80	40-60	20-40	20-40	NP-5
	14-29	Very stony sandy loam, extremely stony sandy loam, very cobbly sandy loam, extremely stony coarse sandy loam, very stony coarse sandy loam	SM, GM	A-1	15-45	15-45	50-75	45-70	20-40	10-25	5-20	NP-5
	29-33	Extremely stony sandy loam, very stony sandy loam, very cobbly sandy loam, extremely stony coarse sandy loam, very stony coarse sandy loam	SM, GM	A-1	15-45	15-45	50-75	45-70	20-40	10-25	5-20	NP-5
	33-37	Unweathered bedrock			---	---	---	---	---	---	---	---
530: Vallan-----	0-2	Ashy loam	ML	A-4	0	0	85-100	75-100	70-80	50-60	20-35	NP-10
	2-10	Loam, clay loam, gravelly loam	CL, CL-ML	A-4, A-6	0	0-5	75-100	65-100	60-80	55-70	25-40	5-15
	10-16	Gravelly loam, loam, clay loam	CL, CL-ML	A-4, A-6	0	0-5	75-95	65-95	60-80	55-70	25-40	5-15
	16-20	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
531: Vanbrunt-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-8	Stony ash sandy loam	SC-SM, ML	A-4, A-2	10-25	0-15	70-95	65-90	40-70	30-55	15-30	NP-10
	8-13	Very cobbly ash sandy loam, very gravelly ashy sandy loam, extremely cobbly ash sandy loam	GC-GM, SC-SM	A-1, A-2	0-5	15-45	40-70	35-65	25-55	15-35	15-30	NP-10
	13-20	Very cobbly sandy loam, very gravelly sandy loam, extremely cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-5	15-45	40-70	35-65	25-55	15-35	10-20	NP-10
	20-26	Very cobbly sandy loam, extremely gravelly sandy loam, extremely cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0-15	25-45	35-60	30-55	20-55	10-30	10-20	NP-10
	26-30	Unweathered bedrock			---	---	---	---	---	---	---	---
Swakane-----	0-4	Very stony ash sandy loam	SC-SM, GC-GM	A-2, A-1, A-4	25-45	0-25	55-85	45-80	35-55	20-40	10-20	NP-10
	4-11	Very cobbly ash sandy loam, very gravelly ashy sandy loam	SC-SM, GC-GM	A-1, A-2	0-15	0-25	45-80	40-75	30-55	15-30	10-20	NP-10
	11-17	Very gravelly sandy loam, very cobbly sandy loam, extremely gravelly sandy loam	GC-GM, SC-SM	A-1	0-15	15-30	35-70	30-65	20-40	5-25	10-20	NP-10
	17-21	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
532: Verhart, cold---	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Stony ash sandy loam	SC-SM, ML, SM	A-4, A-2	10-25	0-10	75-95	70-90	55-70	30-65	15-30	NP-10
	5-12	Very gravelly ash sandy loam, gravelly ash sandy loam, very cobbly ashy sandy loam	GC-GM	A-2, A-1, A-4	0-10	0-30	40-65	35-60	25-55	20-40	15-30	NP-10
	12-25	Very gravelly sandy loam, very cobbly sandy loam, extremely gravelly sandy loam	GC-GM	A-1, A-2	0-10	10-30	35-60	30-55	20-40	10-30	15-25	NP-10
	25-29	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
532: Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
533: Veridge-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Gravelly ashy sandy loam	SM, ML	A-4, A-2	0	0-10	70-80	65-75	40-65	30-55	20-40	NP-5
	5-13	Gravelly ashy sandy loam, ashy sandy loam	SM, ML	A-4, A-2	0	0-10	70-95	65-90	40-75	30-60	20-40	NP-5
	13-22	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0	10-30	45-65	40-60	25-45	15-30	15-25	NP-10
	22-31	Very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0	30-45	40-65	35-60	20-45	10-30	15-25	NP-10
	31-35	Unweathered bedrock			---	---	---	---	---	---	---	---
Farway-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Gravelly ashy sandy loam	SM, ML	A-4, A-2	0	0	70-80	65-75	45-60	30-55	20-40	NP-5
	5-10	Gravelly ashy sandy loam, ashy sandy loam	SM, ML	A-4, A-2	0	0-5	70-90	65-85	40-70	30-65	20-40	NP-5
	10-21	Gravelly ashy sandy loam, ashy sandy loam	SM, ML	A-4, A-2	0	0-5	70-90	65-85	40-70	30-65	20-40	NP-5
	21-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM	A-1, A-2	0	5-30	35-60	30-55	20-40	10-30	15-25	NP-10
534: Veridge, moist--	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Gravelly ashy sandy loam	SM, ML	A-4, A-2	0	0-10	70-80	65-75	40-65	30-55	20-40	NP-5
	5-13	Gravelly ashy sandy loam, ashy sandy loam	SM, ML	A-4, A-2	0	0-10	70-95	65-90	40-75	30-60	20-40	NP-5
	13-22	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0	10-30	45-65	40-60	25-45	15-30	15-25	NP-10
	22-31	Very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0	30-45	40-65	35-60	20-45	10-30	15-25	NP-10
	31-35	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
534: Farway, moist----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Gravelly ashy sandy loam	SM, ML	A-4, A-2	0	0	70-80	65-75	45-60	30-55	20-40	NP-5
	5-10	Gravelly ashy sandy loam, ashy sandy loam	SM, ML	A-4, A-2	0	0-5	70-90	65-85	40-70	30-65	20-40	NP-5
	10-21	Gravelly ashy sandy loam, ashy sandy loam	SM, ML	A-4, A-2	0	0-5	70-90	65-85	40-70	30-65	20-40	NP-5
	21-60	Very gravelly sandy loam, very cobbly sandy loam	GC-GM	A-1, A-2	0	5-30	35-60	30-55	20-40	10-30	15-25	NP-10
535: Veridge-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Gravelly ashy sandy loam	SM, ML	A-4, A-2	0	0-10	70-80	65-75	40-65	30-55	20-40	NP-5
	5-13	Gravelly ashy sandy loam, ashy sandy loam	SM, ML	A-4, A-2	0	0-10	70-95	65-90	40-75	30-60	20-40	NP-5
	13-22	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0	10-30	45-65	40-60	25-45	15-30	15-25	NP-10
	22-31	Very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0	30-45	40-65	35-60	20-45	10-30	15-25	NP-10
	31-35	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
536: Vinegar-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-6	Ashy very fine sandy loam	SM	A-2	0	0	100	100	45-70	25-35	20-40	NP-5
	6-16	Ashy coarse sandy loam, ashy sandy loam, paragravelly ashy coarse sandy loam	SM	A-1, A-2	0	0	100	100	30-55	15-25	20-40	NP-5
	16-34	Paragravelly ashy coarse sandy loam, ashy sandy loam, ashy coarse sandy loam	SM	A-1, A-2	0	0	100	100	30-55	15-25	20-40	NP-5
	34-60	Paragravelly ashy coarse sandy loam, ashy sandy loam, ashy coarse sandy loam	SM	A-1, A-2	0	0	100	100	30-55	15-25	20-40	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
537: Vinegar-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-6	Ashy sandy loam	SM	A-2	0	0	100	100	45-70	25-35	20-40	NP-5
	6-16	Ashy coarse sandy loam, ashy sandy loam, paragravelly ashy coarse sandy loam	SM	A-1, A-2	0	0	100	100	30-55	15-25	20-40	NP-5
	16-34	Paragravelly ashy coarse sandy loam, ashy sandy loam, ashy coarse sandy loam	SM	A-1, A-2	0	0	100	100	30-55	15-25	20-40	NP-5
	34-60	Paragravelly ashy coarse sandy loam, ashy sandy loam, ashy coarse sandy loam	SM	A-1, A-2	0	0	100	100	30-55	15-25	20-40	NP-5
Thow-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-6	Ashy loamy fine sand	SM	A-2, A-4	0	0	100	100	50-70	25-40	25-35	NP-5
	6-12	Ashy sandy loam, paragravelly ashy coarse sandy loam, ashy coarse sandy loam	SM	A-2, A-1	0	0	100	100	30-65	15-35	25-35	NP-5
	12-38	Paragravelly ashy coarse sandy loam, ashy coarse sandy loam, ashy sandy loam, paragravelly ashy loamy coarse sand	SM	A-1, A-2	0	0	100	100	25-55	10-30	25-35	NP-5
	38-51	Paragravelly ashy loamy coarse sand, ashy coarse sandy loam, ashy sandy loam, paragravelly ashy coarse sandy loam	SM	A-1, A-2	0	0	100	100	25-55	10-30	25-35	NP-5
	51-60	Paragravelly ashy loamy sand, very paragravelly ashy coarse sandy loam, very paragravelly ashy loamy coarse sand	SP-SM, GP-GM	A-1	0	0	100	85-100	15-40	5-25	20-30	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
538: Vingulch-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Ashy loamy very fine sand	ML, SM	A-4	0	0	100	100	75-95	40-60	20-40	NP-5
	4-12	Ashy coarse sandy loam, paragravelly ashy sandy loam, paragravelly ashy coarse sandy loam, ashy sandy loam	SM	A-2, A-4, A-1	0	0	100	100	45-65	15-40	20-40	NP-5
	12-22	Paragravelly ashy coarse sandy loam, paragravelly ashy sandy loam, ashy coarse sandy loam, ashy sandy loam	SM	A-1, A-2	0	0	100	100	25-50	10-30	20-40	NP-5
	22-28	Paragravelly ashy coarse sandy loam, paragravelly ashy sandy loam, ashy coarse sandy loam, ashy sandy loam	SM	A-1, A-2	0	0	100	100	25-50	10-30	20-40	NP-5
	28-34	Paragravelly ashy loamy coarse sand, paragravelly ashy sandy loam, ashy coarse sandy loam, ashy sandy loam	SM	A-1, A-2	0	0	100	100	20-45	10-30	0-10	NP-5
	34-39	Very gravelly sandy loam, very gravelly loamy sand, very gravelly loamy coarse sand, very gravelly coarse sandy loam	GP-GC, SP-SC	A-1	0	0-20	30-60	25-50	10-35	5-20	15-25	NP-10
	39-43	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
539: Vitrandic Humicryepts, nonforested----	0-4	Gravelly ashy sandy loam	SM, ML	A-4	0	0-5	75-90	70-85	55-70	35-60	25-35	NP-5
	4-12	Gravelly ashy sandy loam, stony ashy sandy loam, stony ashy loam	SM, GM, ML	A-4, A-1, A-2	0-35	0-15	60-90	55-85	35-70	25-60	25-35	NP-5
	12-20	Very gravelly ashy sandy loam, very cobbly ashy sandy loam, cobbly ashy sandy loam, stony ashy loam	GM, SM	A-2, A-1, A-4	0-15	5-45	35-85	30-80	25-60	15-45	15-25	NP-5
	20-31	Very gravelly sandy loam, cobbly sandy loam, very stony coarse sandy loam, very cobbly sandy loam	GM, SM	A-1, A-2, A-4	0-25	5-55	35-85	30-80	15-55	10-40	15-25	NP-5
	31-35	Unweathered bedrock			---	---	---	---	---	---	---	---
Lithic Humicryepts, nonforested, udic-----	0-5	Very stony ashy fine sandy loam	SM, GM	A-2	15-35	15-25	60-80	50-75	35-65	25-35	20-40	NP-5
	5-11	Very stony ashy fine sandy loam, ashy fine sandy loam, extremely cobbly ashy fine sandy loam, gravelly ashy fine sandy loam	SM	A-2	0-35	5-45	65-95	55-90	35-70	25-35	20-40	NP-5
	11-20	Extremely stony sandy loam, gravelly sandy loam, very cobbly sandy loam	SC-SM	A-1, A-2	0-45	0-35	60-80	35-70	20-50	15-25	15-25	NP-10
	20-30	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
540: Vitrandic Haploxerepts---	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-6	Gravelly ashy sandy loam	GM, ML, SM	A-4, A-2	0-5	0-5	50-80	45-75	35-60	30-55	20-30	NP-5
	6-11	Gravelly ashy sandy loam, very gravelly ashy sandy loam, cobbly ashy sandy loam, stony ashy sandy loam	GM, ML, SM	A-4, A-2	0-10	0-25	45-80	40-75	35-60	30-55	20-30	NP-5
	11-17	Very gravelly ashy sandy loam, stony ashy sandy loam, cobbly ashy sandy loam, gravelly ashy sandy loam	GM, SM	A-2, A-4	0-10	0-25	40-80	35-75	25-60	25-45	15-25	NP-5
	17-24	Very gravelly ashy loam, gravelly ashy loam, very cobbly ashy sandy loam	GM, SM	A-1	0-5	0-25	35-74	33-73	25-60	13-34	15-25	NP-5
	24-37	Very gravelly sandy loam, cobbly sandy loam, very cobbly sandy loam	GM, SM	A-1, A-2	0-15	5-35	25-70	20-65	15-40	10-30	0-10	NP-5
	37-47	Very gravelly sandy loam, stony sandy loam, very gravelly loamy sand	GM, SM, SP-SM, GP-GM	A-1, A-2	0-15	5-15	20-60	15-55	10-40	5-30	0-10	NP-5
	47-49	Unweathered bedrock			---	---	---	---	---	---	---	---
Lithic Haploxerepts, forested, dry---	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Cobbly ashy sandy loam	ML	A-4	0-5	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	4-13	Cobbly ashy sandy loam, very gravelly ashy sandy loam, stony ashy loam	ML	A-4	0-15	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	13-19	Very gravelly sandy loam, gravelly sandy loam, very cobbly sandy loam	SM, GM	A-2, A-1, A-4	0-5	5-30	45-100	35-90	25-70	15-50	15-25	NP-5
	19-23	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
541: Vitrixerandic Haplocrypts, forested-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Ashy fine sandy loam	SM, ML	A-4, A-2	0	0-5	90-100	75-100	55-80	30-55	20-30	NP-5
	4-12	Ashy fine sandy loam	SM, ML	A-4, A-2	0	0-5	90-100	75-100	55-80	30-55	20-30	NP-5
	12-21	Ashy fine sandy loam, gravelly ashy fine sandy loam, gravelly ashy sandy loam	SM	A-4, A-2	0-5	0-15	70-95	60-90	40-75	25-50	20-30	NP-5
	21-28	Very gravelly fine sandy loam, very gravelly sandy loam, gravelly fine sandy loam	SM, GM	A-1, A-2	0	0-15	50-90	40-85	25-65	10-35	15-25	NP-5
	28-42	Very gravelly sandy loam, gravelly fine sandy loam, very gravelly fine sandy loam	SM, GM	A-1, A-2	0	0-15	50-90	40-85	25-65	10-35	15-25	NP-5
	42-60	Very gravelly sandy loam, very cobbly coarse sandy loam, gravelly loamy sand	SM, GM, GC-GM, SC-SM	A-1, A-2	0	0-30	65-90	50-85	15-40	5-35	10-20	NP-5
Cryaquolls, somewhat poorly drained, till substratum-----	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	2-9	Loam	CL, SC	A-4, A-6	0	0	90-100	75-100	65-90	45-70	20-30	5-15
	9-17	Loam	CL, SC	A-4, A-6	0	0	90-100	75-100	65-90	45-70	20-30	5-15
	17-21	Silt loam, gravelly loam, gravelly fine sandy loam	SC, CL	A-4, A-2, A-6	0	0-5	75-95	65-90	50-80	30-70	20-30	5-15
	21-31	Sandy loam, gravelly fine sandy loam	SC-SM, GC-GM	A-2, A-1, A-4	0	0-5	65-95	60-90	35-70	20-45	15-25	NP-10
	31-40	Gravelly loamy coarse sand, gravelly fine sandy loam, sandy loam	SM, SP-SM, GM, GP-GM	A-1, A-2, A-4	0	0-5	65-95	55-90	15-60	5-45	5-15	NP-5
	40-60	Gravelly fine sandy loam, gravelly loamy coarse sand, sandy loam	SC-SM, SM, GM, GC-GM	A-1, A-2, A-4	0	0-5	65-95	55-90	15-60	5-45	15-25	NP-10

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
542: Wadams-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Ashy sandy loam	SM	A-2, A-4, A-1	0	0	90-100	85-100	45-65	20-40	20-40	NP-5
	5-24	Ashy sandy loam, paragravelly ashy fine sandy loam, paragravelly ashy sandy loam	SM	A-2, A-4, A-1	0	0	90-100	80-100	50-65	25-40	20-40	NP-5
	24-32	Paragravelly ashy sandy loam, paragravelly ashy fine sandy loam	SM	A-2, A-1, A-4	0	0	90-100	80-100	50-65	25-40	20-40	NP-5
	32-45	Cobbly loamy sand, cobbly fine sandy loam	SM	A-2	0-5	10-30	80-100	75-100	60-75	20-35	0-5	NP-5
	45-60	Very stony loamy sand, cobbly fine sandy loam, cobbly loamy sand	SM	A-2, A-1	15-20	15-30	75-100	70-100	45-65	20-35	0-5	NP-5
543: Wadams, extremely stony surface-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Ashy sandy loam	SM	A-2, A-4, A-1	0	0	90-100	85-100	45-65	20-40	20-40	NP-5
	5-24	Ashy sandy loam, paragravelly ashy fine sandy loam, paragravelly ashy sandy loam	SM	A-2, A-4, A-1	0	0	90-100	85-100	50-65	25-40	20-40	NP-5
	24-32	Paragravelly ashy sandy loam, paragravelly ashy fine sandy loam	SM	A-2, A-4, A-1	0	0	90-100	85-100	50-65	25-40	20-40	NP-5
	32-45	Cobbly loamy sand, cobbly fine sandy loam	SM	A-2	0-5	10-30	80-100	75-100	60-75	20-35	0-5	NP-5
	45-60	Very stony loamy sand, cobbly fine sandy loam, cobbly loamy sand	SM	A-2, A-1	15-20	15-30	75-100	70-100	45-65	20-35	0-5	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
544: Wagberg-----	0-10	Stony ashy fine sandy loam	CL	A-4	10-25	0-5	85-95	80-90	60-80	40-65	20-35	NP-10
	10-14	Gravelly ashy sandy loam, gravelly ashy fine sandy loam	GC-GM, SC-SM	A-2, A-1, A-4	0	0-15	50-80	45-75	35-60	20-45	15-35	NP-10
	14-24	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0	10-30	45-65	40-60	25-55	15-35	15-25	NP-10
	24-35	Very gravelly sandy loam, very cobbly sandy loam, very cobbly coarse sandy loam, very gravelly loamy sand	GC-GM	A-1, A-2	0	15-30	40-55	35-50	20-45	15-30	15-25	NP-10
	35-60	Very gravelly loamy sand, very gravelly sandy loam, very cobbly sandy loam, very cobbly coarse sandy loam	GM, GP-GM	A-1	0	15-30	25-55	20-45	15-40	5-20	0-10	NP-5
545: Wagberg-----	0-10	Stony ashy fine sandy loam	CL	A-4	10-25	0-5	85-95	80-90	60-80	40-65	20-35	NP-10
	10-14	Gravelly ashy sandy loam, gravelly ashy fine sandy loam	GC-GM, SC-SM	A-2, A-1, A-4	0	0-15	50-80	45-75	35-60	20-45	15-35	NP-10
	14-24	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0	10-30	45-65	40-60	25-55	15-35	15-25	NP-10
	24-35	Very gravelly sandy loam, very cobbly sandy loam, very cobbly coarse sandy loam, very gravelly loamy sand	GC-GM	A-1, A-2	0	15-30	40-55	35-50	20-45	15-30	15-25	NP-10
	35-60	Very gravelly loamy sand, very gravelly sandy loam, very cobbly sandy loam, very cobbly coarse sandy loam	GM, GP-GM	A-1	0	15-30	25-55	20-45	15-40	5-20	0-10	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
546: Wagberg, cool---	0-10	Stony ash fine sandy loam	CL	A-4	10-25	0-5	85-95	80-90	60-80	40-65	20-35	NP-10
	10-14	Gravelly ash sandy loam, gravelly ash fine sandy loam	GC-GM, SC-SM	A-2, A-1, A-4	0	0-15	50-80	45-75	35-60	20-45	15-35	NP-10
	14-24	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0	10-30	45-65	40-60	25-55	15-35	15-25	NP-10
	24-35	Very gravelly sandy loam, very cobbly sandy loam, very cobbly coarse sandy loam, very gravelly loamy sand	GC-GM	A-1, A-2	0	15-30	40-55	35-50	20-45	15-30	15-25	NP-10
	35-60	Very gravelly loamy sand, very gravelly sandy loam, very cobbly sandy loam, very cobbly coarse sandy loam	GM, GP-GM	A-1	0	15-30	25-55	20-45	15-40	5-20	0-10	NP-5
Lithic Ultic Haploxerolls---	0-10	Very stony sandy loam	SC-SM, GC, GC-GM, SC, CL	A-4, A-2	25-35	5-30	65-85	60-80	45-70	30-60	15-25	NP-10
	10-15	Very cobbly sandy loam, very stony sandy loam, very gravelly sandy loam, very channery sandy loam, very flaggy sandy loam	GC-GM, GC, GP-GC, SC-SM	A-1, A-2	10-40	15-45	35-60	30-60	20-45	10-30	15-25	NP-10
	15-25	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
547: Wagberg-----	0-10	Ashy sandy loam	CL	A-4	0	0-5	85-95	80-90	60-80	40-65	20-35	NP-10
	10-14	Gravelly ash sandy loam, gravelly ash fine sandy loam	GC-GM, SC-SM	A-2, A-1, A-4	0	0-15	50-80	45-75	35-60	20-45	15-35	NP-10
	14-24	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0	10-30	45-65	40-60	25-55	15-35	15-25	NP-10
	24-35	Very gravelly sandy loam, very cobbly sandy loam, very cobbly coarse sandy loam, very gravelly loamy sand	GC-GM	A-1, A-2	0	15-30	40-55	35-50	20-45	15-30	15-25	NP-10
	35-60	Very gravelly loamy sand, very gravelly sandy loam, very cobbly sandy loam, very cobbly coarse sandy loam	GM, GP-GM	A-1	0	15-30	25-55	20-45	15-40	5-20	0-10	NP-5
Swakane-----	0-4	Very stony ash sandy loam	SC-SM, GC-GM	A-2, A-1, A-4	25-45	0-25	55-85	45-80	35-55	20-40	10-20	NP-10
	4-11	Very cobbly ash sandy loam, very gravelly ashy sandy loam	SC-SM, GC-GM	A-1, A-2	0-15	0-25	45-80	40-75	30-55	15-30	10-20	NP-10
	11-17	Very gravelly sandy loam, very cobbly sandy loam, extremely gravelly sandy loam	GC-GM, SC-SM	A-1	0-15	15-30	35-70	30-65	20-40	5-25	10-20	NP-10
	17-21	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
548: Wagberg-----	0-10	Ashy sandy loam	CL	A-4	0	0-5	85-95	80-90	60-80	40-65	20-35	NP-10
	10-14	Gravelly ash sandy loam, gravelly ash fine sandy loam	GC-GM, SC-SM	A-2, A-1, A-4	0	0-15	50-80	45-75	35-60	20-45	15-35	NP-10
	14-24	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0	10-30	45-65	40-60	25-55	15-35	15-25	NP-10
	24-35	Very gravelly sandy loam, very cobbly sandy loam, very cobbly coarse sandy loam, very gravelly loamy sand	GC-GM	A-1, A-2	0	15-30	40-55	35-50	20-45	15-30	15-25	NP-10
	35-60	Very gravelly loamy sand, very gravelly sandy loam, very cobbly sandy loam, very cobbly coarse sandy loam	GM, GP-GM	A-1	0	15-30	25-55	20-45	15-40	5-20	0-10	NP-5
Swakane-----	0-4	Very stony ash sandy loam	SC-SM, GC-GM	A-2, A-1, A-4	25-45	0-25	55-85	45-80	35-55	20-40	10-20	NP-10
	4-11	Very cobbly ash sandy loam, very gravelly ash sandy loam	SC-SM, GC-GM	A-1, A-2	0-15	0-25	45-80	40-75	30-55	15-30	10-20	NP-10
	11-17	Very gravelly sandy loam, very cobbly sandy loam, extremely gravelly sandy loam	GC-GM, SC-SM	A-1	0-15	15-30	35-70	30-65	20-40	5-25	10-20	NP-10
	17-21	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
549: Wagberg, extremely stony surface-----	0-10	Ashy sandy loam	CL	A-4	0	0-5	85-95	80-90	60-80	40-65	20-35	NP-10
	10-14	Gravelly ash sandy loam, gravelly ash fine sandy loam	GC-GM, SC-SM	A-2, A-1, A-4	0	0-15	50-80	45-75	35-60	20-45	15-35	NP-10
	14-24	Very gravelly sandy loam, very cobbly sandy loam	GC-GM, SC-SM	A-1, A-2	0	10-30	45-65	40-60	25-55	15-35	15-25	NP-10
	24-35	Very gravelly sandy loam, very cobbly sandy loam, very cobbly coarse sandy loam, very gravelly loamy sand	GC-GM	A-1, A-2	0	15-30	40-55	35-50	20-45	15-30	15-25	NP-10
	35-60	Very gravelly loamy sand, very gravelly sandy loam, very cobbly sandy loam, very cobbly coarse sandy loam	GM, GP-GM	A-1	0	15-30	25-55	20-45	15-40	5-20	0-10	NP-5
Swakane-----	0-4	Very stony ash sandy loam	SC-SM, GC-GM	A-2, A-1, A-4	25-45	0-25	55-85	45-80	35-55	20-40	10-20	NP-10
	4-11	Very cobbly ash sandy loam, very gravelly ash sandy loam	SC-SM, GC-GM	A-1, A-2	0-15	0-25	45-80	40-75	30-55	15-30	10-20	NP-10
	11-17	Very gravelly sandy loam, very cobbly sandy loam, extremely gravelly sandy loam	GC-GM, SC-SM	A-1	0-15	15-30	35-70	30-65	20-40	5-25	10-20	NP-10
	17-21	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
550: Wapal, cool-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Ashy coarse sandy loam	SC-SM, GC-GM	A-2, A-1, A-4	0	0-5	85-100	75-100	40-80	25-50	15-30	NP-10
	5-12	Very gravelly ash coarse sandy loam, gravelly ash coarse sandy loam, gravelly ashy sandy loam	GC-GM, SC-SM	A-2, A-1, A-4	0	0-5	45-75	40-70	20-45	15-40	15-30	NP-10
	12-33	Extremely cobbly loamy coarse sand, very gravelly sand, very cobbly loamy sand, extremely cobbly sand	GW-GM, GM, GP, GP-GM	A-1	0	10-35	15-45	10-40	5-20	0-15	15-25	NP-5
	33-60	Very gravelly loamy coarse sand, very gravelly loamy sand, extremely cobbly loamy coarse sand, extremely cobbly sand	GW-GM, GP, GP-GM, GM	A-1	0	10-35	15-45	10-40	5-20	0-15	15-25	NP-5
551: Wapal, cool-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Stony ash coarse sandy loam	SC-SM, GC-GM	A-2, A-1, A-4	10-25	0-5	60-80	55-75	30-55	20-45	15-30	NP-10
	5-12	Very gravelly ash coarse sandy loam, gravelly ash coarse sandy loam, gravelly ashy sandy loam	GC-GM, SC-SM	A-2, A-1, A-4	0	0-5	45-75	40-70	20-45	15-40	15-30	NP-10
	12-33	Extremely cobbly loamy coarse sand, very gravelly sand, very cobbly loamy sand, extremely cobbly sand	GW-GM, GP, GP-GM, GM	A-1	0	10-35	15-45	10-40	5-20	0-15	15-25	NP-5
	33-60	Very gravelly loamy coarse sand, extremely cobbly loamy coarse sand, very gravelly loamy sand, extremely cobbly sand	GW-GM, GM, GP, GP-GM	A-1	0	10-35	15-45	10-40	5-20	0-15	15-25	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
552: Wapal, dry-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Stony ash coarse sandy loam	SC-SM, GC-GM	A-2, A-1, A-4	10-25	0-5	60-80	55-75	30-55	20-45	15-30	NP-10
	5-12	Very gravelly ash coarse sandy loam, gravelly ash coarse sandy loam, gravelly ash sandy loam	GC-GM, SC-SM	A-2, A-1, A-4	0	0-5	45-75	40-70	20-45	15-40	15-30	NP-10
	12-33	Extremely cobbly loamy coarse sand, very gravelly sand, very cobbly loamy sand, extremely cobbly sand	GW-GM, GM, GP, GP-GM	A-1	0	10-35	15-45	10-40	5-20	0-15	15-25	NP-5
	33-60	Very gravelly loamy coarse sand, extremely cobbly loamy coarse sand, very gravelly loamy sand, extremely cobbly sand	GW-GM, GM, GP, GP-GM	A-1	0	10-35	15-45	10-40	5-20	0-15	15-25	NP-5
553: Wapal-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Stony ash coarse sandy loam	SC-SM, GC-GM	A-2, A-1, A-4	10-25	0-5	60-80	55-75	30-55	20-45	15-30	NP-10
	5-12	Very gravelly ash coarse sandy loam, gravelly ash coarse sandy loam, gravelly ash sandy loam	GC-GM, SC-SM	A-2, A-1, A-4	0	0-5	45-75	40-70	20-45	15-40	15-30	NP-10
	12-33	Extremely cobbly loamy coarse sand, very gravelly sand, very cobbly loamy sand, extremely cobbly sand	GW-GM, GM, GP, GP-GM	A-1	0	10-35	15-45	10-40	5-20	0-15	15-25	NP-5
	33-60	Very gravelly loamy coarse sand, extremely cobbly loamy coarse sand, very gravelly loamy sand, extremely cobbly sand	GW-GM, GM, GP, GP-GM	A-1	0	10-35	15-45	10-40	5-20	0-15	15-25	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
554: Wapal-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Stony ashy coarse sandy loam	SC-SM, GC-GM	A-2, A-1, A-4	10-25	0-5	60-80	55-75	30-55	20-45	15-30	NP-10
	5-12	Very gravelly ashy coarse sandy loam, gravelly ashy coarse sandy loam, gravelly ashy sandy loam	GC-GM, SC-SM	A-2, A-1, A-4	0	0-5	45-75	40-70	20-45	15-40	15-30	NP-10
	12-33	Extremely cobbly loamy coarse sand, very gravelly sand, very cobbly loamy sand, extremely cobbly sand	GW-GM, GM, GP, GP-GM	A-1	0	10-35	15-45	10-40	5-20	0-15	15-25	NP-5
	33-60	Very gravelly loamy coarse sand, extremely cobbly loamy coarse sand, very gravelly loamy sand, extremely cobbly sand	GW-GM, GM, GP, GP-GM	A-1	0	10-35	15-45	10-40	5-20	0-15	15-25	NP-5
Brevco-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Stony ashy coarse sandy loam	SC-SM	A-1, A-2	10-20	0-10	70-80	65-75	30-50	15-35	15-30	NP-10
	4-12	Stony ashy coarse sandy loam	SC-SM	A-1, A-2	10-20	0-10	65-80	60-75	25-50	10-35	15-30	NP-10
	12-26	Very gravelly sandy loam, very gravelly coarse sandy loam, very cobbly coarse sandy loam	GC-GM, GP-GM, SM, SP-SM	A-1, A-2	0-5	10-45	30-65	25-60	15-50	5-35	15-25	NP-10
	26-39	Very cobbly coarse sandy loam, very gravelly coarse sandy loam, very gravelly sandy loam	GC-GM, GP-GM, SM, SP-SM	A-1, A-2	0-5	10-45	30-60	25-55	15-45	5-30	15-25	NP-10
	39-43	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
555: Wapal-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Stony ashy coarse sandy loam	SC-SM, GC-GM	A-2, A-1, A-4	10-25	0-5	60-80	55-75	30-55	20-45	15-30	NP-10
	5-12	Very gravelly ashy coarse sandy loam, gravelly ashy coarse sandy loam, gravelly ashy sandy loam	GC-GM, SC-SM	A-2, A-1, A-4	0	0-5	45-75	40-70	20-45	15-40	15-30	NP-10
	12-33	Extremely cobbly loamy coarse sand, very gravelly sand, very cobbly loamy sand, extremely cobbly sand	GW-GM, GM, GP, GP-GM	A-1	0	10-35	15-45	10-40	5-20	0-15	15-25	NP-5
	33-60	Very gravelly loamy coarse sand, very gravelly loamy sand, extremely cobbly loamy coarse sand, extremely cobbly sand	GW-GM, GM, GP, GP-GM	A-1	0	10-35	15-45	10-40	5-20	0-15	15-25	NP-5
Brevco-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Stony ashy coarse sandy loam	SC-SM	A-1, A-2	10-20	0-10	70-80	65-75	30-50	15-35	15-30	NP-10
	4-12	Gravelly ashy coarse sandy loam, gravelly ashy sandy loam	SC-SM	A-1, A-2	0-5	0-15	65-80	60-75	25-50	10-35	15-30	NP-10
	12-26	Very gravelly sandy loam, very gravelly coarse sandy loam, very cobbly coarse sandy loam	GC-GM, GP-GM, SM, SP-SM	A-1, A-2	0-5	10-45	30-65	25-60	15-50	5-35	15-25	NP-10
	26-39	Very cobbly coarse sandy loam, very gravelly coarse sandy loam, very gravelly sandy loam	GC-GM, GP-GM, SM, SP-SM	A-1, A-2	0-5	10-45	30-60	25-55	15-45	5-30	15-25	NP-10
	39-43	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
556: Wapal, dry-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Stony ash coarse sandy loam	SC-SM, GC-GM	A-2, A-1, A-4	10-25	0-5	60-80	55-75	30-55	20-45	15-30	NP-10
	5-12	Very gravelly ash coarse sandy loam, gravelly ash coarse sandy loam, gravelly ash sandy loam	GC-GM, SC-SM	A-2, A-1, A-4	0	0-5	45-75	40-70	20-45	15-40	15-30	NP-10
	12-33	Extremely cobbly loamy coarse sand, very gravelly sand, very cobbly loamy sand, extremely cobbly sand	GW-GM, GM, GP-GM, GP	A-1	0	10-35	15-45	10-40	5-20	0-15	15-25	NP-5
	33-60	Very gravelly loamy coarse sand, extremely cobbly loamy coarse sand, very gravelly loamy sand, extremely cobbly sand	GW-GM, GM, GP, GP-GM	A-1	0	10-35	15-45	10-40	5-20	0-15	15-25	NP-5
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
557: Wapal, dry, warm	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Stony ash coarse sandy loam	SC-SM, GC-GM	A-2, A-1, A-4	10-25	0-5	60-80	55-75	30-55	20-45	15-30	NP-10
	5-12	Very gravelly ash coarse sandy loam, gravelly ash coarse sandy loam, gravelly ash sandy loam	GC-GM, SC-SM	A-2, A-1, A-4	0	0-5	45-75	40-70	20-45	15-40	15-30	NP-10
	12-33	Extremely cobbly loamy coarse sand, very gravelly sand, very cobbly loamy sand, extremely cobbly sand	GW-GM, GM, GP, GP-GM	A-1	0	10-35	15-45	10-40	5-20	0-15	15-25	NP-5
	33-60	Very gravelly loamy coarse sand, extremely cobbly loamy coarse sand, very gravelly loamy sand, extremely cobbly sand	GW-GM, GM, GP, GP-GM	A-1	0	10-35	15-45	10-40	5-20	0-15	15-25	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
557: Sacheen-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-6	Loamy sand	SM, SP-SM	A-1, A-2	0	0	80-100	75-100	45-60	10-15	5-15	NP-5
	6-16	Loamy sand, sand, gravelly sand	SP-SM, SM	A-1, A-2	0	0	75-90	70-90	40-55	10-15	5-15	NP-5
	16-60	Loamy sand, sand, gravelly sand	SP-SM, SM	A-1, A-2	0	0	75-90	70-90	40-55	10-15	5-15	NP-5
558: Water-----	---	---	---	---	---	---	---	---	---	---	---	---
559: Wenner-----	0-5	Ashy loam	CL-ML	A-4	0	0	90-100	85-100	70-90	55-90	20-30	NP-10
	5-12	Ashy loam	CL-ML, SM	A-4	0	0	80-100	75-100	60-80	45-65	20-30	NP-10
	12-18	Gravelly ashly sandy loam, gravelly ashly loam	CL-ML, SM	A-4	0	0-5	70-95	65-75	45-65	35-75	20-30	NP-10
	18-25	Gravelly clay loam, gravelly sandy clay loam	GC, CL, SC	A-6	0	0-5	65-80	60-75	45-60	35-55	30-40	10-20
	25-33	Gravelly clay loam, gravelly sandy clay loam	GC, CL, SC	A-6	0	0-5	65-80	60-75	45-60	35-55	30-40	10-20
	33-60	Gravelly clay loam, gravelly sandy clay loam	GC, SC, CL	A-6	0	0-5	60-80	55-75	40-60	35-55	30-40	10-20
560: Wilder-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Ashy sandy loam	ML, SM	A-4	0	0	95-100	85-100	75-85	45-70	15-30	NP-5
	7-11	Ashy sandy loam	ML, SM	A-4	0	0	95-100	85-100	75-85	45-70	15-30	NP-5
	11-16	Ashy sandy loam, ashly fine sandy loam	ML, SM	A-4	0	0	95-100	85-100	75-85	45-70	15-30	NP-5
	16-22	Loamy sand, gravelly loamy sand, sand	SM, SP-SM	A-1, A-2, A-3	0	0	75-95	65-90	15-60	5-30	10-15	NP-5
	22-40	Gravelly loamy sand, loamy sand, sand	SM	A-1, A-2, A-3	0	0	75-95	60-90	20-60	5-25	10-15	NP-5
	40-60	Sand, gravelly loamy coarse sand, loamy coarse sand	SM	A-1	0	0	95-100	55-75	30-40	10-20	10-15	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
560: Republic-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Ashy loam	ML, SM	A-4	0	0	85-100	75-100	60-85	45-70	20-35	NP-10
	7-16	Ashy sandy loam	SC-SM, ML, SM	A-4, A-2	0	0	80-100	75-100	50-80	30-65	15-30	NP-10
	16-29	Sandy loam, loam, gravelly sandy loam	SC-SM, ML, SM	A-4, A-2	0	0-15	75-95	65-95	45-75	25-65	10-20	NP-10
	29-36	Gravelly sandy loam, sandy loam, loam	SC-SM, GM, SM, ML, GC-GM	A-4, A-2	0	0-15	65-95	60-90	35-75	25-55	10-20	NP-10
	36-60	Very gravelly sandy loam, sandy loam	SC-SM, GM, SM, GC-GM	A-2, A-1, A-4	0	0-15	50-85	45-80	30-70	15-45	10-20	NP-10
561: Wilma-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Gravelly ash fine sandy loam	ML, SM	A-4	0-5	0-5	80-95	70-85	60-75	45-60	25-35	NP-5
	7-13	Gravelly ash fine sandy loam	ML, SM	A-4	0-10	0-5	75-95	65-85	55-70	40-60	25-35	NP-5
	13-18	Very gravelly fine sandy loam, very gravelly sandy loam, very cobbly sandy loam, very cobbly fine sandy loam	GM, SM	A-2, A-1, A-4	0-10	15-30	45-65	40-60	30-55	15-45	10-20	NP-5
	18-29	Extremely gravelly coarse sandy loam, very gravelly sandy loam, very cobbly coarse sandy loam	GM, GP-GM	A-1	0-10	15-30	35-50	30-45	15-35	5-25	10-20	NP-5
	29-33	Unweathered bedrock			---	---	---	---	---	---	---	---
Lithic Haploxerepts, forested-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Cobbly ash sandy loam	ML	A-4	0-5	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	4-13	Cobbly ash sandy loam, very gravelly ash sandy loam, stony ash loam	ML	A-4	0-15	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	13-19	Very gravelly sandy loam, gravelly sandy loam, very cobbly sandy loam	SM, GM	A-2, A-1, A-4	0-5	5-30	45-100	35-90	25-70	15-50	15-25	NP-5
	19-23	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
561: Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
562: Wilma, moist----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Gravelly ashy fine sandy loam	ML, SM	A-4	0-5	0-5	80-95	70-85	60-75	45-60	25-35	NP-5
	7-13	Gravelly ashy fine sandy loam	ML, SM	A-4	0-5	0-5	75-95	65-85	55-70	40-60	25-35	NP-5
	13-18	Very gravelly fine sandy loam, very gravelly sandy loam, very cobbly sandy loam, very cobbly fine sandy loam	GM, SM	A-2, A-1, A-4	0-10	15-30	45-65	40-60	30-55	15-45	10-20	NP-5
	18-29	Extremely gravelly coarse sandy loam, very gravelly sandy loam, very cobbly coarse sandy loam	GM, GP-GM	A-1	0-10	15-30	35-50	30-45	15-35	5-25	10-20	NP-5
	29-33	Unweathered bedrock			---	---	---	---	---	---	---	---
Lithic Haploxerepts, forested-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-4	Cobbly ashy sandy loam	ML	A-4	0-5	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	4-13	Cobbly ashy sandy loam, very gravelly ashy sandy loam, stony ashy loam	ML	A-4	0-15	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	13-19	Very gravelly sandy loam, gravelly sandy loam, very cobbly sandy loam	SM, GM	A-2, A-1, A-4	0-5	5-30	45-100	35-90	25-70	15-50	15-25	NP-5
	19-23	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
563: Wilma, cool-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Gravelly ashy fine sandy loam	ML, SM	A-4	0-5	0-5	80-95	70-85	60-75	45-60	25-35	NP-5
	7-13	Gravelly ashy fine sandy loam	ML, SM	A-4	0-5	0-5	75-95	65-85	55-70	40-60	25-35	NP-5
	13-18	Very gravelly fine sandy loam, very gravelly sandy loam, very cobbly sandy loam, very cobbly fine sandy loam	GM, SM	A-2, A-1, A-4	0-10	15-30	45-65	40-60	30-55	15-45	10-20	NP-5
	18-29	Extremely gravelly coarse sandy loam, very gravelly sandy loam, very cobbly coarse sandy loam	GM, GP-GM	A-1	0-10	15-30	35-50	30-45	15-35	5-25	10-20	NP-5
	29-33	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
564: Winsand-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-6	Gravelly ashy sandy loam	SM, ML	A-4, A-2	0	0	75-80	70-75	40-60	30-55	15-30	NP-5
	6-13	Gravelly ashy sandy loam, very gravelly ashy sandy loam	SM, GM	A-4, A-2	0	0-5	60-80	55-75	35-60	25-50	15-30	NP-5
	13-25	Very cobbly sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2	0-5	15-45	45-65	40-60	30-50	10-35	15-25	NP-5
	25-44	Very cobbly sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2	0-5	15-45	45-65	40-60	30-50	10-35	15-25	NP-5
	44-48	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
564: Verhart-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-5	Stony ashly sandy loam	SC-SM, SM, ML	A-4, A-2	10-25	0-10	75-95	70-90	55-70	30-65	15-30	NP-10
	5-12	Very gravelly ashly sandy loam, gravelly ashly sandy loam, very cobbly ashly sandy loam	GC-GM	A-2, A-1, A-4	0-10	0-30	40-65	35-60	25-55	20-40	15-30	NP-10
	12-25	Very gravelly sandy loam, very cobbly sandy loam, extremely gravelly sandy loam	GC-GM	A-1, A-2	0-10	10-30	35-60	30-55	20-40	10-30	15-25	NP-10
	25-29	Unweathered bedrock			---	---	---	---	---	---	---	---
565: Winthrop-----	0-5	Gravelly loamy sand	SM	A-1	0	0-5	60-75	55-70	30-50	15-25	0-5	NP-5
	5-13	Gravelly loamy sand, stony sandy loam	SM	A-1	0-25	0-5	60-75	55-70	30-50	15-25	0-5	NP-5
	13-25	Very gravelly loamy sand, very gravelly coarse sand, very gravelly sand	SP-SM, SW-SM, GW-GM	A-1	0-5	0-25	45-65	40-60	25-40	0-10	0-5	NP-5
	25-60	Very gravelly sand, very gravelly coarse sand, very gravelly loamy sand	GP-GM	A-1	0-5	0-25	30-45	25-40	15-25	0-10	0-5	NP-5
566: Winthrop, extremely stony surface-----	0-5	Loamy sand	SM	A-2	0	0	90-100	75-100	50-60	30-40	0-5	NP-5
	5-13	Gravelly loamy sand, stony sandy loam	SM	A-1	0-25	0-5	60-75	55-70	30-50	15-25	0-5	NP-5
	13-25	Very gravelly loamy sand, very gravelly coarse sand, very gravelly sand	SP-SM, SW-SM, GW-GM	A-1	0-5	0-25	45-65	40-60	25-40	0-10	0-5	NP-5
	25-60	Very gravelly sand, very gravelly coarse sand, very gravelly loamy sand	GP-GM	A-1	0-5	0-25	30-45	25-40	15-25	0-10	0-5	NP-5

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
567: Wynhoff-----	0-5	Gravelly sandy loam	GM, SM	A-4, A-2	0	0-5	60-80	55-75	40-60	30-50	15-25	NP-5
	5-9	Gravelly sandy loam	GM, SM	A-4, A-2	0	0-5	60-80	55-75	40-60	30-50	15-25	NP-5
	9-18	Very gravelly sandy loam, very cobbly sandy loam	GM, GP-GM, SM	A-1, A-2, A-4	0	10-30	35-70	30-65	20-50	10-40	15-25	NP-5
	18-24	Extremely gravelly sandy loam, very cobbly sandy loam, extremely cobbly sandy loam	GM, GP-GM	A-1, A-2	0-5	15-35	30-55	25-50	15-40	10-35	15-25	NP-5
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
568: Wynhoff-----	0-5	Gravelly sandy loam	GM, SM	A-4, A-2	0	0-5	60-80	55-75	40-60	30-50	15-25	NP-5
	5-9	Gravelly sandy loam	GM, SM	A-4, A-2	0	0-5	60-80	55-75	40-60	30-50	15-25	NP-5
	9-18	Very gravelly sandy loam, very cobbly sandy loam	GM, GP-GM, SM	A-1, A-2, A-4	0	10-30	35-70	30-65	20-50	10-40	15-25	NP-5
	18-24	Extremely gravelly sandy loam, very cobbly sandy loam, extremely cobbly sandy loam	GM, GP-GM	A-1, A-2	0-5	15-35	30-55	25-50	15-40	10-35	15-25	NP-5
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Lithic Haploxerepts, range, moist---	0-3	Cobbly ashy sandy loam	ML	A-4	0-5	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	3-12	Cobbly ashy sandy loam, very gravelly ashy sandy loam, stony ashy loam	ML	A-4	0-15	15-35	90-100	80-90	65-75	50-60	15-25	NP-5
	12-18	Very gravelly sandy loam, gravelly sandy loam, very cobbly sandy loam	SM, GM	A-2, A-1, A-4	0-5	5-30	45-100	35-90	25-70	15-50	15-25	NP-5
	18-22	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
569: Xerofluvents, wet-----	0-8	Sandy loam	SM	A-4	0	0	100	90-100	80-90	40-50	0-14	NP
	8-30	Sandy loam	ML, SM	A-4	0	0	100	85-100	85-95	45-55	0-14	NP
	30-60	Loamy sand, sand	SM	A-2, A-1	0	0	100	80-100	50-60	10-20	0-14	NP

Table 7.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
570: Yellcreek-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-6	Gravelly ashy sandy loam	GM, ML, SM	A-4, A-2	0	0	55-75	50-70	40-60	30-55	15-30	NP-5
	6-13	Very gravelly ashy sandy loam	GM	A-2	0	0	50-60	45-55	35-45	25-35	15-30	NP-5
	13-26	Very gravelly ashy sandy loam	GM	A-1, A-2	0	0-10	40-60	35-55	25-45	15-35	15-25	NP-5
	26-36	Extremely gravelly sandy loam, very gravelly sandy loam, very cobbly sandy loam	GM	A-1	0-5	15-30	30-50	20-45	15-35	10-25	15-25	NP-5
	36-60	Extremely gravelly sandy loam, very gravelly sandy loam, very cobbly sandy loam	GM	A-1	0-5	15-30	30-50	20-45	15-35	10-25	15-25	NP-5
Midpeak-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	60-100	50-90	---	---
	1-7	Gravelly ashy sandy loam	GC-GM, ML, SM	A-4	0	0-5	65-80	60-75	50-65	40-55	15-30	NP-10
	7-16	Very gravelly ashy sandy loam	GC-GM, ML, SM	A-4	0	0-5	60-80	55-75	45-65	35-55	15-30	NP-10
	16-24	Very gravelly sandy loam, very cobbly sandy loam	GC-GM	A-2	0	5-30	50-60	45-55	35-45	25-35	15-25	NP-10
	24-37	Extremely gravelly sandy loam, very gravelly sandy loam, very cobbly sandy loam	GC-GM	A-1, A-2	0	5-30	35-60	30-55	20-45	10-35	15-25	NP-10
	37-41	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 8.--Physical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the mineral or saturated organic surface layer. Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
200: Aeneas-----	0-2	5-15	1.20-1.35	14.00-42.00	0.13-0.15	0.0-2.9	2.0-6.0	.28	.32	3	3	86
	2-8	5-15	1.20-1.35	14.00-42.00	0.13-0.15	0.0-2.9	1.0-5.0	.28	.32			
	8-16	5-15	1.25-1.35	14.00-42.00	0.10-0.15	0.0-2.9	0.5-1.5	.24	.28			
	16-26	5-15	1.25-1.35	14.00-42.00	0.10-0.15	0.0-2.9	0.5-1.0	.24	.28			
	26-30	0-10	1.15-1.25	42.00-141.00	0.05-0.07	0.0-2.9	0.2-0.8	.15	.15			
	30-60	0-5	1.15-1.25	42.00-141.00	0.05-0.07	0.0-2.9	0.0-0.5	.15	.15			
201: Aeneas-----	0-2	5-15	1.20-1.35	14.00-42.00	0.13-0.15	0.0-2.9	2.0-6.0	.28	.32	3	3	86
	2-8	5-15	1.20-1.35	14.00-42.00	0.13-0.15	0.0-2.9	1.0-5.0	.28	.32			
	8-16	5-15	1.25-1.35	14.00-42.00	0.10-0.15	0.0-2.9	0.5-1.5	.24	.28			
	16-26	5-15	1.25-1.35	14.00-42.00	0.10-0.15	0.0-2.9	0.5-1.0	.24	.28			
	26-30	0-10	1.15-1.25	42.00-141.00	0.05-0.07	0.0-2.9	0.2-0.8	.15	.15			
	30-60	0-5	1.15-1.25	42.00-141.00	0.05-0.07	0.0-2.9	0.0-0.5	.15	.15			
202: Aits-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	2	134
	1-3	10-18	0.60-0.85	4.00-14.00	0.20-0.24	0.0-2.9	2.0-5.0	.32	.32			
	3-12	10-18	0.75-0.90	4.00-14.00	0.14-0.16	0.0-2.9	1.0-4.0	.32	.37			
	12-17	10-18	1.50-1.70	4.00-14.00	0.12-0.14	0.0-2.9	1.0-2.0	.20	.37			
	17-34	10-18	1.50-1.70	4.00-14.00	0.12-0.14	0.0-2.9	1.0-2.0	.20	.37			
	34-45	10-30	1.50-1.70	4.00-14.00	0.12-0.14	0.0-2.9	1.0-2.0	.20	.37			
	45-60	25-35	1.40-1.65	1.40-4.00	0.09-0.12	3.0-5.9	0.0-0.5	.15	.32			
203: Andic Dystricrypts, forested-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	2	134
	1-2	5-10	0.80-0.90	14.00-42.00	0.21-0.25	0.0-2.9	2.0-4.0	.32	.37			
	2-5	3-7	0.80-0.90	14.00-42.00	0.21-0.25	0.0-2.9	2.0-4.0	.32	.37			
	5-11	3-7	0.80-0.90	14.00-42.00	0.18-0.20	0.0-2.9	1.0-2.0	.32	.37			
	11-22	4-10	1.25-1.40	14.00-141.00	0.07-0.13	0.0-2.9	0.0-0.5	.10	.24			
	22-60	2-10	1.35-1.55	14.00-141.00	0.06-0.10	0.0-2.9	0.0-0.5	.05	.20			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---
Rubble land-----	0-60	---	---	---	---	---	---	---	---	-	---	---

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
204: Andic Dystricrypts, forested-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	2	134
	1-2	5-10	0.80-0.90	14.00-42.00	0.21-0.25	0.0-2.9	2.0-4.0	.32	.37			
	2-5	3-7	0.80-0.90	14.00-42.00	0.21-0.25	0.0-2.9	2.0-4.0	.32	.37			
	5-11	3-7	0.80-0.90	14.00-42.00	0.18-0.20	0.0-2.9	1.0-2.0	.32	.37			
	11-22	4-10	1.25-1.40	14.00-141.00	0.07-0.13	0.0-2.9	0.0-0.5	.10	.24			
	22-60	2-8	1.35-1.55	14.00-141.00	0.06-0.10	0.0-2.9	0.0-0.5	.05	.20			
Vitrandic Humicryepts, nonforested-----	0-4	3-7	0.75-0.90	14.00-42.00	0.15-0.19	0.0-2.9	2.0-6.0	.24	.37	2	3	86
	4-12	3-7	0.75-0.90	14.00-42.00	0.15-0.18	0.0-2.9	2.0-4.0	.15	.32			
	12-20	3-7	1.45-1.60	14.00-42.00	0.08-0.11	0.0-2.9	0.0-0.5	.10	.28			
	20-31	5-15	1.50-1.60	14.00-42.00	0.08-0.11	0.0-2.9	0.0-0.5	.10	.24			
	31-35	---	---	---	---	---	---	---	---			
205: Aquandic Endoaquolls--	0-4	10-35	0.10-0.30	4.00-14.00	0.30-0.60	---	70-100	.02	.02	3	8	0
	4-11	5-10	0.80-1.00	4.00-14.00	0.17-0.20	0.0-2.9	2.0-6.0	.32	.32			
	11-18	5-20	0.80-1.00	4.00-14.00	0.14-0.18	0.0-2.9	2.0-6.0	.32	.32			
	18-23	5-20	1.25-1.35	4.00-14.00	0.14-0.18	0.0-2.9	1.0-5.0	.28	.32			
	23-39	5-15	1.30-1.45	14.00-42.00	0.07-0.12	0.0-2.9	0.0-0.5	.15	.20			
	39-60	2-15	1.40-1.65	14.00-42.00	0.03-0.06	0.0-2.9	0.0-0.5	.10	.17			
206: Aquandic Endoaquolls--	0-4	10-35	0.10-0.30	4.00-14.00	0.30-0.60	---	70-100	.02	.02	3	8	0
	4-11	5-10	0.80-1.00	4.00-14.00	0.17-0.20	0.0-2.9	2.0-6.0	.32	.32			
	11-18	5-20	0.80-1.00	4.00-14.00	0.14-0.18	0.0-2.9	2.0-6.0	.32	.32			
	18-23	5-20	1.25-1.35	4.00-14.00	0.14-0.18	0.0-2.9	1.0-5.0	.28	.32			
	23-39	5-15	1.30-1.45	14.00-42.00	0.07-0.12	0.0-2.9	0.0-0.5	.15	.20			
	39-60	2-15	1.40-1.65	14.00-42.00	0.03-0.06	0.0-2.9	0.0-0.5	.10	.17			
Haplosaprists-----	0-8	10-35	0.10-0.30	4.00-14.00	0.30-0.60	---	70-100	.20	.20	1	8	0
	8-18	10-35	0.10-0.30	4.00-14.00	0.30-0.60	---	70-100	.20	.20			
	18-34	10-20	1.10-1.50	4.00-14.00	0.19-0.21	0.0-2.9	5.0-15	.32	.32			
	34-44	10-20	1.10-1.50	4.00-14.00	0.19-0.21	0.0-2.9	2.0-10	.32	.32			
	44-55	5-15	1.10-1.50	4.00-14.00	0.14-0.17	0.0-2.9	2.0-10	.28	.28			
	55-60	10-35	0.10-0.30	4.00-14.00	0.30-0.60	---	70-100	.20	.20			

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility	erodi- bility	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
207:													
Aquandic Xerofluvents	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	2	134	
	1-5	3-7	0.75-0.90	14.00-42.00	0.20-0.23	0.0-2.9	1.0-2.0	.28	.28				
	5-9	3-7	0.75-0.90	14.00-42.00	0.20-0.23	0.0-2.9	1.0-2.0	.28	.28				
	9-14	3-7	0.80-1.10	14.00-42.00	0.20-0.23	0.0-2.9	0.0-1.0	.28	.28				
	14-25	3-8	1.30-1.50	42.00-141.00	0.06-0.08	0.0-2.9	0.0-1.0	.17	.20				
	25-45	5-15	1.30-1.50	14.00-42.00	0.11-0.13	0.0-2.9	0.0-1.0	.24	.28				
	45-51	3-8	1.30-1.50	42.00-141.00	0.05-0.06	0.0-2.9	0.0-1.0	.15	.20				
	51-60	3-8	1.30-1.55	42.00-141.00	0.04-0.05	0.0-2.9	0.0-1.0	.10	.20				
208:													
Badland-----	0-60	---	---	---	---	---	---	---	---	-	---	---	
209:													
Baldknob-----	0-3	10-20	1.00-1.30	4.00-14.00	0.13-0.14	0.0-2.9	1.0-5.0	.17	.32	1	5	56	
	3-12	10-20	1.10-1.40	4.00-14.00	0.10-0.11	0.0-2.9	0.0-2.0	.10	.32				
	12-16	---	---	---	---	---	---	---	---				
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---	
210:													
Baldknob-----	0-3	10-20	1.00-1.30	4.00-14.00	0.13-0.14	0.0-2.9	1.0-5.0	.17	.32	1	5	56	
	3-12	10-20	1.10-1.40	4.00-14.00	0.10-0.11	0.0-2.9	0.0-2.0	.10	.32				
	12-16	---	---	---	---	---	---	---	---				
Rubble land-----	0-60	---	---	---	---	---	---	---	---	-	---	---	
Thout-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86	
	1-5	3-7	1.00-1.35	10.00-100.00	0.10-0.13	0.0-2.9	1.0-3.0	.15	.28				
	5-12	3-7	1.00-1.35	10.00-100.00	0.07-0.10	0.0-2.9	1.0-2.0	.10	.28				
	12-25	5-15	1.30-1.55	10.00-100.00	0.07-0.10	0.0-2.9	1.0-2.0	.10	.28				
	25-29	---	---	---	---	---	---	---	---				
211:													
Baldknob-----	0-3	10-20	1.00-1.30	4.00-14.00	0.13-0.14	0.0-2.9	1.0-5.0	.17	.32	1	5	56	
	3-12	10-20	1.10-1.40	4.00-14.00	0.10-0.11	0.0-2.9	0.0-2.0	.10	.32				
	12-16	---	---	---	---	---	---	---	---				
Thout-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86	
	1-5	3-7	1.00-1.35	10.00-100.00	0.10-0.13	0.0-2.9	1.0-3.0	.15	.28				
	5-12	3-7	1.00-1.35	10.00-100.00	0.07-0.10	0.0-2.9	1.0-2.0	.10	.28				
	12-25	5-15	1.30-1.55	10.00-100.00	0.07-0.10	0.0-2.9	1.0-2.0	.10	.28				
	25-29	---	---	---	---	---	---	---	---				

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
211: Nicmar-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	4	86
	1-5	8-15	0.80-1.00	14.00-42.00	0.18-0.21	0.0-2.9	2.0-4.0	.28	.32			
	5-17	8-15	0.80-1.20	14.00-42.00	0.16-0.19	0.0-2.9	1.0-3.0	.24	.32			
	17-24	25-35	1.40-1.60	4.00-14.00	0.13-0.15	3.0-5.9	0.5-1.0	.10	.24			
	24-34	25-35	1.40-1.60	4.00-14.00	0.13-0.15	3.0-5.9	0.2-0.8	.10	.24			
	34-60	20-30	1.60-1.80	4.00-14.00	0.10-0.12	3.0-5.9	0.2-0.8	.10	.28			
212: Bearspring-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	3	86
	1-8	3-7	1.10-1.40	14.00-42.00	0.14-0.18	0.0-2.9	2.0-6.0	.20	.28			
	8-13	3-7	1.10-1.40	14.00-42.00	0.14-0.18	0.0-2.9	2.0-5.0	.20	.28			
	13-20	7-15	1.10-1.40	14.00-42.00	0.12-0.16	0.0-2.9	1.0-3.0	.15	.28			
	20-37	7-15	1.40-1.60	14.00-42.00	0.04-0.08	0.0-2.9	0.0-0.5	.05	.24			
	37-60	7-15	1.40-1.60	14.00-42.00	0.04-0.08	0.0-2.9	0.0-0.5	.05	.24			
213: Bluebuck-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	2	134
	1-2	3-7	1.00-1.35	42.00-141.00	0.16-0.20	0.0-2.9	3.0-7.0	.28	.28			
	2-4	3-7	1.00-1.35	42.00-141.00	0.15-0.19	0.0-2.9	1.0-5.0	.20	.28			
	4-12	3-7	1.00-1.35	42.00-141.00	0.12-0.16	0.0-2.9	0.5-1.0	.17	.28			
	12-25	0-5	1.50-1.70	42.00-141.00	0.04-0.06	0.0-2.9	0.2-1.0	.10	.20			
	25-36	0-5	1.50-1.60	42.00-141.00	0.03-0.06	0.0-2.9	0.2-1.0	.05	.17			
	36-55	0-5	1.50-1.60	42.00-141.00	0.04-0.06	0.0-2.9	0.2-1.0	.05	.20			
	55-60	0-5	1.50-1.60	42.00-141.00	0.04-0.08	0.0-2.9	0.2-1.0	.10	.20			
214: Boesel-----	0-8	5-15	1.25-1.40	4.00-14.00	0.13-0.15	0.0-2.9	2.0-6.0	.32	.37	3	3	86
	8-27	5-15	1.25-1.40	4.00-14.00	0.13-0.15	0.0-2.9	1.0-5.0	.32	.37			
	27-37	0-10	1.25-1.40	14.00-42.00	0.04-0.07	0.0-2.9	0.5-1.0	.17	.20			
	37-60	0-5	1.10-1.30	141.00-705.00	0.01-0.05	0.0-2.9	0.2-0.8	.02	.17			
215: Boesel-----	0-8	5-15	1.25-1.40	4.00-14.00	0.13-0.15	0.0-2.9	2.0-6.0	.32	.37	3	3	86
	8-27	5-15	1.25-1.40	4.00-14.00	0.13-0.15	0.0-2.9	1.0-5.0	.32	.37			
	27-37	0-10	1.25-1.40	14.00-42.00	0.04-0.07	0.0-2.9	0.5-1.0	.17	.20			
	37-60	0-5	1.10-1.30	141.00-705.00	0.01-0.05	0.0-2.9	0.2-0.8	.02	.17			
Muckamuck-----	0-7	20-25	1.15-1.35	4.00-14.00	0.17-0.20	3.0-5.9	1.0-3.0	.43	.43	5	6	48
	7-18	23-27	1.30-1.45	4.00-14.00	0.17-0.20	3.0-5.9	1.0-2.0	.37	.37			
	18-28	27-32	1.20-1.35	1.40-4.00	0.17-0.20	3.0-5.9	1.0-2.0	.32	.32			
	28-60	20-27	1.30-1.45	4.00-14.00	0.14-0.17	3.0-5.9	0.0-2.0	.20	.37			

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
216:												
Borgeau-----	0-5	8-15	0.80-1.05	4.00-14.00	0.17-0.20	0.0-2.9	1.0-3.0	.24	.32	5	4	86
	5-14	8-15	1.00-1.30	4.00-14.00	0.14-0.16	0.0-2.9	1.0-3.0	.17	.32			
	14-27	10-20	1.50-1.70	4.00-14.00	0.08-0.12	0.0-2.9	0.5-1.0	.10	.32			
	27-41	10-20	1.50-1.70	4.00-14.00	0.08-0.10	0.0-2.9	0.2-0.8	.10	.32			
	41-60	10-20	1.60-1.80	4.00-14.00	0.06-0.10	0.0-2.9	0.2-0.8	.10	.28			
Johntom-----	0-3	8-15	1.00-1.30	4.00-14.00	0.14-0.18	0.0-2.9	1.0-3.0	.24	.32	1	6	48
	3-12	10-20	1.10-1.40	4.00-14.00	0.12-0.16	0.0-2.9	0.5-2.0	.10	.32			
	12-16	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---		---	---
217:												
Borgeau-----	0-5	8-15	0.80-1.05	4.00-14.00	0.17-0.20	0.0-2.9	1.0-3.0	.24	.32	5	4	86
	5-14	8-15	1.00-1.30	4.00-14.00	0.14-0.16	0.0-2.9	1.0-3.0	.17	.32			
	14-27	10-20	1.50-1.70	4.00-14.00	0.08-0.12	0.0-2.9	0.5-1.0	.10	.32			
	27-41	10-20	1.50-1.70	4.00-14.00	0.08-0.10	0.0-2.9	0.2-0.8	.10	.32			
	41-60	10-20	1.60-1.80	4.00-14.00	0.06-0.10	0.0-2.9	0.2-0.8	.10	.28			
Nicmar-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	4	86
	1-5	8-15	0.80-1.00	14.00-42.00	0.18-0.21	0.0-2.9	2.0-4.0	.28	.32			
	5-17	8-15	0.80-1.20	14.00-42.00	0.16-0.19	0.0-2.9	1.0-3.0	.24	.32			
	17-24	25-35	1.40-1.60	4.00-14.00	0.13-0.15	3.0-5.9	0.5-1.0	.10	.24			
	24-34	25-35	1.40-1.60	4.00-14.00	0.13-0.15	3.0-5.9	0.2-0.8	.10	.24			
	34-60	20-30	1.60-1.80	4.00-14.00	0.10-0.12	3.0-5.9	0.2-0.8	.10	.28			
Johntom-----	0-3	8-15	1.00-1.30	4.00-14.00	0.14-0.18	0.0-2.9	1.0-3.0	.24	.32	1	6	48
	3-12	10-20	1.10-1.40	4.00-14.00	0.12-0.16	0.0-2.9	0.5-2.0	.10	.32			
	12-16	---	---	---	---	---	---	---	---			
218:												
Borgeau-----	0-5	8-15	0.80-1.05	4.00-14.00	0.17-0.20	1.0-2.9	1.0-3.0	.24	.32	5	4	86
	5-14	8-15	1.00-1.30	4.00-14.00	0.14-0.16	1.0-2.9	1.0-3.0	.17	.32			
	14-27	10-20	1.50-1.70	4.00-14.00	0.08-0.12	1.0-2.9	0.5-1.0	.10	.32			
	27-41	10-20	1.50-1.70	4.00-14.00	0.08-0.09	1.0-2.9	0.2-0.8	.10	.32			
	41-60	10-20	1.60-1.80	4.00-14.00	0.06-0.10	1.0-2.9	0.2-0.8	.10	.28			
Peka, moist-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	3	86
	1-7	3-7	1.10-1.30	14.00-42.00	0.14-0.17	0.0-2.9	2.0-5.0	.17	.28			
	7-16	3-7	1.10-1.30	14.00-42.00	0.09-0.12	0.0-2.9	2.0-5.0	.17	.28			
	16-25	5-15	1.40-1.60	14.00-42.00	0.05-0.08	0.0-2.9	1.0-2.0	.10	.28			
	25-50	5-15	1.60-1.80	14.00-42.00	0.05-0.08	0.0-2.9	1.0-2.0	.10	.28			
	50-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28			

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
219: Brevco-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86
	1-4	3-7	1.20-1.40	14.00-42.00	0.14-0.16	0.0-2.9	1.0-3.0	.17	.20			
	4-12	3-7	1.30-1.55	14.00-42.00	0.13-0.16	0.0-2.9	1.0-2.0	.10	.20			
	12-26	5-15	1.40-1.60	14.00-42.00	0.03-0.08	0.0-2.9	0.0-0.5	.05	.17			
	26-39	5-15	1.45-1.65	14.00-42.00	0.03-0.08	0.0-2.9	0.0-0.5	.05	.17			
	39-43	---	---	---	---	---	---	---	---			
Lithic Haploxerepts, forested-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	1	3	86
	1-4	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37			
	4-13	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37			
	13-19	5-15	1.30-1.50	14.00-42.00	0.04-0.15	0.0-2.9	0.0-1.0	.15	.37			
	19-23	---	---	---	---	---	---	---	---			
Pebcreek, dry-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86
	2-7	3-7	1.00-1.25	14.00-42.00	0.15-0.18	0.0-2.9	2.0-4.0	.15	.28			
	7-13	3-7	1.00-1.25	14.00-42.00	0.14-0.16	0.0-2.9	1.0-2.0	.15	.28			
	13-39	0-5	1.50-1.65	141.00-705.00	0.03-0.06	0.0-2.9	0.0-0.5	.05	.15			
	39-44	0-5	1.60-1.80	141.00-705.00	0.03-0.06	0.0-2.9	0.0-0.5	.05	.15			
	44-60	3-10	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.05	.15			
220: Brevco, cool-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86
	1-4	3-7	1.20-1.40	14.00-42.00	0.14-0.16	0.0-2.9	1.0-3.0	.17	.20			
	4-12	3-7	1.30-1.55	14.00-42.00	0.13-0.16	0.0-2.9	1.0-2.0	.10	.20			
	12-26	5-15	1.40-1.60	14.00-42.00	0.03-0.08	0.0-2.9	0.0-0.5	.05	.17			
	26-39	5-15	1.45-1.65	14.00-42.00	0.03-0.08	0.0-2.9	0.0-0.5	.05	.17			
	39-43	---	---	---	---	---	---	---	---			
Lithic Haploxerepts, forested-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	1	3	86
	1-4	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37			
	4-13	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37			
	13-19	5-15	1.30-1.50	14.00-42.00	0.04-0.15	0.0-2.9	0.0-1.0	.15	.37			
	19-23	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---
221: Brevco-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86
	1-4	3-7	1.20-1.40	14.00-42.00	0.14-0.16	0.0-2.9	1.0-3.0	.17	.20			
	4-12	3-7	1.30-1.55	14.00-42.00	0.13-0.16	0.0-2.9	1.0-2.0	.10	.20			
	12-26	5-15	1.40-1.60	14.00-42.00	0.03-0.08	0.0-2.9	0.0-0.5	.05	.17			
	26-39	5-15	1.45-1.65	14.00-42.00	0.03-0.08	0.0-2.9	0.0-0.5	.05	.17			
	39-43	---	---	---	---	---	---	---	---			

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility	erodi- bility	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
221: Lithic Haploxerepts, forested, moist-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	1	3	86	
	1-4	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37				
	4-13	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37				
	13-19	5-15	1.30-1.50	14.00-42.00	0.04-0.15	0.0-2.9	0.0-1.0	.15	.37				
	19-23	---	---	---	---	---	---	---	---				
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---	
222: Brevco, dry-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86	
	1-4	3-7	1.20-1.40	14.00-42.00	0.14-0.16	0.0-2.9	1.0-3.0	.17	.20				
	4-12	3-7	1.30-1.55	14.00-42.00	0.13-0.16	0.0-2.9	1.0-2.0	.10	.20				
	12-26	5-15	1.40-1.60	14.00-42.00	0.03-0.08	0.0-2.9	0.0-0.5	.05	.17				
	26-39	5-15	1.45-1.65	14.00-42.00	0.03-0.08	0.0-2.9	0.0-0.5	.05	.17				
	39-43	---	---	---	---	---	---	---	---				
Lithic Haploxerepts, forested, dry-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	1	3	86	
	1-4	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37				
	4-13	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37				
	13-19	5-15	1.30-1.50	14.00-42.00	0.04-0.15	0.0-2.9	0.0-1.0	.15	.37				
	19-23	---	---	---	---	---	---	---	---				
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---	
223: Burnscreek-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	5	56	
	1-4	5-15	1.30-1.50	4.00-14.00	0.09-0.11	0.0-2.9	2.0-6.0	.15	.28				
	4-14	5-15	1.30-1.50	4.00-14.00	0.08-0.10	0.0-2.9	1.0-5.0	.15	.28				
	14-33	5-15	1.40-1.55	4.00-14.00	0.06-0.08	0.0-2.9	0.5-1.5	.05	.28				
	33-61	5-15	1.40-1.55	4.00-14.00	0.06-0.08	0.0-2.9	0.5-1.0	.05	.28				
224: Cashmere-----	0-2	5-15	1.40-1.60	14.00-42.00	0.13-0.15	0.0-2.9	2.0-6.0	.37	.37	5	3	86	
	2-8	5-15	1.40-1.60	14.00-42.00	0.13-0.15	0.0-2.9	1.0-5.0	.37	.37				
	8-25	5-15	1.40-1.60	14.00-42.00	0.10-0.14	0.0-2.9	0.8-1.5	.32	.37				
	25-44	5-15	1.40-1.60	14.00-42.00	0.10-0.14	0.0-2.9	0.2-0.8	.32	.37				
	44-60	0-10	1.40-1.60	14.00-42.00	0.07-0.10	0.0-2.9	0.2-0.8	.20	.24				

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility	erodi- bility	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
225: Cashmere-----	0-2	5-15	1.40-1.60	14.00-42.00	0.13-0.15	0.0-2.9	2.0-6.0	.37	.37	5	3	86	
	2-8	5-15	1.40-1.60	14.00-42.00	0.13-0.15	0.0-2.9	1.0-5.0	.37	.37				
	8-25	5-15	1.40-1.60	14.00-42.00	0.10-0.14	0.0-2.9	0.8-1.5	.32	.37				
	25-44	5-15	1.40-1.60	14.00-42.00	0.10-0.14	0.0-2.9	0.2-0.8	.32	.37				
	44-60	0-10	1.40-1.60	14.00-42.00	0.07-0.10	0.0-2.9	0.2-0.8	.20	.24				
226: Cashmere-----	0-2	5-15	1.40-1.60	14.00-42.00	0.13-0.15	0.0-2.9	2.0-6.0	.37	.37	5	3	86	
	2-8	5-15	1.40-1.60	14.00-42.00	0.13-0.15	0.0-2.9	1.0-5.0	.37	.37				
	8-25	5-15	1.40-1.60	14.00-42.00	0.10-0.14	0.0-2.9	0.8-1.5	.32	.37				
	25-44	5-15	1.40-1.60	14.00-42.00	0.10-0.14	0.0-2.9	0.2-0.8	.32	.37				
	44-60	0-10	1.40-1.60	14.00-42.00	0.07-0.10	0.0-2.9	0.2-0.8	.20	.24				
227: Cashmere-----	0-2	5-15	1.40-1.60	14.00-42.00	0.13-0.15	0.0-2.9	2.0-6.0	.37	.37	5	3	86	
	2-8	5-15	1.40-1.60	14.00-42.00	0.13-0.15	0.0-2.9	1.0-5.0	.37	.37				
	8-25	5-15	1.40-1.60	14.00-42.00	0.10-0.14	0.0-2.9	0.8-1.5	.32	.37				
	25-44	5-15	1.40-1.60	14.00-42.00	0.10-0.14	0.0-2.9	0.2-0.8	.32	.37				
	44-60	0-10	1.40-1.60	14.00-42.00	0.07-0.10	0.0-2.9	0.2-0.8	.20	.24				
228: Cashmont-----	0-3	5-15	1.20-1.40	14.00-42.00	0.11-0.13	0.0-2.9	2.0-6.0	.24	.28	5	3	86	
	3-8	5-15	1.20-1.40	14.00-42.00	0.11-0.13	0.0-2.9	1.0-5.0	.24	.28				
	8-23	5-15	1.25-1.40	14.00-42.00	0.08-0.12	0.0-2.9	0.5-1.5	.17	.28				
	23-60	5-15	1.25-1.40	14.00-42.00	0.08-0.11	0.0-2.9	0.2-0.8	.15	.28				
229: Cashmont-----	0-3	5-15	1.20-1.40	14.00-42.00	0.11-0.13	0.0-2.9	2.0-6.0	.24	.28	5	3	86	
	3-8	5-15	1.20-1.40	14.00-42.00	0.11-0.13	0.0-2.9	1.0-5.0	.24	.28				
	8-23	5-15	1.25-1.40	14.00-42.00	0.08-0.12	0.0-2.9	0.5-1.5	.17	.28				
	23-60	5-15	1.25-1.40	14.00-42.00	0.08-0.11	0.0-2.9	0.2-0.8	.15	.28				
230: Cashmont-----	0-3	5-15	1.20-1.40	14.00-42.00	0.11-0.13	0.0-2.9	2.0-6.0	.24	.28	5	3	86	
	3-8	5-15	1.20-1.40	14.00-42.00	0.11-0.13	0.0-2.9	1.0-5.0	.24	.28				
	8-23	5-15	1.25-1.40	14.00-42.00	0.08-0.12	0.0-2.9	0.5-1.5	.17	.28				
	23-60	5-15	1.25-1.40	14.00-42.00	0.08-0.11	0.0-2.9	0.2-0.8	.15	.28				
231: Cashmont-----	0-3	5-15	1.20-1.40	14.00-42.00	0.11-0.13	0.0-2.9	2.0-6.0	.24	.28	5	3	86	
	3-8	5-15	1.20-1.40	14.00-42.00	0.11-0.13	0.0-2.9	1.0-5.0	.24	.28				
	8-23	5-15	1.25-1.40	14.00-42.00	0.08-0.12	0.0-2.9	0.5-1.5	.17	.28				
	23-60	5-15	1.25-1.40	14.00-42.00	0.08-0.11	0.0-2.9	0.2-0.8	.15	.28				

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility group	erodi- bility index	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
232: Cashmont-----	0-3	5-15	1.20-1.40	14.00-42.00	0.11-0.13	0.0-2.9	2.0-6.0	.24	.28	5	5	56	
	3-8	5-15	1.20-1.40	14.00-42.00	0.11-0.13	0.0-2.9	1.0-5.0	.24	.28				
	8-23	5-15	1.25-1.40	14.00-42.00	0.08-0.12	0.0-2.9	0.5-1.5	.17	.28				
	23-60	5-15	1.25-1.40	14.00-42.00	0.08-0.11	0.0-2.9	0.2-0.8	.15	.28				
233: Cashmont, extremely stony surface-----	0-3	5-15	1.20-1.40	14.00-42.00	0.11-0.13	0.0-2.9	2.0-6.0	.24	.28	5	3	86	
	3-8	5-15	1.20-1.40	14.00-42.00	0.11-0.13	0.0-2.9	1.0-5.0	.24	.28				
	8-23	5-15	1.25-1.40	14.00-42.00	0.08-0.12	0.0-2.9	0.5-1.5	.17	.28				
	23-60	5-15	1.25-1.40	14.00-42.00	0.08-0.11	0.0-2.9	0.2-0.8	.15	.28				
234: Cashmont, extremely stony surface-----	0-3	5-15	1.20-1.40	14.00-42.00	0.11-0.13	0.0-2.9	2.0-6.0	.24	.28	5	3	86	
	3-8	5-15	1.20-1.40	14.00-42.00	0.11-0.13	0.0-2.9	1.0-5.0	.24	.28				
	8-23	5-15	1.25-1.40	14.00-42.00	0.08-0.12	0.0-2.9	0.5-1.5	.17	.28				
	23-60	5-15	1.25-1.40	14.00-42.00	0.08-0.11	0.0-2.9	0.2-0.8	.15	.28				
235: Cassal-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	4	86	
	2-6	8-15	1.10-1.30	4.00-14.00	0.17-0.19	0.0-2.9	2.0-6.0	.32	.32				
	6-15	8-15	1.10-1.30	4.00-14.00	0.17-0.19	0.0-2.9	2.0-4.0	.32	.32				
	15-20	3-15	1.10-1.30	14.00-42.00	0.13-0.17	0.0-2.9	1.0-3.0	.32	.32				
	20-37	5-15	1.60-1.80	14.00-42.00	0.06-0.08	0.0-2.9	0.0-0.5	.10	.20				
	37-48	5-15	1.60-1.80	14.00-42.00	0.06-0.08	0.0-2.9	0.0-0.5	.10	.20				
	48-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.20				
236: Chesaw-----	0-5	5-15	1.60-1.70	42.00-141.00	0.08-0.10	0.0-2.9	1.0-5.0	.15	.28	5	5	56	
	5-17	5-10	1.45-1.55	141.00-705.00	0.04-0.06	0.0-2.9	0.5-1.5	.10	.20				
	17-60	2-5	1.45-1.55	141.00-705.00	0.03-0.05	0.0-2.9	0.2-0.8	.10	.17				
237: Chesaw, extremely stony surface-----	0-5	5-15	1.60-1.70	42.00-141.00	0.08-0.10	0.0-2.9	1.0-5.0	.15	.28	5	5	56	
	5-17	5-10	1.45-1.55	141.00-705.00	0.04-0.06	0.0-2.9	0.5-1.5	.10	.20				
	17-60	2-5	1.45-1.55	141.00-705.00	0.03-0.05	0.0-2.9	0.2-0.8	.10	.17				
238: Chesaw-----	0-5	5-15	1.60-1.70	42.00-141.00	0.08-0.10	0.0-2.9	1.0-5.0	.15	.28	5	5	56	
	5-17	5-10	1.45-1.55	141.00-705.00	0.04-0.06	0.0-2.9	0.5-1.5	.10	.20				
	17-60	2-5	1.45-1.55	141.00-705.00	0.03-0.05	0.0-2.9	0.2-0.8	.10	.17				

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility group	erodi- bility index	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
238: Bong-----	0-6	3-7	1.30-1.40	14.00-42.00	0.10-0.13	0.0-2.9	2.0-4.0	.24	.28	2	2	134	
	6-10	3-7	1.30-1.40	14.00-42.00	0.10-0.13	0.0-2.9	2.0-4.0	.24	.28				
	10-16	3-7	1.35-1.45	14.00-42.00	0.09-0.13	0.0-2.9	0.0-1.0	.15	.24				
	16-26	0-3	1.60-1.75	141.00-705.00	0.03-0.06	0.0-2.9	0.0-0.5	.05	.10				
	26-60	0-3	1.60-1.75	141.00-705.00	0.03-0.05	0.0-2.9	0.0-0.5	.05	.10				
239: Chesaw-----	0-5	5-15	1.60-1.70	42.00-141.00	0.08-0.10	0.0-2.9	1.0-5.0	.15	.28	5	5	56	
	5-17	5-10	1.45-1.55	141.00-705.00	0.04-0.06	0.0-2.9	0.5-1.5	.10	.20				
	17-60	2-5	1.45-1.55	141.00-705.00	0.03-0.05	0.0-2.9	0.2-0.8	.10	.17				
Bong-----	0-6	3-7	1.30-1.40	14.00-42.00	0.10-0.13	0.0-2.9	2.0-4.0	.24	.28	2	2	134	
	6-10	3-7	1.30-1.40	14.00-42.00	0.10-0.13	0.0-2.9	2.0-4.0	.24	.28				
	10-16	3-7	1.35-1.45	14.00-42.00	0.09-0.13	0.0-2.9	0.0-1.0	.15	.24				
	16-26	0-3	1.60-1.75	141.00-705.00	0.03-0.06	0.0-2.9	0.0-0.5	.05	.10				
	26-60	0-3	1.60-1.75	141.00-705.00	0.03-0.05	0.0-2.9	0.0-0.5	.05	.10				
240: Chesaw-----	0-5	5-15	1.60-1.70	42.00-141.00	0.08-0.10	0.0-2.9	1.0-5.0	.15	.28	5	5	56	
	5-17	5-10	1.45-1.55	141.00-705.00	0.04-0.06	0.0-2.9	0.5-1.5	.10	.20				
	17-60	2-5	1.45-1.55	141.00-705.00	0.03-0.05	0.0-2.9	0.2-0.8	.10	.17				
Bong-----	0-6	3-7	1.30-1.40	14.00-42.00	0.10-0.13	0.0-2.9	2.0-4.0	.24	.28	2	2	134	
	6-10	3-7	1.30-1.40	14.00-42.00	0.10-0.13	0.0-2.9	2.0-4.0	.24	.28				
	10-16	3-7	1.35-1.45	14.00-42.00	0.09-0.13	0.0-2.9	0.0-1.0	.15	.24				
	16-26	0-3	1.60-1.75	141.00-705.00	0.03-0.06	0.0-2.9	0.0-0.5	.05	.10				
	26-60	0-3	1.60-1.75	141.00-705.00	0.03-0.05	0.0-2.9	0.0-0.5	.05	.10				
241: Chewack-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	5	56	
	2-5	3-7	1.00-1.20	14.00-42.00	0.13-0.16	0.0-2.9	1.0-4.0	.10	.28				
	5-25	3-7	1.00-1.20	14.00-42.00	0.12-0.16	0.0-2.9	0.0-0.5	.10	.28				
	25-60	5-15	1.55-1.70	14.00-42.00	0.03-0.06	0.0-2.9	0.0-0.5	.05	.24				
Sitdown, cool-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86	
	2-5	3-7	0.75-0.99	14.00-42.00	0.13-0.16	0.0-2.9	1.0-4.0	.17	.28				
	5-13	3-7	0.75-0.99	14.00-42.00	0.13-0.16	0.0-2.9	1.0-3.0	.17	.28				
	13-26	0-10	1.50-1.70	42.00-141.00	0.02-0.05	0.0-2.9	0.0-0.5	.05	.17				
	26-60	0-10	1.50-1.70	42.00-141.00	0.02-0.05	0.0-2.9	0.0-0.5	.05	.17				
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---	

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility group	erodi- bility index	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
242:													
Chumstick-----	0-5	3-7	1.15-1.30	14.00-42.00	0.13-0.16	0.0-2.9	2.0-4.0	.10	.24	1	5	56	
	5-15	3-7	1.30-1.55	14.00-42.00	0.12-0.16	0.0-2.9	1.0-3.0	.10	.28				
	15-19	---	---	---	---	---	---	---	---				
Mineral-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	5	56	
	1-7	3-10	1.00-1.20	14.00-42.00	0.13-0.16	0.0-2.9	2.0-4.0	.17	.28				
	7-13	3-10	1.40-1.60	14.00-42.00	0.13-0.16	0.0-2.9	0.5-1.0	.10	.28				
	13-24	3-10	1.40-1.60	14.00-42.00	0.06-0.11	0.0-2.9	0.0-0.5	.10	.24				
	24-28	---	---	---	---	---	---	---	---				
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---	
243:													
Chumstick-----	0-5	3-7	1.15-1.30	14.00-42.00	0.13-0.16	0.0-2.9	2.0-4.0	.10	.24	1	5	56	
	5-15	3-7	1.30-1.55	14.00-42.00	0.12-0.16	0.0-2.9	1.0-3.0	.10	.28				
	15-19	---	---	---	---	---	---	---	---				
Mineral-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	5	56	
	1-7	3-10	1.00-1.20	14.00-42.00	0.13-0.16	0.0-2.9	2.0-4.0	.17	.28				
	7-13	3-10	1.40-1.60	14.00-42.00	0.13-0.16	0.0-2.9	0.5-1.0	.10	.28				
	13-24	3-10	1.40-1.60	14.00-42.00	0.06-0.11	0.0-2.9	0.0-0.5	.10	.24				
	24-28	---	---	---	---	---	---	---	---				
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---	
244:													
Chumstick-----	0-5	3-7	1.15-1.30	14.00-42.00	0.13-0.16	0.0-2.9	2.0-4.0	.10	.24	1	5	56	
	5-15	3-7	1.30-1.55	14.00-42.00	0.12-0.16	0.0-2.9	1.0-3.0	.10	.28				
	15-19	---	---	---	---	---	---	---	---				
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---	
245:													
Colville, poorly drained-----	0-4	18-27	1.15-1.35	4.00-14.00	0.21-0.24	0.0-2.9	2.0-6.0	.37	.37	5	6	48	
	4-9	18-30	1.15-1.35	4.00-14.00	0.21-0.24	0.0-2.9	2.0-4.0	.37	.37				
	9-17	18-35	1.15-1.35	1.40-14.00	0.21-0.24	3.0-5.9	1.0-5.0	.32	.32				
	17-21	18-27	1.25-1.35	1.40-14.00	0.18-0.20	3.0-5.9	1.0-3.0	.32	.32				
	21-33	20-35	1.25-1.35	1.40-14.00	0.18-0.20	3.0-5.9	0.5-1.5	.32	.32				
	33-43	25-35	1.25-1.35	1.40-14.00	0.18-0.20	3.0-5.9	0.5-1.5	.32	.32				
	43-60	25-35	1.25-1.35	1.40-14.00	0.18-0.20	3.0-5.9	0.5-1.5	.32	.32				

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
246: Colville, somewhat poorly drained-----	0-4	18-27	1.15-1.35	4.00-14.00	0.21-0.24	0.0-2.9	2.0-6.0	.37	.37	5	6	48
	4-9	18-30	1.15-1.35	4.00-14.00	0.21-0.24	0.0-2.9	2.0-4.0	.37	.37			
	9-17	18-35	1.15-1.35	1.40-14.00	0.21-0.24	3.0-5.9	1.0-5.0	.32	.32			
	17-21	18-27	1.25-1.35	1.40-14.00	0.18-0.20	3.0-5.9	1.0-3.0	.32	.32			
	21-33	27-35	1.25-1.35	1.40-14.00	0.18-0.20	3.0-5.9	0.5-1.5	.32	.32			
	33-43	25-35	1.25-1.35	1.40-14.00	0.18-0.20	3.0-5.9	0.5-1.5	.32	.32			
	43-60	25-35	1.25-1.35	1.40-14.00	0.18-0.20	3.0-5.9	0.5-1.5	.32	.32			
247: Conconully-----	0-2	5-10	1.20-1.40	4.00-14.00	0.09-0.12	0.0-2.9	1.0-5.0	.17	.37	3	5	56
	2-13	5-10	1.20-1.40	4.00-14.00	0.10-0.12	0.0-2.9	1.0-5.0	.15	.32			
	13-21	5-15	1.20-1.40	4.00-14.00	0.07-0.10	0.0-2.9	0.5-1.5	.24	.37			
	21-33	5-15	1.20-1.40	4.00-14.00	0.07-0.10	0.0-2.9	0.5-1.5	.17	.28			
	33-60	5-15	1.70-2.00	0.42-1.40	0.05-0.09	0.0-2.9	0.2-0.8	.15	.28			
248: Conconully-----	0-2	5-10	1.20-1.40	4.00-14.00	0.09-0.12	0.0-2.9	1.0-5.0	.17	.37	3	5	56
	2-13	5-10	1.20-1.40	4.00-14.00	0.10-0.12	0.0-2.9	1.0-5.0	.15	.32			
	13-21	5-15	1.20-1.40	4.00-14.00	0.07-0.10	0.0-2.9	0.5-1.5	.24	.37			
	21-33	5-15	1.20-1.40	4.00-14.00	0.07-0.10	0.0-2.9	0.5-1.5	.17	.28			
	33-60	5-15	1.70-2.00	0.42-1.40	0.05-0.09	0.0-2.9	0.2-0.8	.15	.28			
249: Conconully-----	0-2	5-10	1.20-1.40	4.00-14.00	0.09-0.12	0.0-2.9	1.0-5.0	.17	.37	3	5	56
	2-13	5-10	1.20-1.40	4.00-14.00	0.10-0.12	0.0-2.9	1.0-5.0	.15	.32			
	13-21	5-15	1.20-1.40	4.00-14.00	0.07-0.10	0.0-2.9	0.5-1.5	.24	.37			
	21-33	5-15	1.20-1.40	4.00-14.00	0.07-0.10	0.0-2.9	0.5-1.5	.17	.28			
	33-60	5-15	1.70-2.00	0.42-1.40	0.05-0.09	0.0-2.9	0.2-0.8	.15	.28			
250: Conconully, extremely stony surface-----	0-2	5-10	1.20-1.40	4.00-14.00	0.09-0.12	0.0-2.9	1.0-5.0	.17	.37	3	5	56
	2-13	5-10	1.20-1.40	4.00-14.00	0.10-0.12	0.0-2.9	1.0-5.0	.15	.32			
	13-21	5-15	1.20-1.40	4.00-14.00	0.07-0.10	0.0-2.9	0.5-1.5	.24	.37			
	21-33	5-15	1.20-1.40	4.00-14.00	0.07-0.10	0.0-2.9	0.5-1.5	.17	.28			
	33-60	5-15	1.70-2.00	0.42-1.40	0.05-0.09	0.0-2.9	0.2-0.8	.15	.28			
251: Conconully, extremely stony surface-----	0-2	5-10	1.20-1.40	4.00-14.00	0.09-0.12	0.0-2.9	1.0-5.0	.17	.37	3	5	56
	2-13	5-10	1.20-1.40	4.00-14.00	0.10-0.12	0.0-2.9	1.0-5.0	.15	.32			
	13-21	5-15	1.20-1.40	4.00-14.00	0.07-0.10	0.0-2.9	0.5-1.5	.24	.37			
	21-33	5-15	1.20-1.40	4.00-14.00	0.07-0.10	0.0-2.9	0.5-1.5	.17	.28			
	33-60	5-15	1.70-2.00	0.42-1.40	0.05-0.09	0.0-2.9	0.2-0.8	.15	.28			

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
252: Conconully-----	0-2	5-10	1.20-1.40	4.00-14.00	0.09-0.12	0.0-2.9	1.0-5.0	.17	.37	3	5	56
	2-13	5-10	1.20-1.40	4.00-14.00	0.10-0.12	0.0-2.9	1.0-5.0	.15	.32			
	13-21	5-15	1.20-1.40	4.00-14.00	0.07-0.10	0.0-2.9	0.5-1.5	.24	.37			
	21-33	5-15	1.20-1.40	4.00-14.00	0.07-0.10	0.0-2.9	0.5-1.5	.17	.28			
	33-60	5-15	1.70-2.00	0.42-1.40	0.05-0.09	0.0-2.9	0.2-0.8	.15	.28			
Donavan-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	4	86
	1-7	8-15	1.10-1.40	14.00-42.00	0.14-0.18	0.0-2.9	2.0-4.0	.24	.32			
	7-11	8-15	1.10-1.40	14.00-42.00	0.14-0.17	0.0-2.9	1.0-3.0	.20	.28			
	11-16	3-15	1.10-1.40	14.00-42.00	0.13-0.16	0.0-2.9	0.5-1.0	.20	.28			
	16-27	5-15	1.60-1.80	14.00-42.00	0.13-0.16	0.0-2.9	0.0-0.5	.20	.28			
	27-34	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.20	.28			
	34-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.20	.28			
253: Coxit-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	3	86
	1-2	3-7	1.10-1.35	14.00-42.00	0.12-0.15	0.0-2.9	1.0-4.0	.15	.28			
	2-8	3-7	1.10-1.35	14.00-42.00	0.12-0.15	0.0-2.9	1.0-3.0	.15	.28			
	8-24	3-7	1.20-1.40	14.00-42.00	0.11-0.13	0.0-2.9	0.5-2.0	.10	.28			
	24-35	3-7	1.20-1.40	14.00-42.00	0.11-0.13	0.0-2.9	0.0-0.5	.10	.28			
	35-49	8-15	1.30-1.50	14.00-42.00	0.04-0.08	0.0-2.9	0.0-0.5	.10	.28			
	49-60	8-15	1.30-1.50	14.00-42.00	0.04-0.08	0.0-2.9	0.0-0.5	.10	.28			
Pelican-----	0-11	8-15	1.10-1.30	14.00-42.00	0.16-0.20	0.0-2.9	2.0-4.0	.24	.32	4	5	56
	11-18	5-15	1.15-1.30	14.00-42.00	0.06-0.11	0.0-2.9	1.0-3.0	.15	.28			
	18-28	5-15	1.25-1.40	14.00-42.00	0.06-0.09	0.0-2.9	1.0-2.0	.10	.28			
	28-37	5-15	1.60-1.80	14.00-42.00	0.06-0.09	0.0-2.9	0.0-0.5	.10	.28			
	37-46	5-15	1.60-1.80	14.00-42.00	0.06-0.09	0.0-2.9	0.0-0.5	.10	.28			
	46-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28			
254: Crocamp-----	0-10	3-7	1.10-1.45	14.00-42.00	0.12-0.16	0.0-2.9	2.0-5.0	.15	.28	3	5	56
	10-17	3-7	1.55-1.65	14.00-42.00	0.12-0.16	0.0-2.9	1.0-3.0	.10	.28			
	17-30	5-15	1.65-1.75	14.00-42.00	0.03-0.08	0.0-2.9	0.0-0.5	.10	.28			
	30-42	5-15	1.65-1.75	14.00-42.00	0.03-0.08	0.0-2.9	0.0-0.5	.10	.28			
	42-46	---	---	---	---	---	---	---	---			
Burget-----	0-8	3-7	1.20-1.50	14.00-42.00	0.12-0.14	0.0-2.9	2.0-5.0	.15	.20	1	3	86
	8-11	5-15	1.35-1.50	14.00-42.00	0.07-0.10	0.0-2.9	0.5-1.0	.10	.20			
	11-21	---	---	---	---	---	---	---	---			

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
255: Crocamp-----	0-10	3-7	1.10-1.45	14.00-42.00	0.12-0.16	0.0-2.9	2.0-5.0	.15	.28	3	5	56
	10-17	3-7	1.55-1.65	14.00-42.00	0.12-0.16	0.0-2.9	1.0-3.0	.10	.28			
	17-30	5-15	1.65-1.75	14.00-42.00	0.03-0.08	0.0-2.9	0.0-0.5	.10	.28			
	30-42	5-15	1.65-1.75	14.00-42.00	0.03-0.08	0.0-2.9	0.0-0.5	.10	.28			
	42-46	---	---	---	---	---	---	---	---			
Burget-----	0-8	3-7	1.20-1.50	14.00-42.00	0.12-0.14	0.0-2.9	2.0-5.0	.15	.20	1	3	86
	8-11	5-15	1.35-1.50	14.00-42.00	0.07-0.10	0.0-2.9	0.5-1.0	.10	.20			
	11-21	---	---	---	---	---	---	---	---			
256: Crocamp-----	0-10	3-7	1.10-1.45	14.00-42.00	0.12-0.16	0.0-2.9	2.0-5.0	.15	.28	3	5	56
	10-17	3-7	1.55-1.65	14.00-42.00	0.12-0.16	0.0-2.9	1.0-3.0	.10	.28			
	17-30	5-15	1.65-1.75	14.00-42.00	0.03-0.08	0.0-2.9	0.0-0.5	.10	.28			
	30-42	5-15	1.65-1.75	14.00-42.00	0.03-0.08	0.0-2.9	0.0-0.5	.10	.28			
	42-46	---	---	---	---	---	---	---	---			
Lithic Humicryepts, nonforested, xeric---	0-5	3-7	0.70-0.90	14.00-42.00	0.13-0.15	0.0-2.9	2.0-4.0	.15	.37	1	5	56
	5-11	3-7	0.75-0.95	14.00-42.00	0.10-0.14	0.0-2.9	1.0-2.0	.17	.37			
	11-20	5-15	1.25-1.40	14.00-42.00	0.07-0.11	0.0-2.9	0.0-0.5	.10	.28			
	20-30	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---
257: Cubhill-----	0-9	8-15	1.10-1.40	4.00-14.00	0.14-0.17	0.0-2.9	2.0-6.0	.20	.32	5	5	56
	9-18	8-15	1.10-1.40	4.00-14.00	0.14-0.17	0.0-2.9	2.0-4.0	.20	.32			
	18-25	8-15	1.30-1.45	4.00-14.00	0.11-0.15	0.0-2.9	1.0-3.0	.15	.32			
	25-36	25-35	1.35-1.50	4.00-14.00	0.10-0.15	3.0-5.9	0.0-0.5	.15	.37			
	36-60	25-35	1.35-1.50	4.00-14.00	0.10-0.15	3.0-5.9	0.0-0.5	.15	.37			
Johntom-----	0-3	8-15	1.00-1.30	4.00-14.00	0.14-0.18	0.0-2.9	1.0-3.0	.24	.32	1	6	48
	3-12	10-20	1.10-1.40	4.00-14.00	0.12-0.16	0.0-2.9	0.5-2.0	.10	.32			
	12-16	---	---	---	---	---	---	---	---			
258: Dams-----	---	---	---	---	---	---	---	---	---	-	---	---

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility	erodi- bility	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
259: Devore, warm-----	0-3	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86	
	3-4	3-7	0.65-0.85	14.00-42.00	0.15-0.17	0.0-2.9	1.0-4.0	.32	.37				
	4-7	3-7	0.65-0.85	14.00-42.00	0.12-0.16	0.0-2.9	1.0-3.0	.15	.37				
	7-14	3-7	0.65-0.85	14.00-42.00	0.12-0.16	0.0-2.9	1.0-2.0	.15	.37				
	14-26	5-15	1.30-1.65	14.00-42.00	0.06-0.09	0.0-2.9	0.0-0.5	.05	.24				
	26-35	5-15	1.30-1.65	14.00-42.00	0.06-0.09	0.0-2.9	0.0-0.5	.05	.24				
	35-39	---	---	---	---	---	---	---	---				
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---	
260: Devore-----	0-3	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86	
	3-4	3-7	0.65-0.85	14.00-42.00	0.15-0.17	0.0-2.9	1.0-4.0	.32	.37				
	4-7	3-7	0.65-0.85	14.00-42.00	0.12-0.16	0.0-2.9	1.0-3.0	.15	.37				
	7-14	3-7	0.65-0.85	14.00-42.00	0.12-0.16	0.0-2.9	1.0-2.0	.15	.37				
	14-26	5-15	1.30-1.65	14.00-42.00	0.06-0.09	0.0-2.9	0.0-0.5	.05	.24				
	26-35	5-15	1.30-1.65	14.00-42.00	0.06-0.09	0.0-2.9	0.0-0.5	.05	.24				
	35-39	---	---	---	---	---	---	---	---				
Treebutte-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	1	5	56	
	1-2	3-7	0.75-0.90	14.00-42.00	0.11-0.14	0.0-2.9	1.0-3.0	.10	.28				
	2-11	3-7	0.75-0.90	14.00-42.00	0.09-0.12	0.0-2.9	1.0-3.0	.10	.28				
	11-20	5-15	1.40-1.65	14.00-42.00	0.03-0.05	0.0-2.9	0.0-0.5	.05	.28				
	20-29	---	---	---	---	---	---	---	---				
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---	
261: Devore-----	0-3	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86	
	3-4	3-7	0.65-0.85	14.00-42.00	0.15-0.17	0.0-2.9	1.0-4.0	.32	.37				
	4-7	3-7	0.65-0.85	14.00-42.00	0.12-0.16	0.0-2.9	1.0-3.0	.15	.37				
	7-14	3-7	0.65-0.85	14.00-42.00	0.12-0.16	0.0-2.9	1.0-2.0	.15	.37				
	14-26	5-15	1.30-1.65	14.00-42.00	0.06-0.09	0.0-2.9	0.0-0.5	.05	.24				
	26-35	5-15	1.30-1.65	14.00-42.00	0.06-0.09	0.0-2.9	0.0-0.5	.05	.24				
	35-39	---	---	---	---	---	---	---	---				
Treebutte-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	1	5	56	
	1-2	3-7	0.75-0.90	14.00-42.00	0.11-0.14	0.0-2.9	1.0-3.0	.10	.28				
	2-11	3-7	0.75-0.90	14.00-42.00	0.09-0.12	0.0-2.9	1.0-3.0	.10	.28				
	11-20	5-15	1.40-1.65	14.00-42.00	0.03-0.05	0.0-2.9	0.0-0.5	.05	.28				
	20-29	---	---	---	---	---	---	---	---				
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---	

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility	erodi- bility	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
262: Disautel-----	0-9	5-20	1.35-1.45	4.00-14.00	0.18-0.20	0.0-2.9	1.0-3.0	.43	.43	3	5	56	
	9-16	5-20	1.35-1.45	4.00-14.00	0.18-0.20	0.0-2.9	1.0-3.0	.43	.43				
	16-24	10-20	1.40-1.50	4.00-14.00	0.14-0.16	0.0-2.9	0.5-1.0	.28	.32				
	24-31	10-20	1.60-1.70	4.00-14.00	0.13-0.14	0.0-2.9	0.0-0.5	.20	.32				
	31-60	10-20	1.70-2.00	4.00-14.00	0.12-0.14	0.0-2.9	0.0-0.5	.15	.32				
263: Disautel-----	0-9	5-20	1.35-1.45	4.00-14.00	0.18-0.20	0.0-2.9	1.0-3.0	.43	.43	3	5	56	
	9-16	5-20	1.35-1.45	4.00-14.00	0.18-0.20	0.0-2.9	1.0-3.0	.43	.43				
	16-24	10-20	1.40-1.50	4.00-14.00	0.14-0.16	0.0-2.9	0.5-1.0	.28	.32				
	24-31	10-20	1.60-1.70	4.00-14.00	0.13-0.14	0.0-2.9	0.0-0.5	.20	.32				
	31-60	10-20	1.70-2.00	4.00-14.00	0.12-0.14	0.0-2.9	0.0-0.5	.15	.32				
264: Disautel, extremely stony surface-----	0-9	5-20	1.35-1.45	4.00-14.00	0.18-0.20	0.0-2.9	1.0-3.0	.43	.43	3	5	56	
	9-16	5-20	1.35-1.45	4.00-14.00	0.18-0.20	0.0-2.9	1.0-3.0	.43	.43				
	16-24	10-20	1.40-1.50	4.00-14.00	0.14-0.16	0.0-2.9	0.5-1.0	.28	.32				
	24-31	10-20	1.60-1.70	4.00-14.00	0.13-0.14	0.0-2.9	0.0-0.5	.20	.32				
	31-60	10-20	1.70-2.00	4.00-14.00	0.12-0.14	0.0-2.9	0.0-0.5	.15	.32				
265: Disautel, extremely stony surface-----	0-9	5-20	1.35-1.45	4.00-14.00	0.18-0.20	0.0-2.9	1.0-3.0	.43	.43	3	5	56	
	9-16	5-20	1.35-1.45	4.00-14.00	0.18-0.20	0.0-2.9	1.0-3.0	.43	.43				
	16-24	10-20	1.40-1.50	4.00-14.00	0.14-0.16	0.0-2.9	0.5-1.0	.28	.32				
	24-31	10-20	1.60-1.70	4.00-14.00	0.13-0.14	0.0-2.9	0.0-0.5	.20	.32				
	31-60	10-20	1.70-2.00	4.00-14.00	0.12-0.14	0.0-2.9	0.0-0.5	.15	.32				
266: Disautel, eroded-----	0-2	5-20	1.35-1.45	4.00-14.00	0.18-0.20	0.0-2.9	1.0-3.0	.32	.43	3	6	48	
	2-16	5-20	1.35-1.45	4.00-14.00	0.18-0.20	0.0-2.9	1.0-3.0	.43	.43				
	16-24	10-20	1.40-1.50	4.00-14.00	0.14-0.16	0.0-2.9	0.5-1.0	.28	.32				
	24-31	10-20	1.60-1.70	4.00-14.00	0.13-0.14	0.0-2.9	0.0-0.5	.20	.32				
	31-60	10-20	1.70-2.00	4.00-14.00	0.12-0.14	0.0-2.9	0.0-0.5	.15	.32				
267: Donavan-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	4	86	
	1-7	8-15	1.10-1.40	14.00-42.00	0.14-0.18	0.0-2.9	2.0-4.0	.24	.32				
	7-11	8-15	1.10-1.40	14.00-42.00	0.14-0.17	0.0-2.9	1.0-3.0	.20	.28				
	11-16	3-15	1.10-1.40	14.00-42.00	0.13-0.16	0.0-2.9	0.5-1.0	.20	.28				
	16-27	5-15	1.60-1.80	14.00-42.00	0.13-0.16	0.0-2.9	0.0-0.5	.20	.28				
	27-34	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.20	.28				
	34-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.20	.28				

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility	erodi- bility	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
268: Donavan-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	4	86	
	1-7	8-15	1.10-1.40	14.00-42.00	0.14-0.18	0.0-2.9	2.0-4.0	.24	.32				
	7-11	8-15	1.10-1.40	14.00-42.00	0.14-0.17	0.0-2.9	1.0-3.0	.20	.28				
	11-16	3-15	1.10-1.40	14.00-42.00	0.13-0.16	0.0-2.9	0.5-1.0	.20	.28				
	16-27	5-15	1.60-1.80	14.00-42.00	0.13-0.16	0.0-2.9	0.0-0.5	.20	.28				
	27-34	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.20	.28				
	34-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.20	.28				
269: Donavan-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	4	86	
	1-7	8-15	1.10-1.40	14.00-42.00	0.14-0.18	0.0-2.9	2.0-4.0	.24	.32				
	7-11	8-15	1.10-1.40	14.00-42.00	0.14-0.17	0.0-2.9	1.0-3.0	.20	.28				
	11-16	3-15	1.10-1.40	14.00-42.00	0.13-0.16	0.0-2.9	0.5-1.0	.20	.28				
	16-27	5-15	1.60-1.80	14.00-42.00	0.13-0.16	0.0-2.9	0.0-0.5	.20	.28				
	27-34	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.20	.28				
	34-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.20	.28				
270: Donavan, extremely stony surface-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	4	86	
	1-7	8-15	1.10-1.40	14.00-42.00	0.14-0.18	0.0-2.9	2.0-4.0	.24	.32				
	7-11	8-15	1.10-1.40	14.00-42.00	0.14-0.17	0.0-2.9	1.0-3.0	.20	.28				
	11-16	3-15	1.10-1.40	14.00-42.00	0.13-0.16	0.0-2.9	0.5-1.0	.20	.28				
	16-27	5-15	1.60-1.80	14.00-42.00	0.13-0.16	0.0-2.9	0.0-0.5	.20	.28				
	27-34	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.20	.28				
	34-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.20	.28				
271: Donavan, extremely stony surface-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	4	86	
	1-7	8-15	1.10-1.40	14.00-42.00	0.14-0.18	0.0-2.9	2.0-4.0	.24	.32				
	7-11	8-15	1.10-1.40	14.00-42.00	0.14-0.17	0.0-2.9	1.0-3.0	.20	.28				
	11-16	3-15	1.10-1.40	14.00-42.00	0.13-0.16	0.0-2.9	0.5-1.0	.20	.28				
	16-27	5-15	1.60-1.80	14.00-42.00	0.13-0.16	0.0-2.9	0.0-0.5	.20	.28				
	27-34	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.20	.28				
	34-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.20	.28				

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
272: Donavan, extremely stony surface-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	4	86
	1-7	8-15	1.10-1.40	14.00-42.00	0.14-0.18	0.0-2.9	2.0-4.0	.24	.32			
	7-11	8-15	1.10-1.40	14.00-42.00	0.14-0.17	0.0-2.9	1.0-3.0	.20	.28			
	11-16	3-15	1.10-1.40	14.00-42.00	0.13-0.16	0.0-2.9	0.5-1.0	.20	.28			
	16-27	5-15	1.60-1.80	14.00-42.00	0.13-0.16	0.0-2.9	0.0-0.5	.20	.28			
	27-34	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.20	.28			
	34-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.20	.28			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---
273: Entiat-----	0-3	5-10	1.20-1.40	14.00-42.00	0.10-0.12	0.0-2.9	1.0-5.0	.24	.28	2	3	86
	3-8	8-15	1.20-1.40	14.00-42.00	0.06-0.08	0.0-2.9	0.5-1.5	.10	.28			
	8-18	8-15	1.25-1.40	14.00-42.00	0.05-0.07	0.0-2.9	0.2-0.8	.05	.28			
	18-28	---	---	---	---	---	---	---	---			
274: Ewall-----	0-2	0-5	1.35-1.55	141.00-705.00	0.05-0.07	0.0-2.9	0.5-1.0	.10	.10	5	2	134
	2-7	0-5	1.35-1.55	141.00-705.00	0.05-0.07	0.0-2.9	0.5-1.0	.10	.10			
	7-15	0-5	1.35-1.55	141.00-705.00	0.05-0.07	0.0-2.9	0.5-1.0	.10	.10			
	15-26	0-5	1.45-1.60	141.00-705.00	0.05-0.07	0.0-2.9	0.0-0.5	.10	.10			
	26-60	0-5	1.45-1.60	141.00-705.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.24			
275: Ewall-----	0-2	0-5	1.35-1.55	141.00-705.00	0.05-0.07	0.0-2.9	0.5-1.0	.10	.10	5	2	134
	2-7	0-5	1.35-1.55	141.00-705.00	0.05-0.07	0.0-2.9	0.5-1.0	.10	.10			
	7-15	0-5	1.35-1.55	141.00-705.00	0.05-0.07	0.0-2.9	0.5-1.0	.10	.10			
	15-26	0-5	1.45-1.60	141.00-705.00	0.05-0.07	0.0-2.9	0.0-0.5	.10	.10			
	26-60	0-5	1.45-1.60	141.00-705.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.24			
276: Ewall-----	0-2	0-5	1.35-1.55	141.00-705.00	0.05-0.07	0.0-2.9	0.5-1.0	.10	.10	5	2	134
	2-7	0-5	1.35-1.55	141.00-705.00	0.05-0.07	0.0-2.9	0.5-1.0	.10	.10			
	7-15	0-5	1.35-1.55	141.00-705.00	0.05-0.07	0.0-2.9	0.5-1.0	.10	.10			
	15-26	0-5	1.45-1.60	141.00-705.00	0.05-0.07	0.0-2.9	0.0-0.5	.10	.10			
	26-60	0-5	1.45-1.60	141.00-705.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.24			
277: Farway, moist-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	3	86
	1-5	3-7	0.80-0.90	14.00-42.00	0.18-0.22	0.0-2.9	2.0-4.0	.20	.32			
	5-10	3-7	0.80-0.90	14.00-42.00	0.16-0.20	0.0-2.9	1.0-3.0	.20	.32			
	10-21	3-7	0.80-0.90	14.00-42.00	0.16-0.20	0.0-2.9	0.0-1.0	.20	.32			
	21-60	5-15	1.50-1.65	14.00-42.00	0.05-0.08	0.0-2.9	0.0-0.5	.05	.20			

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility group	erodi- bility index	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
278: Finney-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	3	86	
	1-3	3-7	0.75-0.95	14.00-42.00	0.13-0.16	0.0-2.9	1.0-3.0	.20	.28				
	3-11	3-7	0.80-0.95	14.00-42.00	0.13-0.16	0.0-2.9	1.0-3.0	.15	.28				
	11-21	5-15	1.30-1.50	14.00-42.00	0.04-0.08	0.0-2.9	0.0-0.5	.10	.28				
	21-33	5-15	1.30-1.50	14.00-42.00	0.04-0.08	0.0-2.9	0.0-0.5	.10	.28				
	33-44	5-15	1.30-1.50	14.00-42.00	0.04-0.08	0.0-2.9	0.0-0.5	.10	.28				
	44-48	---	---	---	---	---	---	---	---				
Myerscreek, moist-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134	
	1-2	5-10	0.75-0.90	14.00-42.00	0.16-0.20	0.0-2.9	1.0-4.0	.37	.37				
	2-5	3-7	0.75-0.90	14.00-42.00	0.16-0.20	0.0-2.9	1.0-4.0	.37	.37				
	5-13	3-7	0.75-0.90	14.00-42.00	0.15-0.19	0.0-2.9	1.0-2.0	.28	.37				
	13-32	5-15	1.60-1.80	14.00-42.00	0.04-0.09	0.0-2.9	0.0-0.5	.10	.28				
	32-47	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
	47-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
279: Goddard-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	2	134	
	1-7	3-7	0.85-0.95	14.00-42.00	0.15-0.19	0.0-2.9	2.0-4.0	.37	.37				
	7-13	3-7	0.85-0.95	14.00-42.00	0.12-0.16	0.0-2.9	1.0-2.0	.24	.32				
	13-26	0-5	1.50-1.70	42.00-141.00	0.03-0.06	0.0-2.9	0.0-0.5	.05	.15				
	26-60	0-5	1.50-1.70	42.00-141.00	0.03-0.06	0.0-2.9	0.0-0.5	.02	.15				
Lithic Haploxerepts, forested-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	1	3	86	
	1-4	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37				
	4-13	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37				
	13-19	5-15	1.30-1.50	14.00-42.00	0.04-0.15	0.0-2.9	0.0-1.0	.15	.37				
	19-23	---	---	---	---	---	---	---	---				
280: Goddard-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	2	134	
	1-7	3-7	0.85-0.95	14.00-42.00	0.15-0.19	0.0-2.9	2.0-4.0	.37	.37				
	7-13	3-7	0.85-0.95	14.00-42.00	0.12-0.16	0.0-2.9	1.0-2.0	.24	.32				
	13-26	0-5	1.50-1.70	42.00-141.00	0.03-0.06	0.0-2.9	0.0-0.5	.05	.15				
	26-60	0-5	1.50-1.70	42.00-141.00	0.03-0.06	0.0-2.9	0.0-0.5	.02	.15				
Parmenter-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134	
	1-4	3-7	0.70-0.85	4.00-14.00	0.20-0.24	0.0-2.9	2.0-4.0	.37	.37				
	4-13	3-7	0.70-0.90	4.00-14.00	0.20-0.24	0.0-2.9	1.0-3.0	.28	.37				
	13-23	3-7	0.70-0.90	4.00-14.00	0.20-0.24	0.0-2.9	1.0-3.0	.28	.37				
	23-35	0-5	1.50-1.65	141.00-705.00	0.03-0.06	0.0-2.9	0.0-0.5	.05	.17				
	35-60	0-5	1.50-1.65	141.00-705.00	0.03-0.06	0.0-2.9	0.0-0.5	.05	.17				

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility	erodi- bility	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
281: Goddard, warm-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	2		134
	1-7	3-7	0.85-0.95	14.00-42.00	0.15-0.19	0.0-2.9	2.0-4.0	.37	.37				
	7-13	3-7	0.85-0.95	14.00-42.00	0.12-0.16	0.0-2.9	1.0-2.0	.24	.32				
	13-26	0-5	1.50-1.70	42.00-141.00	0.03-0.06	0.0-2.9	0.0-0.5	.05	.15				
	26-60	0-5	1.50-1.70	42.00-141.00	0.03-0.06	0.0-2.9	0.0-0.5	.02	.15				
Parmenter, dry-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2		134
	1-4	3-7	0.70-0.85	4.00-14.00	0.20-0.24	0.0-2.9	2.0-4.0	.37	.37				
	4-13	3-7	0.70-0.90	4.00-14.00	0.20-0.24	0.0-2.9	1.0-3.0	.28	.37				
	13-23	3-7	0.70-0.90	4.00-14.00	0.20-0.24	0.0-2.9	1.0-3.0	.28	.37				
	23-35	0-5	1.50-1.65	141.00-705.00	0.03-0.06	0.0-2.9	0.0-0.5	.05	.17				
	35-60	0-5	1.50-1.65	141.00-705.00	0.03-0.06	0.0-2.9	0.0-0.5	.05	.17				
282: Granflat-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3		86
	1-7	3-7	1.00-1.40	14.00-42.00	0.14-0.17	0.0-2.9	2.0-5.0	.20	.28				
	7-10	3-7	1.00-1.40	14.00-42.00	0.14-0.16	0.0-2.9	2.0-5.0	.10	.28				
	10-16	3-7	1.00-1.40	14.00-42.00	0.12-0.14	0.0-2.9	1.0-2.0	.10	.28				
	16-26	0-5	1.50-1.65	42.00-141.00	0.02-0.04	0.0-2.9	0.0-0.5	.02	.17				
	26-60	0-5	1.50-1.65	42.00-141.00	0.02-0.04	0.0-2.9	0.0-0.5	.02	.17				
283: Haley-----	0-8	3-7	1.20-1.40	14.00-42.00	0.13-0.16	0.0-2.9	1.0-2.0	.37	.37	3	2		134
	8-12	3-7	1.20-1.40	14.00-42.00	0.13-0.16	0.0-2.9	1.0-2.0	.37	.37				
	12-25	3-7	1.35-1.50	14.00-42.00	0.13-0.16	0.0-2.9	1.0-2.0	.43	.43				
	25-60	0-5	1.50-1.60	141.00-705.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.10				
284: Haley-----	0-8	3-7	1.20-1.40	14.00-42.00	0.13-0.16	0.0-2.9	1.0-2.0	.37	.37	3	2		134
	8-12	3-7	1.20-1.40	14.00-42.00	0.13-0.16	0.0-2.9	1.0-2.0	.37	.37				
	12-25	3-7	1.35-1.50	14.00-42.00	0.13-0.16	0.0-2.9	1.0-2.0	.43	.43				
	25-60	0-5	1.50-1.60	141.00-705.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.10				
285: Haploxerandic Haplocrypts, forested, till substratum-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	2		134
	1-2	5-10	0.80-0.90	14.00-42.00	0.21-0.25	0.0-2.9	2.0-4.0	.32	.37				
	2-5	3-7	0.80-0.90	14.00-42.00	0.21-0.25	0.0-2.9	2.0-4.0	.32	.37				
	5-11	3-7	0.80-0.90	14.00-42.00	0.20-0.24	0.0-2.9	1.0-2.0	.32	.37				
	11-22	5-10	1.25-1.40	42.00-141.00	0.08-0.13	0.0-2.9	0.0-0.5	.10	.24				
	22-60	2-10	1.35-1.55	42.00-141.00	0.04-0.07	0.0-2.9	0.0-0.5	.05	.20				

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility	erodi- bility	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
285: Cryaquolls, poorly drained, till substratum-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	5	56	
	2-9	8-15	1.25-1.40	14.00-42.00	0.15-0.19	0.0-2.9	2.0-5.0	.24	.28				
	9-17	8-15	1.25-1.40	14.00-42.00	0.15-0.19	0.0-2.9	2.0-5.0	.24	.28				
	17-21	5-15	1.30-1.50	14.00-42.00	0.12-0.19	0.0-2.9	0.5-1.0	.15	.24				
	21-31	5-10	1.70-1.90	1.40-4.00	0.08-0.10	0.0-2.9	0.0-0.5	.10	.20				
	31-40	2-10	1.50-1.70	14.00-42.00	0.04-0.08	0.0-2.9	0.0-0.5	.10	.17				
	40-60	2-10	1.50-1.70	14.00-42.00	0.04-0.08	0.0-2.9	0.0-0.5	.10	.17				
286: Havillah-----	0-12	5-10	0.90-1.20	4.00-14.00	0.29-0.31	0.0-2.9	2.0-6.0	.43	.43	3	2	134	
	12-19	5-10	0.90-1.20	4.00-14.00	0.29-0.31	0.0-2.9	1.0-5.0	.43	.43				
	19-24	10-20	1.25-1.35	4.00-14.00	0.15-0.17	0.0-2.9	0.5-1.5	.28	.43				
	24-27	10-20	1.25-1.35	4.00-14.00	0.15-0.17	0.0-2.9	0.5-1.5	.28	.43				
	27-60	20-27	1.70-2.00	1.40-4.20	0.11-0.13	0.0-2.9	0.2-0.8	.10	.24				
287: Havillah-----	0-12	5-10	0.90-1.20	4.00-14.00	0.29-0.31	0.0-2.9	2.0-6.0	.43	.43	3	2	134	
	12-19	5-10	0.90-1.20	4.00-14.00	0.29-0.31	0.0-2.9	1.0-5.0	.43	.43				
	19-24	10-20	1.25-1.35	4.00-14.00	0.15-0.17	0.0-2.9	0.5-1.5	.28	.43				
	24-27	10-20	1.25-1.35	4.00-14.00	0.15-0.17	0.0-2.9	0.5-1.5	.28	.43				
	27-60	20-27	1.70-2.00	1.40-4.20	0.11-0.13	0.0-2.9	0.2-0.8	.10	.24				
288: Havillah-----	0-12	5-10	0.90-1.20	4.00-14.00	0.29-0.31	0.0-2.9	2.0-6.0	.43	.43	3	2	134	
	12-19	5-10	0.90-1.20	4.00-14.00	0.29-0.31	0.0-2.9	1.0-5.0	.43	.43				
	19-24	10-20	1.25-1.35	4.00-14.00	0.15-0.17	0.0-2.9	0.5-1.5	.28	.43				
	24-27	10-20	1.25-1.35	4.00-14.00	0.15-0.17	0.0-2.9	0.5-1.5	.28	.43				
	27-60	20-27	1.70-2.00	1.40-4.20	0.11-0.13	0.0-2.9	0.2-0.8	.10	.24				
289: Havillah, eroded-----	0-5	5-10	0.90-1.20	4.00-14.00	0.29-0.31	0.0-2.9	2.0-6.0	.43	.43	3	2	134	
	5-19	5-10	0.90-1.20	4.00-14.00	0.29-0.31	0.0-2.9	1.0-5.0	.43	.43				
	19-24	10-20	1.25-1.35	4.00-14.00	0.15-0.17	0.0-2.9	0.5-1.5	.28	.43				
	24-27	10-20	1.25-1.35	4.00-14.00	0.15-0.17	0.0-2.9	0.5-1.5	.28	.43				
	27-60	20-27	1.70-2.00	1.40-4.20	0.11-0.13	0.0-2.9	0.2-0.8	.10	.24				

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
290: Havillah, extremely stony surface-----	0-12	5-10	0.90-1.20	4.00-14.00	0.29-0.31	0.0-2.9	2.0-6.0	.43	.43	3	2	134
	12-19	5-10	0.90-1.20	4.00-14.00	0.29-0.31	0.0-2.9	1.0-5.0	.43	.43			
	19-24	10-20	1.25-1.35	4.00-14.00	0.15-0.17	0.0-2.9	0.5-1.5	.28	.43			
	24-27	10-20	1.25-1.35	4.00-14.00	0.15-0.17	0.0-2.9	0.5-1.5	.28	.43			
	27-60	20-27	1.70-2.00	1.40-4.20	0.11-0.13	0.0-2.9	0.2-0.8	.10	.24			
291: Histic Cryaquepts-----	0-8	0-25	0.10-0.30	42.00-705.00	0.30-0.60	0.0-0.0	60-95	.02	.02	1	8	0
	8-10	5-10	0.75-0.90	4.00-14.00	0.17-0.20	0.0-2.9	2.0-4.0	.37	.37			
	10-15	3-7	0.75-0.95	14.00-42.00	0.14-0.19	0.0-2.9	1.0-3.0	.32	.32			
	15-21	5-15	1.30-1.65	14.00-42.00	0.07-0.11	0.0-2.9	0.0-0.5	.15	.28			
	21-34	5-15	1.30-1.65	14.00-42.00	0.07-0.11	0.0-2.9	0.0-0.5	.15	.28			
	34-60	0-7	1.40-1.65	42.00-141.00	0.03-0.06	0.0-2.9	0.0-0.5	.05	.17			
Cryohemists-----	0-14	10-35	0.10-0.30	4.00-14.00	0.30-0.60	---	70-100	.20	.20	1	8	0
	14-19	10-35	0.10-0.30	4.00-14.00	0.30-0.60	---	70-100	.20	.20			
	19-26	5-10	0.90-1.60	14.00-42.00	0.08-0.13	0.0-2.9	1.0-4.0	.17	.28			
	26-33	5-10	0.90-1.60	14.00-42.00	0.08-0.13	0.0-2.9	1.0-4.0	.17	.28			
	33-60	2-8	1.40-1.65	42.00-141.00	0.04-0.08	0.0-2.9	0.0-0.5	.05	.17			
292: Histosols, ponded-----	0-4	10-35	0.10-0.30	4.00-14.00	0.30-0.60	---	40-90	.02	.02	1	8	0
	4-20	10-35	0.10-0.30	4.00-14.00	0.30-0.60	---	20-40	.02	.02			
	20-32	15-27	1.20-1.35	4.00-14.00	0.15-0.20	0.0-2.9	10-30	.37	.37			
	32-60	5-20	0.75-1.50	4.00-141.00	0.15-0.20	0.0-2.9	10-20	.24	.32			
293: Hodgson-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	4	86
	1-7	5-10	1.00-1.35	4.00-14.00	0.23-0.25	0.0-2.9	2.0-6.0	.32	.37			
	7-10	5-10	1.00-1.35	4.00-14.00	0.23-0.25	0.0-2.9	1.0-3.0	.32	.37			
	10-16	20-35	1.20-1.40	1.40-4.20	0.19-0.21	0.0-2.9	0.5-1.5	.32	.37			
	16-26	20-35	1.20-1.40	1.40-4.20	0.19-0.21	0.0-2.9	0.2-1.0	.32	.37			
	26-41	27-40	1.25-1.40	1.40-4.20	0.19-0.21	3.0-5.9	0.2-0.8	.28	.32			
	41-60	27-40	1.25-1.40	1.40-4.20	0.19-0.21	3.0-5.9	0.2-0.8	.28	.32			
294: Humic Vitricryands, nonforested-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	2	134
	1-5	5-10	0.75-0.90	4.00-14.00	0.20-0.24	0.0-2.9	0.0-5.0	.43	.43			
	5-16	5-10	0.75-0.90	4.00-14.00	0.20-0.24	0.0-2.9	0.0-2.0	.32	.43			
	16-27	5-15	1.50-1.75	14.00-42.00	0.09-0.11	0.0-2.9	0.0-0.5	.15	.32			
	27-33	5-15	1.50-1.75	14.00-42.00	0.07-0.09	0.0-2.9	0.0-0.5	.10	.28			
	33-41	---	---	---	---	0.0-2.9	---	---	---			
	41-45	---	---	---	---	---	---	---	---			

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
294: Typic Humicryepts, nonforested-----	0-7	5-10	1.00-1.35	1.40-4.00	0.20-0.22	0.0-2.9	1.0-5.0	.32	.43	2	4	86
	7-12	5-15	1.00-1.35	1.40-4.00	0.20-0.22	0.0-2.9	1.0-5.0	.37	.49			
	12-24	5-15	1.00-1.35	1.40-4.00	0.17-0.21	0.0-2.9	1.0-3.0	.32	.55			
	24-30	3-7	1.30-1.50	42.00-141.00	0.08-0.10	0.0-2.9	0.0-1.0	.10	.17			
	30-34	---	---	---	---	---	---	---	---			
295: Hunters-----	0-3	5-10	1.00-1.35	4.00-14.00	0.23-0.25	0.0-2.9	2.0-5.0	.32	.37	5	2	134
	3-15	5-10	1.00-1.35	4.00-14.00	0.23-0.25	0.0-2.9	1.0-3.0	.32	.37			
	15-24	5-10	1.20-1.40	1.40-4.20	0.19-0.21	0.0-2.9	0.5-1.5	.32	.37			
	24-30	20-40	1.20-1.40	1.40-4.20	0.19-0.21	0.0-2.9	0.2-0.8	.32	.37			
	30-60	20-40	1.25-1.40	1.40-4.20	0.19-0.21	3.0-5.9	0.2-0.8	.28	.32			
296: Hunters-----	0-3	5-10	1.00-1.35	4.00-14.00	0.23-0.25	0.0-2.9	2.0-5.0	.32	.37	5	2	134
	3-15	5-10	1.00-1.35	4.00-14.00	0.23-0.25	0.0-2.9	1.0-3.0	.32	.37			
	15-24	5-10	1.20-1.40	1.40-4.20	0.19-0.21	0.0-2.9	0.5-1.5	.32	.37			
	24-30	20-40	1.20-1.40	1.40-4.20	0.19-0.21	0.0-2.9	0.2-0.8	.32	.37			
	30-60	20-40	1.25-1.40	1.40-4.20	0.19-0.21	3.0-5.9	0.2-0.8	.28	.32			
297: Hunters, eroded-----	0-1	5-10	1.00-1.35	4.00-14.00	0.23-0.25	0.0-2.9	2.0-5.0	.32	.37	5	2	134
	1-15	5-10	1.00-1.35	4.00-14.00	0.23-0.25	0.0-2.9	1.0-3.0	.32	.37			
	15-24	5-10	1.20-1.40	1.40-4.20	0.19-0.21	0.0-2.9	0.5-1.5	.32	.37			
	24-30	20-40	1.20-1.40	1.40-4.20	0.19-0.21	0.0-2.9	0.2-0.8	.32	.37			
	30-60	20-40	1.25-1.40	1.40-4.20	0.19-0.21	3.0-5.9	0.2-0.8	.28	.32			
298: Jimbluff-----	0-2	---	---	---	---	---	---	---	---	5	2	134
	2-6	3-7	1.10-1.40	14.00-42.00	0.14-0.16	0.0-2.9	2.0-4.0	.17	.28			
	6-11	3-7	1.10-1.40	14.00-42.00	0.12-0.15	0.0-2.9	1.0-3.0	.15	.28			
	11-19	3-7	1.10-1.40	14.00-42.00	0.12-0.15	0.0-2.9	1.0-3.0	.15	.28			
	19-26	5-15	1.40-1.60	14.00-42.00	0.04-0.07	0.0-2.9	0.0-0.5	.05	.28			
	26-37	5-15	1.40-1.60	14.00-42.00	0.04-0.07	0.0-2.9	0.0-0.5	.05	.28			
	37-60	0-10	1.65-1.85	42.00-141.00	0.01-0.04	0.0-2.9	0.0-0.5	.02	.28			
299: Jimbluff-----	0-2	---	---	---	---	---	---	---	---	5	3	86
	2-6	3-7	1.10-1.40	14.00-42.00	0.14-0.16	0.0-2.9	2.0-4.0	.17	.28			
	6-11	3-7	1.10-1.40	14.00-42.00	0.12-0.15	0.0-2.9	1.0-3.0	.15	.28			
	11-19	3-7	1.10-1.40	14.00-42.00	0.12-0.15	0.0-2.9	1.0-3.0	.15	.28			
	19-26	5-15	1.40-1.60	14.00-42.00	0.04-0.07	0.0-2.9	0.0-0.5	.05	.28			
	26-37	5-15	1.40-1.60	14.00-42.00	0.04-0.07	0.0-2.9	0.0-0.5	.05	.28			
	37-60	0-10	1.65-1.85	42.00-141.00	0.01-0.04	0.0-2.9	0.0-0.5	.02	.28			

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
300:												
Johntom-----	0-3	8-15	1.00-1.30	4.00-14.00	0.14-0.18	0.0-2.9	1.0-3.0	.24	.32	1	6	48
	3-12	10-20	1.10-1.40	4.00-14.00	0.12-0.16	0.0-2.9	0.5-2.0	.10	.32			
	12-16	---	---	---	---	---	---	---	---			
Borgeau-----	0-5	8-15	0.80-1.05	4.00-14.00	0.17-0.20	0.0-2.9	1.0-3.0	.24	.32	5	4	86
	5-14	8-15	1.00-1.30	4.00-14.00	0.14-0.16	0.0-2.9	1.0-3.0	.17	.32			
	14-27	10-20	1.50-1.70	4.00-14.00	0.08-0.12	0.0-2.9	0.5-1.0	.10	.32			
	27-41	10-20	1.50-1.70	4.00-14.00	0.08-0.10	0.0-2.9	0.2-0.8	.10	.32			
	41-60	10-20	1.60-1.80	4.00-14.00	0.06-0.10	0.0-2.9	0.2-0.8	.10	.28			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---
301:												
Johntom-----	0-3	8-15	1.00-1.30	4.00-14.00	0.14-0.18	0.0-2.9	1.0-3.0	.24	.32	1	6	48
	3-12	10-20	1.10-1.40	4.00-14.00	0.12-0.16	0.0-2.9	0.5-2.0	.10	.32			
	12-16	---	---	---	---	---	---	---	---			
Foggydew-----	0-7	3-7	1.00-1.30	14.00-42.00	0.11-0.15	0.0-2.9	2.0-5.0	.15	.28	3	3	86
	7-12	3-7	1.00-1.30	14.00-42.00	0.10-0.12	0.0-2.9	2.0-5.0	.10	.28			
	12-20	3-7	1.00-1.30	14.00-42.00	0.10-0.12	0.0-2.9	2.0-4.0	.10	.28			
	20-27	5-15	1.45-1.60	14.00-42.00	0.04-0.06	0.0-2.9	1.0-2.0	.05	.28			
	27-42	5-15	1.45-1.60	14.00-42.00	0.03-0.05	0.0-2.9	1.0-2.0	.05	.28			
	42-53	5-15	1.45-1.60	14.00-42.00	0.03-0.05	0.0-2.9	1.0-2.0	.05	.28			
	53-57	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---
302:												
Johntom-----	0-3	8-15	1.00-1.30	4.00-14.00	0.14-0.18	0.0-2.9	1.0-3.0	.24	.32	1	6	48
	3-12	10-20	1.10-1.40	4.00-14.00	0.12-0.16	0.0-2.9	0.5-2.0	.10	.32			
	12-16	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---
303:												
Johntom-----	0-3	8-15	1.00-1.30	4.00-14.00	0.14-0.18	0.0-2.9	1.0-3.0	.24	.32	1	6	48
	3-12	10-20	1.10-1.40	4.00-14.00	0.12-0.16	0.0-2.9	0.5-2.0	.10	.32			
	12-16	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility group	erodi- bility index	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
304: Karamin-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	2	134	
	1-6	3-7	1.20-1.40	14.00-42.00	0.12-0.15	0.0-2.9	1.0-2.0	.32	.32				
	6-18	3-7	1.30-1.50	14.00-42.00	0.11-0.15	0.0-2.9	0.0-1.0	.32	.32				
	18-28	0-5	1.30-1.50	42.00-141.00	0.05-0.10	0.0-2.9	0.0-0.5	.10	.10				
	28-43	0-5	1.45-1.60	141.00-705.00	0.05-0.08	0.0-2.9	0.0-0.5	.10	.10				
	43-60	0-5	1.45-1.60	141.00-705.00	0.05-0.08	0.0-2.9	0.0-0.5	.10	.10				
305: Kartar-----	0-6	3-7	1.00-1.35	14.00-42.00	0.11-0.15	0.0-2.9	2.0-6.0	.20	.28	3	2	134	
	6-16	3-7	1.00-1.35	14.00-42.00	0.11-0.15	0.0-2.9	0.5-1.5	.24	.28				
	16-28	3-7	1.00-1.35	14.00-42.00	0.08-0.12	0.0-2.9	0.5-1.5	.17	.28				
	28-50	0-5	1.20-1.40	141.00-705.00	0.02-0.04	0.0-2.9	0.2-0.8	.10	.20				
	50-60	0-5	1.20-1.40	141.00-705.00	0.01-0.03	0.0-2.9	0.0-0.5	.10	.15				
306: Kartar-----	0-6	3-7	1.00-1.35	14.00-42.00	0.11-0.15	0.0-2.9	2.0-6.0	.20	.28	3	2	134	
	6-16	3-7	1.00-1.35	14.00-42.00	0.11-0.15	0.0-2.9	0.5-1.5	.24	.28				
	16-28	3-7	1.00-1.35	14.00-42.00	0.08-0.12	0.0-2.9	0.5-1.5	.17	.28				
	28-50	0-5	1.20-1.40	141.00-705.00	0.02-0.04	0.0-2.9	0.2-0.8	.10	.20				
	50-60	0-5	1.20-1.40	141.00-705.00	0.01-0.03	0.0-2.9	0.0-0.5	.10	.15				
307: Kartar, cool-----	0-8	3-7	1.00-1.35	14.00-42.00	0.11-0.15	0.0-2.9	2.0-6.0	.20	.28	3	2	134	
	8-16	3-7	1.00-1.35	14.00-42.00	0.11-0.15	0.0-2.9	0.5-1.5	.24	.28				
	16-28	3-7	1.00-1.35	14.00-42.00	0.08-0.12	0.0-2.9	0.5-1.5	.17	.28				
	28-50	0-5	1.20-1.40	141.00-705.00	0.02-0.04	0.0-2.9	0.2-0.8	.10	.20				
	50-60	0-5	1.20-1.40	141.00-705.00	0.01-0.03	0.0-2.9	0.0-0.5	.10	.15				
308: Kartar-----	0-6	3-7	1.00-1.35	14.00-42.00	0.11-0.15	0.0-2.9	2.0-6.0	.20	.28	3	2	134	
	6-16	3-7	1.00-1.35	14.00-42.00	0.11-0.15	0.0-2.9	0.5-1.5	.24	.28				
	16-28	3-7	1.00-1.35	14.00-42.00	0.08-0.12	0.0-2.9	0.5-1.5	.17	.28				
	28-50	0-5	1.20-1.40	141.00-705.00	0.02-0.04	0.0-2.9	0.2-0.8	.10	.20				
	50-60	0-5	1.20-1.40	141.00-705.00	0.01-0.03	0.0-2.9	0.0-0.5	.10	.15				
309: Kartar-----	0-6	3-7	1.00-1.35	14.00-42.00	0.11-0.15	0.0-2.9	2.0-6.0	.20	.28	3	2	134	
	6-16	3-7	1.00-1.35	14.00-42.00	0.11-0.15	0.0-2.9	0.5-1.5	.24	.28				
	16-28	3-7	1.00-1.35	14.00-42.00	0.08-0.12	0.0-2.9	0.5-1.5	.17	.28				
	28-50	0-5	1.20-1.40	141.00-705.00	0.02-0.04	0.0-2.9	0.2-0.8	.10	.20				
	50-60	0-5	1.20-1.40	141.00-705.00	0.01-0.03	0.0-2.9	0.0-0.5	.10	.15				

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
310: Kartar-----	0-6	3-7	1.00-1.35	14.00-42.00	0.11-0.15	0.0-2.9	2.0-6.0	.20	.28	3	2	134
	6-16	3-7	1.00-1.35	14.00-42.00	0.11-0.15	0.0-2.9	0.5-1.5	.24	.28			
	16-28	3-7	1.00-1.35	14.00-42.00	0.08-0.12	0.0-2.9	0.5-1.5	.17	.28			
	28-50	0-5	1.20-1.40	141.00-705.00	0.02-0.04	0.0-2.9	0.2-0.8	.10	.20			
	50-60	0-5	1.20-1.40	141.00-705.00	0.01-0.03	0.0-2.9	0.0-0.5	.10	.15			
311: Kartar, extremely stony surface-----	0-6	3-7	1.00-1.35	14.00-42.00	0.11-0.15	0.0-2.9	2.0-6.0	.20	.28	3	3	86
	6-16	3-7	1.00-1.35	14.00-42.00	0.11-0.15	0.0-2.9	0.5-1.5	.24	.28			
	16-28	3-7	1.00-1.35	14.00-42.00	0.08-0.12	0.0-2.9	0.5-1.5	.17	.28			
	28-50	0-5	1.20-1.40	141.00-705.00	0.02-0.04	0.0-2.9	0.2-0.8	.10	.20			
	50-60	0-5	1.20-1.40	141.00-705.00	0.01-0.03	0.0-2.9	0.0-0.5	.10	.15			
312: Kartar, extremely stony surface-----	0-6	3-7	1.00-1.35	14.00-42.00	0.11-0.15	0.0-2.9	2.0-6.0	.20	.28	3	3	86
	6-16	3-7	1.00-1.35	14.00-42.00	0.11-0.15	0.0-2.9	0.5-1.5	.24	.28			
	16-28	3-7	1.00-1.35	14.00-42.00	0.08-0.12	0.0-2.9	0.5-1.5	.17	.28			
	28-50	0-5	1.20-1.40	141.00-705.00	0.02-0.04	0.0-2.9	0.2-0.8	.10	.20			
	50-60	0-5	1.20-1.40	141.00-705.00	0.01-0.03	0.0-2.9	0.0-0.5	.10	.15			
313: Karu-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	3	86
	1-5	3-7	1.10-1.30	14.00-42.00	0.15-0.17	0.0-2.9	1.0-4.0	.20	.28			
	5-17	3-7	1.10-1.30	14.00-42.00	0.11-0.15	0.0-2.9	1.0-2.0	.20	.28			
	17-23	5-15	1.35-1.55	14.00-42.00	0.06-0.10	0.0-2.9	0.0-0.5	.10	.20			
	23-34	5-15	1.35-1.60	14.00-42.00	0.06-0.10	0.0-2.9	0.0-0.5	.10	.20			
	34-60	0-10	1.40-1.65	14.00-42.00	0.05-0.08	0.0-2.9	0.0-0.5	.05	.15			
314: Karu-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	3	86
	1-5	3-7	1.10-1.30	14.00-42.00	0.15-0.17	0.0-2.9	1.0-4.0	.20	.28			
	5-17	3-7	1.10-1.30	14.00-42.00	0.11-0.15	0.0-2.9	1.0-2.0	.20	.28			
	17-23	5-15	1.35-1.55	14.00-42.00	0.06-0.10	0.0-2.9	0.0-0.5	.10	.20			
	23-34	5-15	1.35-1.60	14.00-42.00	0.06-0.10	0.0-2.9	0.0-0.5	.10	.20			
	34-60	0-10	1.40-1.65	14.00-42.00	0.05-0.08	0.0-2.9	0.0-0.5	.05	.15			

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility	erodi- bility	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
315: Koepke-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	4		86
	1-9	5-10	0.65-0.85	4.00-14.00	0.18-0.22	0.0-2.9	6.0-13	.37	.37				
	9-22	8-15	0.65-0.85	4.00-14.00	0.18-0.22	0.0-2.9	4.0-10	.24	.37				
	22-24	8-15	0.65-0.85	4.00-14.00	0.18-0.21	0.0-2.9	4.0-10	.24	.37				
	24-34	5-15	1.70-2.00	0.42-1.40	0.04-0.07	0.0-2.9	0.0-0.5	.15	.28				
	34-42	5-15	1.70-2.00	0.42-1.40	0.04-0.07	0.0-2.9	0.0-0.5	.15	.28				
	42-60	5-15	1.70-2.00	0.42-1.40	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
316: Koepke-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	4		86
	1-9	5-10	0.65-0.85	4.00-14.00	0.18-0.22	0.0-2.9	6.0-13	.37	.37				
	9-22	8-15	0.65-0.85	4.00-14.00	0.18-0.22	0.0-2.9	4.0-10	.24	.37				
	22-24	8-15	0.65-0.85	4.00-14.00	0.18-0.21	0.0-2.9	4.0-10	.24	.37				
	24-34	5-15	1.70-2.00	0.42-1.40	0.04-0.07	0.0-2.9	0.0-0.5	.15	.28				
	34-42	5-15	1.70-2.00	0.42-1.40	0.04-0.07	0.0-2.9	0.0-0.5	.15	.28				
	42-60	5-15	1.70-2.00	0.42-1.40	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
317: Koepke-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	4		86
	1-9	5-10	0.65-0.85	4.00-14.00	0.18-0.22	0.0-2.9	6.0-13	.37	.37				
	9-22	8-15	0.65-0.85	4.00-14.00	0.18-0.22	0.0-2.9	4.0-10	.24	.37				
	22-24	8-15	0.65-0.85	4.00-14.00	0.18-0.21	0.0-2.9	4.0-10	.24	.37				
	24-34	5-15	1.70-2.00	0.42-1.40	0.04-0.07	0.0-2.9	0.0-0.5	.15	.28				
	34-42	5-15	1.70-2.00	0.42-1.40	0.04-0.07	0.0-2.9	0.0-0.5	.15	.28				
	42-60	5-15	1.70-2.00	0.42-1.40	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
318: Koepke-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	4		86
	1-9	5-10	0.65-0.85	4.00-14.00	0.18-0.22	0.0-2.9	6.0-13	.37	.37				
	9-22	8-15	0.65-0.85	4.00-14.00	0.18-0.22	0.0-2.9	4.0-10	.24	.37				
	22-24	8-15	0.65-0.85	4.00-14.00	0.18-0.21	0.0-2.9	4.0-10	.24	.37				
	24-34	5-15	1.70-2.00	0.42-1.40	0.04-0.07	0.0-2.9	0.0-0.5	.15	.28				
	34-42	5-15	1.70-2.00	0.42-1.40	0.04-0.07	0.0-2.9	0.0-0.5	.15	.28				
	42-60	5-15	1.70-2.00	0.42-1.40	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
319: Koepke, well drained--	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	4		86
	1-9	5-10	0.65-0.85	4.00-14.00	0.18-0.22	0.0-2.9	6.0-13	.37	.37				
	9-22	8-15	0.65-0.85	4.00-14.00	0.18-0.22	0.0-2.9	4.0-10	.24	.37				
	22-24	8-15	0.65-0.85	4.00-14.00	0.18-0.21	0.0-2.9	4.0-10	.24	.37				
	24-34	5-15	1.70-2.00	0.42-1.40	0.04-0.07	0.0-2.9	0.0-0.5	.15	.28				
	34-42	5-15	1.70-2.00	0.42-1.40	0.04-0.07	0.0-2.9	0.0-0.5	.15	.28				
	42-60	5-15	1.70-2.00	0.42-1.40	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
319: Koepke, moderately well drained-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	4	86
	1-9	5-10	0.65-0.85	4.00-14.00	0.18-0.22	0.0-2.9	6.0-13	.37	.37			
	9-22	8-15	0.65-0.85	4.00-14.00	0.18-0.22	0.0-2.9	4.0-10	.24	.37			
	22-24	8-15	0.65-0.85	4.00-14.00	0.18-0.21	0.0-2.9	4.0-10	.24	.37			
	24-34	5-15	1.70-2.00	0.42-1.40	0.04-0.07	0.0-2.9	0.0-0.5	.15	.28			
	34-42	5-15	1.70-2.00	0.42-1.40	0.04-0.07	0.0-2.9	0.0-0.5	.15	.28			
	42-60	5-15	1.70-2.00	0.42-1.40	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28			
320: Koepke, well drained--	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	4	86
	1-9	5-10	0.65-0.85	4.00-14.00	0.18-0.22	0.0-2.9	6.0-13	.37	.37			
	9-22	8-15	0.65-0.85	4.00-14.00	0.18-0.22	0.0-2.9	4.0-10	.24	.37			
	22-24	8-15	0.65-0.85	4.00-14.00	0.18-0.21	0.0-2.9	4.0-10	.24	.37			
	24-34	5-15	1.70-2.00	0.42-1.40	0.04-0.07	0.0-2.9	0.0-0.5	.15	.28			
	34-42	5-15	1.70-2.00	0.42-1.40	0.04-0.07	0.0-2.9	0.0-0.5	.15	.28			
	42-60	5-15	1.70-2.00	0.42-1.40	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28			
Koepke, moderately well drained-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	4	86
	1-9	5-10	0.65-0.85	4.00-14.00	0.18-0.22	0.0-2.9	6.0-13	.37	.37			
	9-22	8-15	0.65-0.85	4.00-14.00	0.18-0.22	0.0-2.9	4.0-10	.24	.37			
	22-24	8-15	0.65-0.85	4.00-14.00	0.18-0.21	0.0-2.9	4.0-10	.24	.37			
	24-34	5-15	1.70-2.00	0.42-1.40	0.04-0.07	0.0-2.9	0.0-0.5	.15	.28			
	34-42	5-15	1.70-2.00	0.42-1.40	0.04-0.07	0.0-2.9	0.0-0.5	.15	.28			
	42-60	5-15	1.70-2.00	0.42-1.40	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28			
321: Koepke, well drained--	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	4	86
	1-9	5-10	0.65-0.85	4.00-14.00	0.18-0.22	0.0-2.9	6.0-13	.37	.37			
	9-22	8-15	0.65-0.85	4.00-14.00	0.18-0.22	0.0-2.9	4.0-10	.24	.37			
	22-24	8-15	0.65-0.85	4.00-14.00	0.18-0.21	0.0-2.9	4.0-10	.24	.37			
	24-34	5-15	1.70-2.00	0.42-1.40	0.04-0.07	0.0-2.9	0.0-0.5	.15	.28			
	34-42	5-15	1.70-2.00	0.42-1.40	0.04-0.07	0.0-2.9	0.0-0.5	.15	.28			
	42-60	5-15	1.70-2.00	0.42-1.40	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28			
Koepke, moderately well drained-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	4	86
	1-9	5-10	0.65-0.85	4.00-14.00	0.18-0.22	0.0-2.9	6.0-13	.37	.37			
	9-22	8-15	0.65-0.85	4.00-14.00	0.18-0.22	0.0-2.9	4.0-10	.24	.37			
	22-24	8-15	0.65-0.85	4.00-14.00	0.18-0.21	0.0-2.9	4.0-10	.24	.37			
	24-34	5-15	1.70-2.00	0.42-1.40	0.04-0.07	0.0-2.9	0.0-0.5	.15	.28			
	34-42	5-15	1.70-2.00	0.42-1.40	0.04-0.07	0.0-2.9	0.0-0.5	.15	.28			
	42-60	5-15	1.70-2.00	0.42-1.40	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28			

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility	erodi- bility	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
322: Lani-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	2	134	
	1-9	3-7	1.20-1.40	14.00-42.00	0.11-0.13	0.0-2.9	1.0-3.0	.24	.28				
	9-15	3-15	1.20-1.40	14.00-42.00	0.11-0.13	0.0-2.9	1.0-3.0	.24	.28				
	15-29	5-15	1.35-1.50	14.00-42.00	0.13-0.16	0.0-2.9	1.0-2.0	.28	.32				
	29-60	5-15	1.35-1.50	14.00-42.00	0.08-0.11	0.0-2.9	0.0-0.5	.28	.32				
323: Lani-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	2	134	
	1-9	3-7	1.20-1.40	14.00-42.00	0.11-0.13	0.0-2.9	1.0-3.0	.24	.28				
	9-15	3-15	1.20-1.40	14.00-42.00	0.11-0.13	0.0-2.9	1.0-3.0	.24	.28				
	15-29	5-15	1.35-1.50	14.00-42.00	0.13-0.16	0.0-2.9	1.0-2.0	.28	.32				
	29-60	5-15	1.35-1.50	14.00-42.00	0.08-0.11	0.0-2.9	0.0-0.5	.28	.32				
324: Lani, extremely stony surface-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	2	134	
	1-9	3-7	1.20-1.40	14.00-42.00	0.11-0.13	0.0-2.9	1.0-3.0	.24	.28				
	9-15	3-15	1.20-1.40	14.00-42.00	0.11-0.13	0.0-2.9	1.0-3.0	.24	.28				
	15-29	5-15	1.35-1.50	14.00-42.00	0.13-0.16	0.0-2.9	1.0-2.0	.28	.32				
	29-60	5-15	1.35-1.50	14.00-42.00	0.08-0.11	0.0-2.9	0.0-0.5	.28	.32				
325: Lani, extremely stony surface-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	2	134	
	1-9	3-7	1.20-1.40	14.00-42.00	0.11-0.13	0.0-2.9	1.0-3.0	.24	.28				
	9-15	3-15	1.20-1.40	14.00-42.00	0.11-0.13	0.0-2.9	1.0-3.0	.24	.28				
	15-29	5-15	1.35-1.50	14.00-42.00	0.13-0.16	0.0-2.9	1.0-2.0	.28	.32				
	29-60	5-15	1.35-1.50	14.00-42.00	0.08-0.11	0.0-2.9	0.0-0.5	.28	.32				
326: Leavenworth-----	0-3	5-15	1.25-1.35	4.00-14.00	0.19-0.21	0.0-2.9	2.0-4.0	.32	.37	5	5	56	
	3-21	5-15	1.25-1.35	4.00-14.00	0.19-0.21	0.0-2.9	1.0-3.0	.32	.37				
	21-60	5-10	1.25-1.35	14.00-42.00	0.12-0.14	0.0-2.9	0.0-2.0	.28	.32				
327: Leftcreek-----	0-5	3-7	0.60-0.85	14.00-42.00	0.18-0.20	0.0-2.9	3.0-5.0	.15	.28	1	3	86	
	5-14	3-7	0.60-0.85	14.00-42.00	0.17-0.19	0.0-2.9	2.0-4.0	.10	.28				
	14-18	---	---	---	---	---	---	---	---				
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---	---

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
328: Leiko-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134
	1-2	3-7	1.00-1.35	14.00-42.00	0.10-0.13	0.0-2.9	2.0-6.0	.20	.28			
	2-9	3-7	1.00-1.35	14.00-42.00	0.09-0.11	0.0-2.9	1.0-5.0	.17	.28			
	9-30	0-10	1.50-1.60	14.00-42.00	0.04-0.07	0.0-2.9	0.2-0.8	.10	.28			
	30-60	0-5	1.50-1.60	141.00-705.00	0.01-0.03	0.0-2.9	0.2-0.8	.05	.17			
329: Leiko-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134
	1-2	3-7	1.00-1.35	14.00-42.00	0.10-0.13	0.0-2.9	2.0-6.0	.20	.28			
	2-9	3-7	1.00-1.35	14.00-42.00	0.09-0.11	0.0-2.9	1.0-5.0	.17	.28			
	9-30	0-10	1.50-1.60	14.00-42.00	0.04-0.07	0.0-2.9	0.2-0.8	.10	.28			
	30-60	0-5	1.50-1.60	141.00-705.00	0.01-0.03	0.0-2.9	0.2-0.8	.05	.17			
330: Leiko-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134
	1-2	3-7	1.00-1.35	14.00-42.00	0.10-0.13	0.0-2.9	2.0-6.0	.20	.28			
	2-9	3-7	1.00-1.35	14.00-42.00	0.09-0.11	0.0-2.9	1.0-5.0	.17	.28			
	9-30	0-10	1.50-1.60	14.00-42.00	0.04-0.07	0.0-2.9	0.2-0.8	.10	.28			
	30-60	0-5	1.50-1.60	141.00-705.00	0.01-0.03	0.0-2.9	0.2-0.8	.05	.17			
331: Leiko, extremely stony surface-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134
	1-2	3-7	1.00-1.35	14.00-42.00	0.10-0.13	0.0-2.9	2.0-6.0	.20	.28			
	2-9	3-7	1.00-1.35	14.00-42.00	0.09-0.11	0.0-2.9	1.0-5.0	.17	.28			
	9-30	0-10	1.50-1.60	14.00-42.00	0.04-0.07	0.0-2.9	0.2-0.8	.10	.28			
	30-60	0-5	1.50-1.60	141.00-705.00	0.01-0.03	0.0-2.9	0.2-0.8	.05	.17			
332: Leiko, extremely stony surface-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134
	1-2	3-7	1.00-1.35	14.00-42.00	0.10-0.13	0.0-2.9	2.0-6.0	.20	.28			
	2-9	3-7	1.00-1.35	14.00-42.00	0.09-0.11	0.0-2.9	1.0-5.0	.17	.28			
	9-30	0-10	1.50-1.60	14.00-42.00	0.04-0.07	0.0-2.9	0.2-0.8	.10	.28			
	30-60	0-5	1.50-1.60	141.00-705.00	0.01-0.03	0.0-2.9	0.2-0.8	.05	.17			
333: Leiko-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	3	86
	1-4	0-5	1.20-1.40	14.00-42.00	0.14-0.16	0.0-2.9	1.0-4.0	.15	.20			
	4-12	0-5	1.20-1.40	14.00-42.00	0.11-0.13	0.0-2.9	0.0-0.5	.15	.20			
	12-25	0-10	1.50-1.60	14.00-42.00	0.04-0.07	0.0-2.9	0.2-0.8	.10	.28			
	25-60	0-5	1.50-1.60	141.00-705.00	0.03-0.05	0.0-2.9	0.0-0.5	.05	.17			

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility	erodi- bility	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
334: Leiko, extremely stony surface-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134	
	1-2	3-7	1.00-1.35	14.00-42.00	0.10-0.13	0.0-2.9	2.0-6.0	.20	.28				
	2-9	3-7	1.00-1.35	14.00-42.00	0.09-0.11	0.0-2.9	1.0-5.0	.17	.28				
	9-30	0-10	1.50-1.60	14.00-42.00	0.04-0.07	0.0-2.9	0.2-0.8	.10	.28				
	30-60	0-5	1.50-1.60	141.00-705.00	0.01-0.03	0.0-2.9	0.2-0.8	.05	.17				
335: Leiko-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	3	86	
	1-4	0-5	1.20-1.40	14.00-42.00	0.14-0.16	0.0-2.9	1.0-4.0	.15	.20				
	4-12	0-5	1.20-1.40	14.00-42.00	0.11-0.13	0.0-2.9	0.0-0.5	.15	.20				
	12-25	0-10	1.50-1.60	14.00-42.00	0.04-0.07	0.0-2.9	0.2-0.8	.10	.28				
	25-60	0-5	1.50-1.60	141.00-705.00	0.03-0.05	0.0-2.9	0.0-0.5	.05	.17				
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---	---
336: Lekrem, extremely stony surface-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	3	86	
	1-5	3-7	1.10-1.40	14.00-42.00	0.11-0.14	0.0-2.9	1.0-3.0	.20	.28				
	5-17	3-7	1.10-1.40	14.00-42.00	0.08-0.13	0.0-2.9	1.0-2.0	.15	.28				
	17-30	5-15	1.35-1.50	14.00-42.00	0.06-0.10	0.0-2.9	0.0-0.5	.10	.28				
	30-41	5-15	1.35-1.50	14.00-42.00	0.05-0.09	0.0-2.9	0.0-0.5	.10	.24				
	41-60	0-5	1.60-1.80	14.00-42.00	0.02-0.04	0.0-2.9	0.0-0.5	.05	.17				
Chumstick, moist-----	0-5	3-7	1.15-1.30	14.00-42.00	0.13-0.16	0.0-2.9	2.0-4.0	.10	.24	1	5	56	
	5-15	3-7	1.30-1.55	14.00-42.00	0.12-0.16	0.0-2.9	1.0-3.0	.10	.28				
	15-19	---	---	---	---	---	---	---	---				
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---	---
337: Lithic Humicryepts, forested, udic-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	1	5	56	
	1-5	3-7	0.70-0.90	14.00-42.00	0.13-0.15	0.0-2.9	2.0-4.0	.15	.37				
	5-11	3-7	0.75-0.95	14.00-42.00	0.10-0.14	0.0-2.9	1.0-2.0	.17	.37				
	11-20	5-15	1.25-1.40	14.00-42.00	0.07-0.11	0.0-2.9	0.0-0.5	.10	.28				
	20-30	---	---	---	---	---	---	---	---				
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---	---

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
338: Lithic Haploxerepts, range-----	0-3	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37	1	3	86
	3-12	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37			
	12-18	5-15	1.30-1.50	14.00-42.00	0.04-0.15	0.0-2.9	0.0-1.0	.15	.37			
	18-22	---	---	---	---	---	---	---	---			
Cashmont, extremely stony surface-----	0-3	5-15	1.20-1.40	14.00-42.00	0.11-0.13	0.0-2.9	2.0-6.0	.24	.28	5	3	86
	3-8	5-15	1.20-1.40	14.00-42.00	0.11-0.13	0.0-2.9	1.0-5.0	.24	.28			
	8-23	5-15	1.25-1.40	14.00-42.00	0.08-0.12	0.0-2.9	0.5-1.5	.17	.28			
	23-60	5-15	1.25-1.40	14.00-42.00	0.08-0.11	0.0-2.9	0.2-0.8	.15	.28			
339: Lithic Haploxerepts, range-----	0-3	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37	1	3	86
	3-12	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37			
	12-18	5-15	1.30-1.50	14.00-42.00	0.04-0.15	0.0-2.9	0.0-1.0	.15	.37			
	18-22	---	---	---	---	---	---	---	---			
Conconully, extremely stony surface-----	0-2	5-10	1.20-1.40	4.00-14.00	0.09-0.12	0.0-2.9	1.0-5.0	.17	.37	3	5	56
	2-13	5-10	1.20-1.40	4.00-14.00	0.10-0.12	0.0-2.9	1.0-5.0	.15	.32			
	13-21	5-15	1.20-1.40	4.00-14.00	0.07-0.10	0.0-2.9	0.5-1.5	.24	.37			
	21-33	5-15	1.20-1.40	4.00-14.00	0.07-0.10	0.0-2.9	0.5-1.5	.17	.28			
	33-60	5-15	1.70-2.00	0.42-1.40	0.05-0.09	0.0-2.9	0.2-0.8	.15	.28			
340: Lithic Haploxerepts, range-----	0-3	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37	1	3	86
	3-12	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37			
	12-18	5-15	1.30-1.50	14.00-42.00	0.04-0.15	0.0-2.9	0.0-1.0	.15	.37			
	18-22	---	---	---	---	---	---	---	---			
Donavan, extremely stony surface-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	4	86
	1-7	8-15	1.10-1.40	14.00-42.00	0.14-0.18	0.0-2.9	2.0-4.0	.24	.32			
	7-11	8-15	1.10-1.40	14.00-42.00	0.14-0.17	0.0-2.9	1.0-3.0	.20	.28			
	11-16	3-15	1.10-1.40	14.00-42.00	0.13-0.16	0.0-2.9	0.5-1.0	.20	.28			
	16-27	5-15	1.60-1.80	14.00-42.00	0.13-0.16	0.0-2.9	0.0-0.5	.20	.28			
	27-34	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.20	.28			
	34-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.20	.28			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	8	0

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
341: Lithic Haploxerepts, range-----	0-3	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37	1	3	86
	3-12	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37			
	12-18	5-15	1.30-1.50	14.00-42.00	0.04-0.15	0.0-2.9	0.0-1.0	.15	.37			
	18-22	---	---	---	---	---	---	---	---			
Kartar, extremely stony surface-----	0-6	3-7	1.00-1.35	14.00-42.00	0.11-0.15	0.0-2.9	2.0-6.0	.20	.28	3	3	86
	6-16	3-7	1.00-1.35	14.00-42.00	0.11-0.15	0.0-2.9	0.5-1.5	.24	.28			
	16-28	3-7	1.00-1.35	14.00-42.00	0.08-0.12	0.0-2.9	0.5-1.5	.17	.28			
	28-50	0-5	1.20-1.40	141.00-705.00	0.02-0.04	0.0-2.9	0.2-0.8	.10	.20			
	50-60	0-5	1.20-1.40	141.00-705.00	0.01-0.03	0.0-2.9	0.0-0.5	.10	.15			
342: Lithic Haploxerepts, range-----	0-3	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37	1	3	86
	3-12	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37			
	12-18	5-15	1.30-1.50	14.00-42.00	0.04-0.15	0.0-2.9	0.0-1.0	.15	.37			
	18-22	---	---	---	---	---	---	---	---			
Molson, extremely stony surface-----	0-8	5-10	0.65-0.85	4.00-14.00	0.21-0.23	0.0-2.9	2.0-6.0	.32	.37	4	2	134
	8-18	5-10	0.65-0.85	4.00-14.00	0.20-0.22	0.0-2.9	2.0-6.0	.32	.37			
	18-42	5-20	1.50-1.70	4.00-14.00	0.14-0.18	0.0-2.9	1.0-2.0	.32	.43			
	42-50	5-20	1.60-1.80	4.00-14.00	0.13-0.16	0.0-2.9	0.0-0.5	.24	.37			
	50-60	5-20	1.60-1.80	4.00-14.00	0.13-0.16	0.0-2.9	0.0-0.5	.24	.37			
343: Lithic Haploxerepts, range-----	0-3	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37	1	3	86
	3-12	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37			
	12-18	5-15	1.30-1.50	14.00-42.00	0.04-0.15	0.0-2.9	0.0-1.0	.15	.37			
	18-22	---	---	---	---	---	---	---	---			
Newbon, extremely stony surface-----	0-2	10-20	1.35-1.45	4.00-14.00	0.13-0.15	0.0-2.9	2.0-6.0	.20	.32	5	6	48
	2-13	10-20	1.35-1.45	4.00-14.00	0.13-0.15	0.0-2.9	1.0-5.0	.20	.32			
	13-25	10-20	1.35-1.45	4.00-14.00	0.11-0.13	0.0-2.9	0.5-1.5	.15	.32			
	25-60	10-20	1.35-1.45	4.00-14.00	0.10-0.12	0.0-2.9	0.2-0.8	.10	.32			

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
344: Lithic Haploxerepts, range-----	0-3	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37	1	3	86
	3-12	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37			
	12-18	5-15	1.30-1.50	14.00-42.00	0.04-0.15	0.0-2.9	0.0-1.0	.15	.37			
	18-22	---	---	---	---	---	---	---	---			
Nighthawk, extremely stony surface-----	0-4	10-20	1.25-1.35	4.00-14.00	0.12-0.14	0.0-2.9	2.0-6.0	.17	.32	5	6	48
	4-8	10-20	1.25-1.35	4.00-14.00	0.12-0.14	0.0-2.9	1.0-5.0	.17	.32			
	8-13	10-20	1.25-1.35	4.00-14.00	0.10-0.12	0.0-2.9	0.5-1.5	.15	.32			
	13-22	10-20	1.25-1.35	4.00-14.00	0.05-0.07	0.0-2.9	0.5-1.5	.10	.32			
	22-32	5-15	1.25-1.35	4.00-14.00	0.05-0.07	0.0-2.9	0.2-0.8	.10	.32			
	32-60	5-15	1.25-1.35	4.00-14.00	0.05-0.07	0.0-2.9	0.0-0.5	.05	.28			
345: Lithic Haploxerepts, range-----	0-3	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37	1	3	86
	3-12	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37			
	12-18	5-15	1.30-1.50	14.00-42.00	0.04-0.15	0.0-2.9	0.0-1.0	.15	.37			
	18-22	---	---	---	---	---	---	---	---			
Republic, extremely stony surface-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	4	86
	1-7	8-15	1.00-1.35	4.00-14.00	0.17-0.21	0.0-2.9	2.0-4.0	.24	.32			
	7-16	3-7	1.00-1.35	4.00-14.00	0.13-0.18	0.0-2.9	2.0-4.0	.20	.28			
	16-29	5-15	1.30-1.50	4.00-14.00	0.12-0.17	0.0-2.9	1.0-2.0	.20	.28			
	29-36	5-15	1.30-1.50	4.00-14.00	0.11-0.16	0.0-2.9	1.0-2.0	.17	.24			
	36-60	5-15	1.35-1.55	14.00-42.00	0.07-0.12	0.0-2.9	1.0-2.0	.15	.20			
346: Lithic Haploxerepts, range, moist-----	0-3	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37	1	3	86
	3-12	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37			
	12-18	5-15	1.30-1.50	14.00-42.00	0.04-0.15	0.0-2.9	0.0-1.0	.15	.37			
	18-22	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---
347: Lithic Haploxerepts, range-----	0-3	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37	1	3	86
	3-12	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37			
	12-18	5-15	1.30-1.50	14.00-42.00	0.04-0.15	0.0-2.9	0.0-1.0	.15	.37			
	18-22	---	---	---	---	---	---	---	---			

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
347: Vallan-----	0-2	8-15	1.15-1.40	4.00-14.00	0.13-0.16	3.0-5.9	1.0-3.0	.28	.28	1	5	56
	2-10	20-30	1.25-1.40	4.00-14.00	0.15-0.19	3.0-5.9	0.0-0.5	.24	.28			
	10-16	20-27	1.25-1.40	4.00-14.00	0.15-0.19	3.0-5.9	0.0-0.5	.24	.28			
	16-20	---	---	---	---	---	---	---	---			
348: Lithic Haploxerepts, forested-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	1	3	86
	1-4	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37			
	4-13	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37			
	13-19	5-15	1.30-1.50	14.00-42.00	0.04-0.15	0.0-2.9	0.0-1.0	.15	.37			
	19-23	---	---	---	---	---	---	---	---			
Wilma, dry-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86
	1-7	3-7	0.70-0.90	14.00-42.00	0.13-0.17	0.0-2.9	1.0-3.0	.24	.37			
	7-13	3-7	0.70-0.90	14.00-42.00	0.13-0.17	0.0-2.9	0.0-0.5	.20	.32			
	13-18	5-15	1.35-1.55	14.00-42.00	0.06-0.10	0.0-2.9	0.0-0.5	.10	.28			
	18-29	5-15	1.40-1.60	14.00-42.00	0.05-0.08	0.0-2.9	0.0-0.5	.10	.28			
	29-33	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---
349: Longort-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	3	86
	1-6	3-7	1.10-1.40	14.00-42.00	0.14-0.16	0.0-2.9	2.0-4.0	.20	.28			
	6-18	3-7	1.10-1.40	14.00-42.00	0.13-0.15	0.0-2.9	1.0-3.0	.15	.28			
	18-38	5-15	1.60-1.80	14.00-42.00	0.06-0.09	0.0-2.9	0.0-0.5	.10	.20			
	38-48	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.05	.28			
	48-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.05	.28			
350: Longort-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	3	86
	1-6	3-7	1.10-1.40	14.00-42.00	0.14-0.16	0.0-2.9	2.0-4.0	.20	.28			
	6-18	3-7	1.10-1.40	14.00-42.00	0.13-0.15	0.0-2.9	1.0-3.0	.15	.28			
	18-38	5-15	1.60-1.80	14.00-42.00	0.06-0.09	0.0-2.9	0.0-0.5	.10	.20			
	38-48	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.05	.28			
	48-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.05	.28			
Santop-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86
	2-7	3-7	1.10-1.40	14.00-42.00	0.14-0.16	0.0-2.9	1.0-3.0	.15	.28			
	7-17	3-7	1.10-1.40	14.00-42.00	0.11-0.13	0.0-2.9	0.5-2.0	.10	.28			
	17-36	5-15	1.45-1.60	14.00-42.00	0.07-0.11	0.0-2.9	0.0-0.5	.10	.24			
	36-40	---	---	---	---	---	---	---	---			

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility	erodi- bility	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
351: Longswamp, warm-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	4		86
	1-7	8-15	1.00-1.20	14.00-42.00	0.17-0.21	0.0-2.9	2.0-4.0	.24	.28				
	7-13	8-15	1.00-1.40	14.00-42.00	0.16-0.20	0.0-2.9	1.0-3.0	.24	.28				
	13-16	3-15	1.40-1.60	14.00-42.00	0.16-0.20	0.0-2.9	1.0-3.0	.24	.28				
	16-26	5-10	1.60-1.80	14.00-42.00	0.15-0.19	0.0-2.9	1.0-3.0	.10	.28				
	26-37	5-10	1.70-2.00	0.42-1.40	0.04-0.07	0.0-2.9	1.0-3.0	.10	.28				
	37-60	5-15	1.70-2.00	0.42-1.40	0.04-0.07	0.0-2.9	1.0-3.0	.10	.37				
352: Louploup-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	2		134
	2-8	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	2.0-4.0	.37	.37				
	8-23	3-7	0.75-0.90	14.00-42.00	0.20-0.22	0.0-2.9	1.0-4.0	.32	.37				
	23-43	5-15	1.60-1.80	1.40-4.00	0.08-0.12	0.0-2.9	0.0-0.5	.20	.28				
	43-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.15	.24				
Stepstone-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2		134
	1-2	3-7	0.65-0.85	14.00-42.00	0.19-0.22	0.0-2.9	1.0-4.0	.37	.37				
	2-6	3-7	0.65-0.85	14.00-42.00	0.18-0.20	0.0-2.9	1.0-4.0	.37	.37				
	6-19	3-7	0.65-0.85	14.00-42.00	0.18-0.20	0.0-2.9	1.0-2.0	.28	.37				
	19-23	5-15	0.75-0.85	14.00-42.00	0.10-0.13	0.0-2.9	0.0-0.5	.15	.28				
	23-39	0-10	1.60-2.00	1.40-4.00	0.06-0.08	0.0-2.9	0.0-0.5	.15	.37				
	39-60	0-10	1.60-2.00	1.40-4.00	0.03-0.06	0.0-2.9	0.0-0.5	.10	.37				
353: Louploup, dry-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	2		134
	2-8	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	2.0-4.0	.37	.37				
	8-23	3-7	0.75-0.90	14.00-42.00	0.20-0.22	0.0-2.9	1.0-4.0	.32	.37				
	23-43	5-15	1.60-1.80	1.40-4.00	0.08-0.12	0.0-2.9	0.0-0.5	.20	.28				
	43-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.15	.24				
Stepstone, dry-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2		134
	1-2	3-7	0.65-0.85	14.00-42.00	0.19-0.22	0.0-2.9	1.0-4.0	.37	.37				
	2-6	3-7	0.65-0.85	14.00-42.00	0.18-0.20	0.0-2.9	1.0-4.0	.37	.37				
	6-19	3-7	0.65-0.85	14.00-42.00	0.18-0.20	0.0-2.9	1.0-2.0	.28	.37				
	19-23	5-15	0.75-0.85	14.00-42.00	0.10-0.13	0.0-2.9	0.0-0.5	.15	.28				
	23-39	0-10	1.60-2.00	1.40-4.00	0.06-0.08	0.0-2.9	0.0-0.5	.15	.37				
	39-60	0-10	1.60-2.00	1.40-4.00	0.03-0.06	0.0-2.9	0.0-0.5	.10	.37				

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind
								Kw	Kf	T	erodi- bility	erodi- bility
	In	Pct	g/cc	um/sec	In/in	Pct	Pct				group	index
354: Manley-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134
	2-3	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---			
	3-5	3-7	0.65-0.90	14.00-42.00	0.20-0.22	0.0-2.9	1.0-4.0	.37	.37			
	5-16	3-7	0.65-0.90	14.00-42.00	0.20-0.22	0.0-2.9	1.0-4.0	.37	.37			
	16-24	3-7	0.65-0.90	14.00-42.00	0.19-0.21	0.0-2.9	1.0-3.0	.28	.37			
	24-37	5-10	1.75-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28			
	37-60	5-10	1.75-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.24			
355: Manley-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134
	2-3	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---			
	3-5	3-7	0.65-0.90	14.00-42.00	0.20-0.22	0.0-2.9	1.0-4.0	.37	.37			
	5-16	3-7	0.65-0.90	14.00-42.00	0.20-0.22	0.0-2.9	1.0-4.0	.37	.37			
	16-24	3-7	0.65-0.90	14.00-42.00	0.19-0.21	0.0-2.9	1.0-3.0	.28	.37			
	24-37	5-10	1.75-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28			
	37-60	5-10	1.75-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.24			
356: Manley, warm-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134
	2-3	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---			
	3-5	3-7	0.65-0.90	14.00-42.00	0.20-0.22	0.0-2.9	1.0-4.0	.37	.37			
	5-16	3-7	0.65-0.90	14.00-42.00	0.20-0.22	0.0-2.9	1.0-4.0	.37	.37			
	16-24	3-7	0.65-0.90	14.00-42.00	0.19-0.21	0.0-2.9	1.0-3.0	.28	.37			
	24-37	5-10	1.75-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28			
	37-60	5-10	1.75-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.24			
Devore, warm-----	0-3	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86
	3-4	3-7	0.65-0.85	14.00-42.00	0.15-0.17	0.0-2.9	1.0-4.0	.32	.37			
	4-7	3-7	0.65-0.85	14.00-42.00	0.12-0.16	0.0-2.9	1.0-3.0	.15	.37			
	7-14	3-7	0.65-0.85	14.00-42.00	0.12-0.16	0.0-2.9	1.0-2.0	.15	.37			
	14-26	5-15	1.30-1.65	14.00-42.00	0.06-0.09	0.0-2.9	0.0-0.5	.05	.24			
	26-35	5-15	1.30-1.65	14.00-42.00	0.06-0.09	0.0-2.9	0.0-0.5	.05	.24			
	35-39	---	---	---	---	---	---	---	---			
357: Manley, warm-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134
	2-3	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---			
	3-5	3-7	0.65-0.90	14.00-42.00	0.20-0.22	0.0-2.9	1.0-4.0	.37	.37			
	5-16	3-7	0.65-0.90	14.00-42.00	0.20-0.22	0.0-2.9	1.0-4.0	.37	.37			
	16-24	3-7	0.65-0.90	14.00-42.00	0.19-0.21	0.0-2.9	1.0-3.0	.28	.37			
	24-37	5-10	1.75-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28			
	37-60	5-10	1.75-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.24			

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
357: Devore, warm-----	0-3	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86
	3-4	3-7	0.65-0.85	14.00-42.00	0.15-0.17	0.0-2.9	1.0-4.0	.32	.37			
	4-7	3-7	0.65-0.85	14.00-42.00	0.12-0.16	0.0-2.9	1.0-3.0	.15	.37			
	7-14	3-7	0.65-0.85	14.00-42.00	0.12-0.16	0.0-2.9	1.0-2.0	.15	.37			
	14-26	5-15	1.30-1.65	14.00-42.00	0.06-0.09	0.0-2.9	0.0-0.5	.05	.24			
	26-35	5-15	1.30-1.65	14.00-42.00	0.06-0.09	0.0-2.9	0.0-0.5	.05	.24			
	35-39	---	---	---	---	---	---	---	---			
358: Mansonia-----	0-4	3-7	1.00-1.35	4.00-14.00	0.14-0.16	0.0-2.9	2.0-6.0	.28	.32	3	3	86
	4-10	3-7	1.00-1.35	4.00-14.00	0.14-0.16	0.0-2.9	1.0-5.0	.28	.32			
	10-20	3-7	1.00-1.35	4.00-14.00	0.12-0.14	0.0-2.9	0.5-1.5	.24	.28			
	20-50	3-7	1.00-1.35	4.00-14.00	0.12-0.14	0.0-2.9	0.2-1.0	.24	.28			
	50-60	---	---	---	---	---	---	---	---			
Swakane-----	0-4	3-7	1.30-1.45	14.00-42.00	0.05-0.09	0.0-2.9	2.0-4.0	.10	.24	1	5	56
	4-11	3-7	1.35-1.45	14.00-42.00	0.04-0.08	0.0-2.9	1.0-3.0	.10	.28			
	11-17	5-15	1.40-1.55	14.00-42.00	0.04-0.08	0.0-2.9	0.0-0.5	.10	.28			
	17-21	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---
359: Merkel-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134
	1-6	3-7	0.85-0.95	14.00-42.00	0.09-0.11	0.0-2.9	1.0-3.0	.24	.24			
	6-12	3-7	0.95-1.10	14.00-42.00	0.08-0.11	0.0-2.9	0.0-1.0	.24	.28			
	12-29	3-7	0.95-1.10	14.00-42.00	0.08-0.11	0.0-2.9	0.0-1.0	.24	.28			
	29-35	5-10	1.60-1.85	0.42-1.40	0.05-0.08	0.0-2.9	0.0-1.0	.15	.28			
	35-60	3-10	1.70-2.00	0.42-1.40	0.05-0.07	0.0-2.9	0.0-0.5	.10	.28			
360: Merkel-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134
	1-6	3-7	0.85-0.95	14.00-42.00	0.09-0.11	0.0-2.9	1.0-3.0	.24	.24			
	6-12	3-7	0.95-1.10	14.00-42.00	0.08-0.11	0.0-2.9	0.0-1.0	.24	.28			
	12-29	3-7	0.95-1.10	14.00-42.00	0.08-0.11	0.0-2.9	0.0-1.0	.24	.28			
	29-35	5-10	1.60-1.85	0.42-1.40	0.05-0.08	0.0-2.9	0.0-1.0	.15	.28			
	35-60	3-10	1.70-2.00	0.42-1.40	0.05-0.07	0.0-2.9	0.0-0.5	.10	.28			
361: Merkel-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	3	86
	1-6	3-7	0.85-0.95	14.00-42.00	0.09-0.11	0.0-2.9	1.0-3.0	.24	.24			
	6-12	3-7	0.95-1.10	14.00-42.00	0.08-0.11	0.0-2.9	0.0-1.0	.24	.28			
	12-29	3-7	0.95-1.10	14.00-42.00	0.08-0.11	0.0-2.9	0.0-1.0	.24	.28			
	29-35	5-10	1.60-1.85	0.42-1.40	0.05-0.08	0.0-2.9	0.0-1.0	.15	.28			
	35-60	3-10	1.70-2.00	0.42-1.40	0.05-0.07	0.0-2.9	0.0-0.5	.10	.28			

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
362:												
Merkel-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	5	56
	2-3	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---			
	3-4	5-10	0.90-1.20	4.00-14.00	0.14-0.17	0.0-2.9	1.0-5.0	.20	.32			
	4-7	3-7	1.00-1.35	14.00-42.00	0.11-0.14	0.0-2.9	1.0-3.0	.15	.28			
	7-14	3-7	1.00-1.35	14.00-42.00	0.09-0.11	0.0-2.9	0.5-1.5	.10	.28			
	14-26	3-10	1.20-1.40	14.00-42.00	0.05-0.07	0.0-2.9	0.0-1.0	.05	.28			
	26-35	3-10	1.20-1.40	14.00-42.00	0.05-0.07	0.0-2.9	0.0-1.0	.05	.28			
	35-39	---	---	---	---	---	---	---	---			
Lithic Haploxerepts, forested-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	1	3	86
	1-4	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37			
	4-13	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37			
	13-19	5-15	1.30-1.50	14.00-42.00	0.04-0.15	0.0-2.9	0.0-1.0	.15	.37			
	19-23	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---
363:												
Merkel-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134
	1-6	3-7	0.85-0.95	14.00-42.00	0.09-0.11	0.0-2.9	1.0-3.0	.24	.24			
	6-12	3-7	0.95-1.10	14.00-42.00	0.08-0.11	0.0-2.9	0.0-1.0	.24	.28			
	12-29	3-7	0.95-1.10	14.00-42.00	0.08-0.11	0.0-2.9	0.0-1.0	.24	.28			
	29-35	5-10	1.60-1.85	0.42-1.40	0.05-0.08	0.0-2.9	0.0-1.0	.15	.28			
	35-60	3-10	1.70-2.00	0.42-1.40	0.05-0.07	0.0-2.9	0.0-0.5	.10	.28			
Wilma-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86
	1-7	3-7	0.70-0.90	14.00-42.00	0.13-0.17	0.0-2.9	1.0-3.0	.24	.37			
	7-13	3-7	0.70-0.90	14.00-42.00	0.13-0.17	0.0-2.9	0.0-0.5	.20	.32			
	13-18	5-15	1.35-1.55	14.00-42.00	0.06-0.10	0.0-2.9	0.0-0.5	.10	.28			
	18-29	5-15	1.40-1.60	14.00-42.00	0.05-0.08	0.0-2.9	0.0-0.5	.10	.28			
	29-33	---	---	---	---	---	---	---	---			
364:												
Midpeak-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86
	1-7	3-7	1.00-1.20	14.00-42.00	0.14-0.16	0.0-2.9	2.0-5.0	.15	.28			
	7-16	3-7	1.00-1.20	14.00-42.00	0.13-0.15	0.0-2.9	2.0-4.0	.10	.28			
	16-24	5-15	1.00-1.20	14.00-42.00	0.07-0.10	0.0-2.9	1.0-3.0	.10	.28			
	24-37	5-15	1.30-1.50	14.00-42.00	0.04-0.08	0.0-2.9	0.5-1.5	.10	.28			
	37-41	---	---	---	---	---	---	---	---			
Johnsom-----	0-3	8-15	1.00-1.30	4.00-14.00	0.14-0.18	0.0-2.9	1.0-3.0	.24	.32	1	6	48
	3-12	10-20	1.10-1.40	4.00-14.00	0.12-0.16	0.0-2.9	0.5-2.0	.10	.32			
	12-16	---	---	---	---	---	---	---	---			

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility group	erodi- bility index	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
364: Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	-	---	---
365: Mineral, dry-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	5	56	
	1-7	3-10	1.00-1.20	14.00-42.00	0.13-0.16	0.0-2.9	2.0-4.0	.17	.28				
	7-13	3-10	1.40-1.60	14.00-42.00	0.13-0.16	0.0-2.9	0.5-1.0	.10	.28				
	13-24	3-10	1.40-1.60	14.00-42.00	0.06-0.11	0.0-2.9	0.0-0.5	.10	.24				
	24-28	---	---	---	---	---	---	---	---				
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---	
366: Mineral, dry-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	5	56	
	1-7	3-10	1.00-1.20	14.00-42.00	0.13-0.16	0.0-2.9	2.0-4.0	.17	.28				
	7-13	3-10	1.40-1.60	14.00-42.00	0.13-0.16	0.0-2.9	0.5-1.0	.10	.28				
	13-24	3-10	1.40-1.60	14.00-42.00	0.06-0.11	0.0-2.9	0.0-0.5	.10	.24				
	24-28	---	---	---	---	---	---	---	---				
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---	
367: Mires-----	0-9	8-15	0.90-1.20	4.00-14.00	0.24-0.30	0.0-2.9	2.0-6.0	.32	.37	3	2	134	
	9-13	8-15	0.90-1.20	4.00-14.00	0.24-0.30	0.0-2.9	1.0-5.0	.32	.37				
	13-21	3-10	0.90-1.20	42.00-141.00	0.12-0.15	0.0-2.9	0.5-1.5	.17	.28				
	21-29	0-10	1.50-1.65	141.00-705.00	0.03-0.05	0.0-2.9	0.2-0.8	.10	.20				
	29-60	0-10	1.50-1.65	141.00-705.00	0.01-0.03	0.0-2.9	0.2-0.8	.05	.20				
368: Mires-----	0-9	8-15	0.90-1.20	4.00-14.00	0.24-0.30	0.0-2.9	2.0-6.0	.32	.37	3	3	86	
	9-13	8-15	0.90-1.20	4.00-14.00	0.24-0.30	0.0-2.9	1.0-5.0	.32	.37				
	13-21	3-10	0.90-1.20	42.00-141.00	0.12-0.15	0.0-2.9	0.5-1.5	.17	.28				
	21-29	0-10	1.50-1.65	141.00-705.00	0.03-0.05	0.0-2.9	0.2-0.8	.10	.20				
	29-60	0-10	1.50-1.65	141.00-705.00	0.01-0.03	0.0-2.9	0.2-0.8	.05	.20				
369: Mires-----	0-9	3-7	0.90-1.20	4.00-14.00	0.24-0.30	0.0-2.9	2.0-6.0	.32	.37	3	3	86	
	9-13	8-15	0.90-1.20	4.00-14.00	0.24-0.30	0.0-2.9	1.0-5.0	.32	.37				
	13-21	3-10	0.90-1.20	42.00-141.00	0.12-0.15	0.0-2.9	0.5-1.5	.17	.28				
	21-29	0-10	1.50-1.65	141.00-705.00	0.03-0.05	0.0-2.9	0.2-0.8	.10	.20				
	29-60	0-10	1.50-1.65	141.00-705.00	0.01-0.03	0.0-2.9	0.2-0.8	.05	.20				

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
370: Mires, stony surface--	0-9	3-7	0.90-1.20	4.00-14.00	0.24-0.30	0.0-2.9	2.0-6.0	.32	.37	3	2	134
	9-13	8-15	0.90-1.20	4.00-14.00	0.24-0.30	0.0-2.9	1.0-5.0	.32	.37			
	13-21	3-10	0.90-1.20	42.00-141.00	0.12-0.15	0.0-2.9	0.5-1.5	.17	.28			
	21-29	0-10	1.50-1.65	141.00-705.00	0.03-0.05	0.0-2.9	0.2-0.8	.10	.20			
	29-60	0-10	1.50-1.65	141.00-705.00	0.01-0.03	0.0-2.9	0.2-0.8	.05	.20			
371: Mires, extremely stony surface-----	0-9	3-7	0.90-1.20	4.00-14.00	0.24-0.30	0.0-2.9	2.0-6.0	.32	.37	3	2	134
	9-13	8-15	0.90-1.20	4.00-14.00	0.24-0.30	0.0-2.9	1.0-5.0	.32	.37			
	13-21	3-10	0.90-1.20	42.00-141.00	0.12-0.15	0.0-2.9	0.5-1.5	.17	.28			
	21-29	0-10	1.50-1.65	141.00-705.00	0.03-0.05	0.0-2.9	0.2-0.8	.10	.20			
	29-60	0-10	1.50-1.65	141.00-705.00	0.01-0.03	0.0-2.9	0.2-0.8	.05	.20			
372: Mires-----	0-9	8-15	0.90-1.20	4.00-14.00	0.23-0.29	0.0-2.9	2.0-6.0	.24	.32	3	2	134
	9-13	8-15	0.90-1.20	4.00-14.00	0.23-0.29	0.0-2.9	1.0-5.0	.24	.32			
	13-21	3-10	0.90-1.20	42.00-141.00	0.14-0.17	0.0-2.9	0.5-1.5	.17	.28			
	21-29	0-10	1.50-1.65	42.00-141.00	0.03-0.06	0.0-2.9	0.2-0.8	.10	.20			
	29-60	0-10	1.50-1.65	141.00-705.00	0.01-0.04	0.0-2.9	0.2-0.8	.05	.20			
Leiko-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134
	1-2	3-7	1.00-1.35	14.00-42.00	0.10-0.13	0.0-2.9	2.0-6.0	.20	.28			
	2-9	3-7	1.00-1.35	14.00-42.00	0.09-0.11	0.0-2.9	1.0-5.0	.17	.28			
	9-30	0-10	1.50-1.60	14.00-42.00	0.04-0.07	0.0-2.9	0.2-0.8	.10	.28			
	30-60	0-5	1.50-1.60	141.00-705.00	0.01-0.03	0.0-2.9	0.2-0.8	.05	.17			
373: Mobu-----	0-2	5-20	1.30-1.40	4.00-14.00	0.19-0.21	0.0-2.9	2.0-6.0	.32	.37	5	5	56
	2-11	5-20	1.30-1.40	4.00-14.00	0.19-0.21	0.0-2.9	1.0-5.0	.32	.37			
	11-15	5-20	1.30-1.40	4.00-14.00	0.19-0.21	0.0-2.9	0.5-1.5	.32	.37			
	15-30	5-20	1.30-1.40	4.00-14.00	0.19-0.21	0.0-2.9	0.2-0.8	.32	.37			
	30-36	10-30	1.40-1.50	1.40-4.20	0.19-0.21	0.0-2.9	0.0-0.5	.37	.43			
	36-60	10-30	1.45-1.55	1.40-4.20	0.19-0.21	0.0-2.9	0.0-0.5	.37	.43			
374: Mobu-----	0-2	5-20	1.30-1.40	4.00-14.00	0.19-0.21	0.0-2.9	2.0-6.0	.32	.37	5	5	56
	2-11	5-20	1.30-1.40	4.00-14.00	0.19-0.21	0.0-2.9	1.0-5.0	.32	.37			
	11-15	5-20	1.30-1.40	4.00-14.00	0.19-0.21	0.0-2.9	0.5-1.5	.32	.37			
	15-30	5-20	1.30-1.40	4.00-14.00	0.19-0.21	0.0-2.9	0.2-0.8	.32	.37			
	30-36	10-30	1.40-1.50	1.40-4.20	0.19-0.21	0.0-2.9	0.0-0.5	.37	.43			
	36-60	10-30	1.45-1.55	1.40-4.20	0.19-0.21	0.0-2.9	0.0-0.5	.37	.43			

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
375: Mobu-----	0-2	5-20	1.30-1.40	4.00-14.00	0.19-0.21	0.0-2.9	2.0-6.0	.32	.37	5	5	56
	2-11	5-20	1.30-1.40	4.00-14.00	0.19-0.21	0.0-2.9	1.0-5.0	.32	.37			
	11-15	5-20	1.30-1.40	4.00-14.00	0.19-0.21	0.0-2.9	0.5-1.5	.32	.37			
	15-30	5-20	1.30-1.40	4.00-14.00	0.19-0.21	0.0-2.9	0.2-0.8	.32	.37			
	30-36	10-30	1.40-1.50	1.40-4.20	0.19-0.21	0.0-2.9	0.0-0.5	.37	.43			
	36-60	10-30	1.45-1.55	1.40-4.20	0.19-0.21	0.0-2.9	0.0-0.5	.37	.43			
376: Mobu, eroded-----	0-1	5-20	1.30-1.40	4.00-14.00	0.19-0.21	0.0-2.9	2.0-6.0	.32	.37	5	5	56
	1-11	5-20	1.30-1.40	4.00-14.00	0.19-0.21	0.0-2.9	1.0-5.0	.32	.37			
	11-15	5-20	1.30-1.40	4.00-14.00	0.19-0.21	0.0-2.9	0.5-1.5	.32	.37			
	15-30	5-20	1.30-1.40	4.00-14.00	0.19-0.21	0.0-2.9	0.2-0.8	.32	.37			
	30-36	10-30	1.40-1.50	1.40-4.20	0.19-0.21	0.0-2.9	0.0-0.5	.37	.43			
	36-60	10-30	1.45-1.55	1.40-4.20	0.19-0.21	0.0-2.9	0.0-0.5	.37	.43			
377: Molson-----	0-8	5-10	0.65-0.85	4.00-14.00	0.21-0.23	0.0-2.9	2.0-6.0	.32	.37	4	2	134
	8-18	5-10	0.65-0.85	4.00-14.00	0.20-0.22	0.0-2.9	2.0-6.0	.32	.37			
	18-42	5-20	1.50-1.70	4.00-14.00	0.14-0.18	0.0-2.9	1.0-2.0	.32	.43			
	42-50	5-20	1.60-1.80	4.00-14.00	0.13-0.16	0.0-2.9	0.0-0.5	.24	.37			
	50-60	5-20	1.60-1.80	4.00-14.00	0.13-0.16	0.0-2.9	0.0-0.5	.24	.37			
378: Molson-----	0-8	5-10	0.65-0.85	4.00-14.00	0.21-0.23	0.0-2.9	2.0-6.0	.32	.37	4	2	134
	8-18	5-10	0.65-0.85	4.00-14.00	0.20-0.22	0.0-2.9	2.0-6.0	.32	.37			
	18-42	5-20	1.50-1.70	4.00-14.00	0.14-0.18	0.0-2.9	1.0-2.0	.32	.43			
	42-50	5-20	1.60-1.80	4.00-14.00	0.13-0.16	0.0-2.9	0.0-0.5	.24	.37			
	50-60	5-20	1.60-1.80	4.00-14.00	0.13-0.16	0.0-2.9	0.0-0.5	.24	.37			
379: Molson-----	0-8	5-10	0.65-0.85	4.00-14.00	0.21-0.23	0.0-2.9	2.0-6.0	.32	.37	4	2	134
	8-18	5-10	0.65-0.85	4.00-14.00	0.20-0.22	0.0-2.9	2.0-6.0	.32	.37			
	18-42	5-20	1.50-1.70	4.00-14.00	0.14-0.18	0.0-2.9	1.0-2.0	.32	.43			
	42-50	5-20	1.60-1.80	4.00-14.00	0.13-0.16	0.0-2.9	0.0-0.5	.24	.37			
	50-60	5-20	1.60-1.80	4.00-14.00	0.13-0.16	0.0-2.9	0.0-0.5	.24	.37			
380: Molson-----	0-8	5-10	0.65-0.85	4.00-14.00	0.21-0.23	0.0-2.9	2.0-6.0	.32	.37	4	2	134
	8-18	5-10	0.65-0.85	4.00-14.00	0.20-0.22	0.0-2.9	2.0-6.0	.32	.37			
	18-42	5-20	1.50-1.70	4.00-14.00	0.14-0.18	0.0-2.9	1.0-2.0	.32	.43			
	42-50	5-20	1.60-1.80	4.00-14.00	0.13-0.16	0.0-2.9	0.0-0.5	.24	.37			
	50-60	5-20	1.60-1.80	4.00-14.00	0.13-0.16	0.0-2.9	0.0-0.5	.24	.37			

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility group	erodi- bility index	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
381: Molson, extremely stony surface-----	0-8	5-10	0.65-0.85	4.00-14.00	0.21-0.23	0.0-2.9	2.0-6.0	.32	.37	4	2	134	
	8-18	5-10	0.65-0.85	4.00-14.00	0.20-0.22	0.0-2.9	2.0-6.0	.32	.37				
	18-42	5-20	1.50-1.70	4.00-14.00	0.14-0.18	0.0-2.9	1.0-2.0	.32	.43				
	42-50	5-20	1.60-1.80	4.00-14.00	0.13-0.16	0.0-2.9	0.0-0.5	.24	.37				
	50-60	5-20	1.60-1.80	4.00-14.00	0.13-0.16	0.0-2.9	0.0-0.5	.24	.37				
382: Molson, extremely stony surface-----	0-8	5-10	0.65-0.85	4.00-14.00	0.21-0.23	0.0-2.9	2.0-6.0	.32	.37	4	2	134	
	8-18	5-10	0.65-0.85	4.00-14.00	0.20-0.22	0.0-2.9	2.0-6.0	.32	.37				
	18-42	5-20	1.50-1.70	4.00-14.00	0.14-0.18	0.0-2.9	1.0-2.0	.32	.43				
	42-50	5-20	1.60-1.80	4.00-14.00	0.13-0.16	0.0-2.9	0.0-0.5	.24	.37				
	50-60	5-20	1.60-1.80	4.00-14.00	0.13-0.16	0.0-2.9	0.0-0.5	.24	.37				
383: Molson-----	0-8	5-10	0.65-0.85	4.00-14.00	0.21-0.23	0.0-2.9	2.0-6.0	.32	.37	4	3	86	
	8-18	5-10	0.65-0.85	4.00-14.00	0.20-0.22	0.0-2.9	2.0-6.0	.32	.37				
	18-42	5-20	1.50-1.70	4.00-14.00	0.14-0.18	0.0-2.9	1.0-2.0	.32	.43				
	42-50	5-20	1.60-1.80	4.00-14.00	0.13-0.16	0.0-2.9	0.0-0.5	.24	.37				
	50-60	5-20	1.60-1.80	4.00-14.00	0.13-0.16	0.0-2.9	0.0-0.5	.24	.37				
384: Muckamuck-----	0-7	20-25	1.15-1.35	4.00-14.00	0.17-0.20	3.0-5.9	1.0-3.0	.43	.43	5	6	48	
	7-18	23-27	1.30-1.45	4.00-14.00	0.17-0.20	3.0-5.9	1.0-2.0	.37	.37				
	18-28	27-32	1.20-1.35	1.40-4.00	0.17-0.20	3.0-5.9	1.0-2.0	.32	.32				
	28-60	20-27	1.30-1.45	4.00-14.00	0.14-0.17	3.0-5.9	0.0-2.0	.20	.37				
385: Myerscreek, cool-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134	
	1-2	5-10	0.75-0.90	14.00-42.00	0.16-0.20	0.0-2.9	1.0-4.0	.37	.37				
	2-5	3-7	0.75-0.90	14.00-42.00	0.16-0.20	0.0-2.9	1.0-4.0	.37	.37				
	5-13	3-7	0.75-0.90	14.00-42.00	0.15-0.19	0.0-2.9	1.0-2.0	.28	.37				
	13-32	5-15	1.60-1.80	14.00-42.00	0.04-0.09	0.0-2.9	0.0-0.5	.10	.28				
	32-47	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
	47-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
386: Myerscreek, moist-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134	
	1-2	5-10	0.75-0.90	14.00-42.00	0.16-0.20	0.0-2.9	1.0-4.0	.37	.37				
	2-5	3-7	0.75-0.90	14.00-42.00	0.16-0.20	0.0-2.9	1.0-4.0	.37	.37				
	5-13	3-7	0.75-0.90	14.00-42.00	0.15-0.19	0.0-2.9	1.0-2.0	.28	.37				
	13-32	5-15	1.60-1.80	14.00-42.00	0.04-0.09	0.0-2.9	0.0-0.5	.10	.28				
	32-47	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
	47-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility group	erodi- bility index	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
387: Myerscreek, warm-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134	
	1-2	5-10	0.75-0.90	14.00-42.00	0.16-0.20	0.0-2.9	1.0-4.0	.37	.37				
	2-5	3-7	0.75-0.90	14.00-42.00	0.16-0.20	0.0-2.9	1.0-4.0	.37	.37				
	5-13	3-7	0.75-0.90	14.00-42.00	0.15-0.19	0.0-2.9	1.0-2.0	.28	.37				
	13-32	5-15	1.60-1.80	14.00-42.00	0.04-0.09	0.0-2.9	0.0-0.5	.10	.28				
	32-47	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
	47-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
388: Myerscreek, warm-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134	
	1-2	5-10	0.75-0.90	14.00-42.00	0.16-0.20	0.0-2.9	1.0-4.0	.37	.37				
	2-5	3-7	0.75-0.90	14.00-42.00	0.16-0.20	0.0-2.9	1.0-4.0	.37	.37				
	5-13	3-7	0.75-0.90	14.00-42.00	0.15-0.19	0.0-2.9	1.0-2.0	.28	.37				
	13-32	5-15	1.60-1.80	14.00-42.00	0.04-0.09	0.0-2.9	0.0-0.5	.10	.28				
	32-47	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
	47-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
389: Myerscreek, cool-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134	
	1-2	5-10	0.75-0.90	14.00-42.00	0.16-0.20	0.0-2.9	1.0-4.0	.37	.37				
	2-5	3-7	0.75-0.90	14.00-42.00	0.16-0.20	0.0-2.9	1.0-4.0	.37	.37				
	5-13	3-7	0.75-0.90	14.00-42.00	0.15-0.19	0.0-2.9	1.0-2.0	.28	.37				
	13-32	5-15	1.60-1.80	14.00-42.00	0.04-0.09	0.0-2.9	0.0-0.5	.10	.28				
	32-47	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
	47-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
Aquandic Dystrocryepts, udic, forested-----	0-3	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	2	134	
	3-9	3-7	1.20-1.30	4.00-14.00	0.24-0.28	0.0-2.9	1.0-3.0	.37	.37				
	9-14	3-7	1.20-1.30	14.00-42.00	0.10-0.15	0.0-2.9	1.0-2.0	.20	.32				
	14-31	5-15	1.40-1.50	14.00-42.00	0.06-0.11	0.0-2.9	0.0-0.5	.10	.28				
	31-37	5-15	1.40-1.50	14.00-42.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
	37-60	5-15	1.70-2.00	14.00-42.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
390: Myerscreek, cool-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134	
	1-2	5-10	0.75-0.90	14.00-42.00	0.16-0.20	0.0-2.9	1.0-4.0	.37	.37				
	2-5	3-7	0.75-0.90	14.00-42.00	0.16-0.20	0.0-2.9	1.0-4.0	.37	.37				
	5-13	3-7	0.75-0.90	14.00-42.00	0.15-0.19	0.0-2.9	1.0-2.0	.28	.37				
	13-32	5-15	1.60-1.80	14.00-42.00	0.04-0.09	0.0-2.9	0.0-0.5	.10	.28				
	32-47	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
	47-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
390: Devore-----	0-3	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86
	3-4	3-7	0.65-0.85	14.00-42.00	0.15-0.17	0.0-2.9	1.0-4.0	.32	.37			
	4-7	3-7	0.65-0.85	14.00-42.00	0.12-0.16	0.0-2.9	1.0-3.0	.15	.37			
	7-14	3-7	0.65-0.85	14.00-42.00	0.12-0.16	0.0-2.9	1.0-2.0	.15	.37			
	14-26	5-15	1.30-1.65	14.00-42.00	0.06-0.09	0.0-2.9	0.0-0.5	.05	.24			
	26-35	5-15	1.30-1.65	14.00-42.00	0.06-0.09	0.0-2.9	0.0-0.5	.05	.24			
	35-39	---	---	---	---	---	---	---	---			
391: Myerscreek, cool-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134
	1-2	5-10	0.75-0.90	14.00-42.00	0.16-0.20	0.0-2.9	1.0-4.0	.37	.37			
	2-5	3-7	0.75-0.90	14.00-42.00	0.16-0.20	0.0-2.9	1.0-4.0	.37	.37			
	5-13	3-7	0.75-0.90	14.00-42.00	0.15-0.19	0.0-2.9	1.0-2.0	.28	.37			
	13-32	5-15	1.60-1.80	14.00-42.00	0.04-0.09	0.0-2.9	0.0-0.5	.10	.28			
	32-47	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28			
	47-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28			
Devore-----	0-3	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86
	3-4	3-7	0.65-0.85	14.00-42.00	0.15-0.17	0.0-2.9	1.0-4.0	.32	.37			
	4-7	3-7	0.65-0.85	14.00-42.00	0.12-0.16	0.0-2.9	1.0-3.0	.15	.37			
	7-14	3-7	0.65-0.85	14.00-42.00	0.12-0.16	0.0-2.9	1.0-2.0	.15	.37			
	14-26	5-15	1.30-1.65	14.00-42.00	0.06-0.09	0.0-2.9	0.0-0.5	.05	.24			
	26-35	5-15	1.30-1.65	14.00-42.00	0.06-0.09	0.0-2.9	0.0-0.5	.05	.24			
	35-39	---	---	---	---	---	---	---	---			
392: Myerscreek, moist-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134
	1-2	5-10	0.75-0.90	14.00-42.00	0.16-0.20	0.0-2.9	1.0-4.0	.37	.37			
	2-5	3-7	0.75-0.90	14.00-42.00	0.16-0.20	0.0-2.9	1.0-4.0	.37	.37			
	5-13	3-7	0.75-0.90	14.00-42.00	0.15-0.19	0.0-2.9	1.0-2.0	.28	.37			
	13-32	5-15	1.60-1.80	14.00-42.00	0.04-0.09	0.0-2.9	0.0-0.5	.10	.28			
	32-47	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28			
	47-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28			
Finney-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	3	86
	1-3	3-7	0.75-0.95	14.00-42.00	0.13-0.16	0.0-2.9	1.0-3.0	.20	.28			
	3-11	3-7	0.80-0.95	14.00-42.00	0.13-0.16	0.0-2.9	1.0-3.0	.15	.28			
	11-21	5-15	1.30-1.50	14.00-42.00	0.04-0.08	0.0-2.9	0.0-0.5	.10	.28			
	21-33	5-15	1.30-1.50	14.00-42.00	0.04-0.08	0.0-2.9	0.0-0.5	.10	.28			
	33-44	5-15	1.30-1.50	14.00-42.00	0.04-0.08	0.0-2.9	0.0-0.5	.10	.28			
	44-48	---	---	---	---	---	---	---	---			

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility	erodi- bility	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
393: Myerscreek, cool-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134	
	1-2	5-10	0.75-0.90	14.00-42.00	0.16-0.20	0.0-2.9	1.0-4.0	.37	.37				
	2-5	3-7	0.75-0.90	14.00-42.00	0.16-0.20	0.0-2.9	1.0-4.0	.37	.37				
	5-13	3-7	0.75-0.90	14.00-42.00	0.15-0.19	0.0-2.9	1.0-2.0	.28	.37				
	13-32	5-15	1.60-1.80	14.00-42.00	0.04-0.09	0.0-2.9	0.0-0.5	.10	.28				
	32-47	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
	47-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
Histic Cryaquepts-----	0-8	0-25	0.10-0.30	42.00-705.00	0.30-0.60	0.0-0.0	60-95	.20	.20	1	8	0	
	8-10	5-10	0.75-0.90	4.00-14.00	0.17-0.20	0.0-2.9	2.0-4.0	.37	.37				
	10-15	3-7	0.75-0.95	14.00-42.00	0.14-0.19	0.0-2.9	1.0-3.0	.32	.32				
	15-21	5-15	1.30-1.65	14.00-42.00	0.07-0.11	0.0-2.9	0.0-0.5	.15	.28				
	21-34	5-15	1.30-1.65	14.00-42.00	0.07-0.11	0.0-2.9	0.0-0.5	.15	.28				
	34-60	0-7	1.40-1.65	42.00-141.00	0.03-0.06	0.0-2.9	0.0-0.5	.05	.17				
Cryohemists-----	0-14	10-35	0.10-0.30	4.00-14.00	0.30-0.60	---	70-100	.20	.20	1	8	0	
	14-19	10-35	0.10-0.30	4.00-14.00	0.30-0.60	---	70-100	.20	.20				
	19-26	5-10	0.90-1.60	14.00-42.00	0.08-0.13	0.0-2.9	1.0-4.0	.17	.28				
	26-33	5-10	0.90-1.60	14.00-42.00	0.08-0.13	0.0-2.9	1.0-4.0	.17	.28				
	33-60	2-8	1.40-1.65	42.00-141.00	0.04-0.08	0.0-2.9	0.0-0.5	.05	.17				
394: Myerscreek, moist-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134	
	1-2	5-10	0.75-0.90	14.00-42.00	0.16-0.20	0.0-2.9	1.0-4.0	.37	.37				
	2-5	3-7	0.75-0.90	14.00-42.00	0.16-0.20	0.0-2.9	1.0-4.0	.37	.37				
	5-13	3-7	0.75-0.90	14.00-42.00	0.15-0.19	0.0-2.9	1.0-2.0	.28	.37				
	13-32	5-15	1.60-1.80	14.00-42.00	0.04-0.09	0.0-2.9	0.0-0.5	.10	.28				
	32-47	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
	47-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
Manley-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134	
	2-3	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---				
	3-5	3-7	0.65-0.90	14.00-42.00	0.20-0.22	0.0-2.9	1.0-4.0	.37	.37				
	5-16	3-7	0.65-0.90	14.00-42.00	0.20-0.22	0.0-2.9	1.0-4.0	.37	.37				
	16-24	3-7	0.65-0.90	14.00-42.00	0.19-0.21	0.0-2.9	1.0-3.0	.28	.37				
	24-37	5-10	1.75-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
	37-60	5-10	1.75-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.24				

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility	erodi- bility	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
395: Myerscreek-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134	
	1-2	5-10	0.75-0.90	14.00-42.00	0.16-0.20	0.0-2.9	1.0-4.0	.37	.37				
	2-5	3-7	0.75-0.90	14.00-42.00	0.16-0.20	0.0-2.9	1.0-4.0	.37	.37				
	5-13	3-7	0.75-0.90	14.00-42.00	0.15-0.19	0.0-2.9	1.0-2.0	.28	.37				
	13-32	5-15	1.60-1.80	14.00-42.00	0.04-0.09	0.0-2.9	0.0-0.5	.10	.28				
	32-47	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
	47-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
Twentymile-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134	
	1-2	5-10	0.75-0.90	14.00-42.00	0.16-0.20	0.0-2.9	1.0-3.0	.37	.37				
	2-5	3-7	0.75-0.90	14.00-42.00	0.16-0.20	0.0-2.9	1.0-3.0	.37	.37				
	5-14	3-7	0.75-0.90	14.00-42.00	0.15-0.20	0.0-2.9	1.0-2.0	.28	.37				
	14-32	5-15	1.60-1.80	14.00-42.00	0.04-0.09	0.0-2.9	0.0-0.5	.10	.28				
	32-45	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
	45-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
396: Nahahum, moist-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	4	86	
	2-5	8-15	1.10-1.30	4.00-14.00	0.21-0.23	0.0-2.9	1.0-3.0	.32	.32				
	5-14	8-15	1.10-1.40	4.00-14.00	0.20-0.22	0.0-2.9	1.0-2.0	.24	.32				
	14-22	25-35	1.50-1.70	1.40-4.00	0.15-0.17	3.0-5.9	0.0-0.5	.24	.37				
	22-36	25-35	1.50-1.70	1.40-4.00	0.14-0.17	3.0-5.9	0.0-0.5	.24	.37				
	36-46	25-35	1.50-1.70	1.40-4.00	0.14-0.17	3.0-5.9	0.0-0.5	.24	.37				
	46-60	10-30	1.50-1.70	1.40-4.00	0.14-0.17	0.0-2.9	0.0-0.5	.20	.32				
397: Nahahum, cool-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	4	86	
	2-5	8-15	1.10-1.30	4.00-14.00	0.21-0.23	0.0-2.9	1.0-3.0	.32	.32				
	5-14	8-15	1.10-1.40	4.00-14.00	0.20-0.22	0.0-2.9	1.0-2.0	.24	.32				
	14-22	25-35	1.50-1.70	1.40-4.00	0.15-0.17	3.0-5.9	0.0-0.5	.24	.37				
	22-36	25-35	1.50-1.70	1.40-4.00	0.14-0.17	3.0-5.9	0.0-0.5	.24	.37				
	36-46	25-35	1.50-1.70	1.40-4.00	0.14-0.17	3.0-5.9	0.0-0.5	.24	.37				
	46-60	10-30	1.50-1.70	1.40-4.00	0.14-0.17	0.0-2.9	0.0-0.5	.20	.32				
398: Nahahum-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	4	86	
	2-5	8-15	1.10-1.30	4.00-14.00	0.21-0.23	0.0-2.9	1.0-3.0	.32	.32				
	5-14	8-15	1.10-1.40	4.00-14.00	0.20-0.22	0.0-2.9	1.0-2.0	.24	.32				
	14-22	25-35	1.50-1.70	1.40-4.00	0.15-0.17	3.0-5.9	0.0-0.5	.24	.37				
	22-36	25-35	1.50-1.70	1.40-4.00	0.14-0.17	3.0-5.9	0.0-0.5	.24	.37				
	36-46	25-35	1.50-1.70	1.40-4.00	0.14-0.17	3.0-5.9	0.0-0.5	.24	.37				
	46-60	10-30	1.50-1.70	1.40-4.00	0.14-0.17	0.0-2.9	0.0-0.5	.20	.32				

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
398:												
Coxit-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	3	86
	1-2	3-7	1.10-1.35	14.00-42.00	0.12-0.15	0.0-2.9	1.0-4.0	.15	.28			
	2-8	3-7	1.10-1.35	14.00-42.00	0.12-0.15	0.0-2.9	1.0-3.0	.15	.28			
	8-24	3-7	1.20-1.40	14.00-42.00	0.11-0.13	0.0-2.9	0.5-2.0	.10	.28			
	24-35	3-7	1.20-1.40	14.00-42.00	0.11-0.13	0.0-2.9	0.0-0.5	.10	.28			
	35-49	8-15	1.30-1.50	14.00-42.00	0.04-0.08	0.0-2.9	0.0-0.5	.10	.28			
	49-60	8-15	1.30-1.50	14.00-42.00	0.04-0.08	0.0-2.9	0.0-0.5	.10	.28			
399:												
Nahahum-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	4	86
	2-5	8-15	1.10-1.30	4.00-14.00	0.21-0.23	0.0-2.9	1.0-3.0	.32	.32			
	5-14	8-15	1.10-1.40	4.00-14.00	0.20-0.22	0.0-2.9	1.0-2.0	.24	.32			
	14-22	25-35	1.50-1.70	1.40-4.00	0.15-0.17	3.0-5.9	0.0-0.5	.24	.37			
	22-36	25-35	1.50-1.70	1.40-4.00	0.14-0.17	3.0-5.9	0.0-0.5	.24	.37			
	36-46	25-35	1.50-1.70	1.40-4.00	0.14-0.17	3.0-5.9	0.0-0.5	.24	.37			
	46-60	10-30	1.50-1.70	1.40-4.00	0.14-0.17	0.0-2.9	0.0-0.5	.20	.32			
Coxit-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	3	86
	1-2	3-7	1.10-1.35	14.00-42.00	0.12-0.15	0.0-2.9	1.0-4.0	.15	.28			
	2-8	3-7	1.10-1.35	14.00-42.00	0.12-0.15	0.0-2.9	1.0-3.0	.15	.28			
	8-24	3-7	1.20-1.40	14.00-42.00	0.11-0.13	0.0-2.9	0.5-2.0	.10	.28			
	24-35	3-7	1.20-1.40	14.00-42.00	0.11-0.13	0.0-2.9	0.0-0.5	.10	.28			
	35-49	8-15	1.30-1.50	14.00-42.00	0.04-0.08	0.0-2.9	0.0-0.5	.10	.28			
	49-60	8-15	1.30-1.50	14.00-42.00	0.04-0.08	0.0-2.9	0.0-0.5	.10	.28			
400:												
Nevine-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134
	1-4	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-4.0	.37	.37			
	4-9	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-3.0	.24	.37			
	9-21	3-7	0.75-0.90	14.00-42.00	0.20-0.22	0.0-2.9	1.0-2.0	.24	.37			
	21-38	5-15	1.60-1.80	14.00-42.00	0.06-0.10	0.0-2.9	0.0-0.5	.10	.28			
	38-51	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28			
	51-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28			
Nevine, warm-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134
	1-4	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-4.0	.37	.37			
	4-9	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-3.0	.24	.37			
	9-21	3-7	0.75-0.90	14.00-42.00	0.20-0.22	0.0-2.9	1.0-2.0	.24	.37			
	21-38	5-15	1.60-1.80	14.00-42.00	0.06-0.10	0.0-2.9	0.0-0.5	.10	.28			
	38-51	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28			
	51-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28			

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility	erodi- bility	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
401: Nevine-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134	
	1-4	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-4.0	.37	.37				
	4-9	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-3.0	.24	.37				
	9-21	3-7	0.75-0.90	14.00-42.00	0.20-0.22	0.0-2.9	1.0-2.0	.24	.37				
	21-38	5-15	1.60-1.80	14.00-42.00	0.06-0.10	0.0-2.9	0.0-0.5	.10	.28				
	38-51	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
	51-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
Nevine, warm-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134	
	1-4	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-4.0	.37	.37				
	4-9	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-3.0	.24	.37				
	9-21	3-7	0.75-0.90	14.00-42.00	0.20-0.22	0.0-2.9	1.0-2.0	.24	.37				
	21-38	5-15	1.60-1.80	14.00-42.00	0.06-0.10	0.0-2.9	0.0-0.5	.10	.28				
	38-51	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
	51-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
402: Nevine, cool-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134	
	1-4	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-4.0	.37	.37				
	4-9	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-3.0	.24	.37				
	9-21	3-7	0.75-0.90	14.00-42.00	0.20-0.22	0.0-2.9	1.0-2.0	.24	.37				
	21-38	5-15	1.60-1.80	14.00-42.00	0.06-0.10	0.0-2.9	0.0-0.5	.10	.28				
	38-51	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
	51-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
Louploup-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	2	134	
	2-8	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	2.0-4.0	.37	.37				
	8-23	3-7	0.75-0.90	14.00-42.00	0.20-0.22	0.0-2.9	1.0-4.0	.32	.37				
	23-43	5-15	1.60-1.80	1.40-4.00	0.08-0.12	0.0-2.9	0.0-0.5	.20	.28				
	43-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.15	.24				
403: Nevine-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134	
	1-4	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-4.0	.37	.37				
	4-9	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-3.0	.24	.37				
	9-21	3-7	0.75-0.90	14.00-42.00	0.20-0.22	0.0-2.9	1.0-2.0	.24	.37				
	21-38	5-15	1.60-1.80	14.00-42.00	0.06-0.10	0.0-2.9	0.0-0.5	.10	.28				
	38-51	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
	51-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
Louploup, dry-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	2	134	
	2-8	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	2.0-4.0	.37	.37				
	8-23	3-7	0.75-0.90	14.00-42.00	0.20-0.22	0.0-2.9	1.0-4.0	.32	.37				
	23-43	5-15	1.60-1.80	1.40-4.00	0.08-0.12	0.0-2.9	0.0-0.5	.20	.28				
	43-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.15	.24				

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility	erodi- bility	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
404: Nevine, moist-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134	
	1-4	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-4.0	.37	.37				
	4-9	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-3.0	.24	.37				
	9-21	3-7	0.75-0.90	14.00-42.00	0.20-0.22	0.0-2.9	1.0-2.0	.24	.37				
	21-38	5-15	1.60-1.80	14.00-42.00	0.06-0.10	0.0-2.9	0.0-0.5	.10	.28				
	38-51	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
	51-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
Louploup, moist-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	2	134	
	2-8	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	2.0-4.0	.37	.37				
	8-23	3-7	0.75-0.90	14.00-42.00	0.20-0.22	0.0-2.9	1.0-4.0	.32	.37				
	23-43	5-15	1.60-1.80	1.40-4.00	0.08-0.12	0.0-2.9	0.0-0.5	.20	.28				
	43-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.15	.24				
405: Nevine-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134	
	1-4	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-4.0	.37	.37				
	4-9	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-3.0	.24	.37				
	9-21	3-7	0.75-0.90	14.00-42.00	0.20-0.22	0.0-2.9	1.0-2.0	.24	.37				
	21-38	5-15	1.60-1.80	14.00-42.00	0.06-0.10	0.0-2.9	0.0-0.5	.10	.28				
	38-51	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
	51-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
Merkel-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134	
	1-6	3-7	0.85-0.95	14.00-42.00	0.09-0.11	0.0-2.9	1.0-3.0	.24	.24				
	6-12	3-7	0.95-1.10	14.00-42.00	0.08-0.11	0.0-2.9	0.0-1.0	.24	.28				
	12-29	3-7	0.95-1.10	14.00-42.00	0.08-0.11	0.0-2.9	0.0-1.0	.24	.28				
	29-35	5-10	1.60-1.85	0.42-1.40	0.05-0.08	0.0-2.9	0.0-1.0	.15	.28				
	35-60	3-10	1.70-2.00	0.42-1.40	0.05-0.07	0.0-2.9	0.0-0.5	.10	.28				
406: Nevine-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134	
	1-4	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-4.0	.37	.37				
	4-9	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-3.0	.24	.37				
	9-21	3-7	0.75-0.90	14.00-42.00	0.20-0.22	0.0-2.9	1.0-2.0	.24	.37				
	21-38	5-15	1.60-1.80	14.00-42.00	0.06-0.10	0.0-2.9	0.0-0.5	.10	.28				
	38-51	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
	51-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
Merkel-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134	
	1-6	3-7	0.85-0.95	14.00-42.00	0.09-0.11	0.0-2.9	1.0-3.0	.24	.24				
	6-12	3-7	0.95-1.10	14.00-42.00	0.08-0.11	0.0-2.9	0.0-1.0	.24	.28				
	12-29	3-7	0.95-1.10	14.00-42.00	0.08-0.11	0.0-2.9	0.0-1.0	.24	.28				
	29-35	5-10	1.60-1.85	0.42-1.40	0.05-0.08	0.0-2.9	0.0-1.0	.15	.28				
	35-60	3-10	1.70-2.00	0.42-1.40	0.05-0.07	0.0-2.9	0.0-0.5	.10	.28				

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility	erodi- bility	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
407: Nevine-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134	
	1-4	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-4.0	.37	.37				
	4-9	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-3.0	.24	.37				
	9-21	3-7	0.75-0.90	14.00-42.00	0.20-0.22	0.0-2.9	1.0-2.0	.24	.37				
	21-38	5-15	1.60-1.80	14.00-42.00	0.06-0.10	0.0-2.9	0.0-0.5	.10	.28				
	38-51	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
	51-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
Oxerine-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86	
	1-5	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-4.0	.37	.37				
	5-11	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-4.0	.37	.37				
	11-20	5-15	1.35-1.50	14.00-42.00	0.06-0.10	0.0-2.9	0.0-0.5	.10	.28				
	20-32	5-15	1.40-1.60	14.00-42.00	0.03-0.08	0.0-2.9	0.0-0.5	.10	.28				
	32-36	---	---	---	---	---	---	---	---				
408: Nevine-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134	
	1-4	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-4.0	.37	.37				
	4-9	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-3.0	.24	.37				
	9-21	3-7	0.75-0.90	14.00-42.00	0.20-0.22	0.0-2.9	1.0-2.0	.24	.37				
	21-38	5-15	1.60-1.80	14.00-42.00	0.06-0.10	0.0-2.9	0.0-0.5	.10	.28				
	38-51	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
	51-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
Nevine, warm-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134	
	1-4	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-4.0	.37	.37				
	4-9	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-3.0	.24	.37				
	9-21	3-7	0.75-0.90	14.00-42.00	0.20-0.22	0.0-2.9	1.0-2.0	.24	.37				
	21-38	5-15	1.60-1.80	14.00-42.00	0.06-0.10	0.0-2.9	0.0-0.5	.10	.28				
	38-51	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
	51-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---	
409: Nevine-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134	
	1-4	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-4.0	.37	.37				
	4-9	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-3.0	.24	.37				
	9-21	3-7	0.75-0.90	14.00-42.00	0.20-0.22	0.0-2.9	1.0-2.0	.24	.37				
	21-38	5-15	1.60-1.80	14.00-42.00	0.06-0.10	0.0-2.9	0.0-0.5	.10	.28				
	38-51	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
	51-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
409: Nevine, warm-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134
	1-4	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-4.0	.37	.37			
	4-9	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-3.0	.24	.37			
	9-21	3-7	0.75-0.90	14.00-42.00	0.20-0.22	0.0-2.9	1.0-2.0	.24	.37			
	21-38	5-15	1.60-1.80	14.00-42.00	0.06-0.10	0.0-2.9	0.0-0.5	.10	.28			
	38-51	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28			
	51-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---
410: Nevine-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134
	1-4	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-4.0	.37	.37			
	4-9	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-3.0	.24	.37			
	9-21	3-7	0.75-0.90	14.00-42.00	0.20-0.22	0.0-2.9	1.0-2.0	.24	.37			
	21-38	5-15	1.60-1.80	14.00-42.00	0.06-0.10	0.0-2.9	0.0-0.5	.10	.28			
	38-51	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28			
	51-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28			
Wilma-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86
	1-7	3-7	0.70-0.90	14.00-42.00	0.13-0.17	0.0-2.9	1.0-3.0	.24	.37			
	7-13	3-7	0.70-0.90	14.00-42.00	0.13-0.17	0.0-2.9	0.0-0.5	.20	.32			
	13-18	5-15	1.35-1.55	14.00-42.00	0.06-0.10	0.0-2.9	0.0-0.5	.10	.28			
	18-29	5-15	1.40-1.60	14.00-42.00	0.05-0.08	0.0-2.9	0.0-0.5	.10	.28			
	29-33	---	---	---	---	---	---	---	---			
411: Nevine-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134
	1-4	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-4.0	.37	.37			
	4-9	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-3.0	.24	.37			
	9-21	3-7	0.75-0.90	14.00-42.00	0.20-0.22	0.0-2.9	1.0-2.0	.24	.37			
	21-38	5-15	1.60-1.80	14.00-42.00	0.06-0.10	0.0-2.9	0.0-0.5	.10	.28			
	38-51	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28			
	51-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28			
Wilma, dry-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86
	1-7	3-7	0.70-0.90	14.00-42.00	0.13-0.17	0.0-2.9	1.0-3.0	.24	.37			
	7-13	3-7	0.70-0.90	14.00-42.00	0.13-0.17	0.0-2.9	0.0-0.5	.20	.32			
	13-18	5-15	1.35-1.55	14.00-42.00	0.06-0.10	0.0-2.9	0.0-0.5	.10	.28			
	18-29	5-15	1.40-1.60	14.00-42.00	0.05-0.08	0.0-2.9	0.0-0.5	.10	.28			
	29-33	---	---	---	---	---	---	---	---			

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility	erodi- bility	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
412: Nevine-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134	
	1-4	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-4.0	.37	.37				
	4-9	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-3.0	.24	.37				
	9-21	3-7	0.75-0.90	14.00-42.00	0.20-0.22	0.0-2.9	1.0-2.0	.24	.37				
	21-38	5-15	1.60-1.80	14.00-42.00	0.06-0.10	0.0-2.9	0.0-0.5	.10	.28				
	38-51	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
	51-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
Wilma-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86	
	1-7	3-7	0.70-0.90	14.00-42.00	0.13-0.17	0.0-2.9	1.0-3.0	.24	.37				
	7-13	3-7	0.70-0.90	14.00-42.00	0.13-0.17	0.0-2.9	0.0-0.5	.20	.32				
	13-18	5-15	1.35-1.55	14.00-42.00	0.06-0.10	0.0-2.9	0.0-0.5	.10	.28				
	18-29	5-15	1.40-1.60	14.00-42.00	0.05-0.08	0.0-2.9	0.0-0.5	.10	.28				
	29-33	---	---	---	---	---	---	---	---				
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---	
413: Newbon-----	0-2	10-20	1.35-1.45	4.00-14.00	0.14-0.16	0.0-2.9	2.0-6.0	.20	.32	5	5	56	
	2-13	10-20	1.35-1.45	4.00-14.00	0.14-0.16	0.0-2.9	1.0-5.0	.20	.32				
	13-25	10-20	1.35-1.45	4.00-14.00	0.11-0.13	0.0-2.9	0.5-1.5	.15	.32				
	25-60	10-20	1.35-1.45	4.00-14.00	0.10-0.12	0.0-2.9	0.2-0.8	.10	.32				
414: Newbon-----	0-2	10-20	1.35-1.45	4.00-14.00	0.13-0.15	0.0-2.9	2.0-6.0	.20	.32	5	6	48	
	2-13	10-20	1.35-1.45	4.00-14.00	0.13-0.15	0.0-2.9	1.0-5.0	.20	.32				
	13-25	10-20	1.35-1.45	4.00-14.00	0.11-0.13	0.0-2.9	0.5-1.5	.15	.32				
	25-60	10-20	1.35-1.45	4.00-14.00	0.10-0.12	0.0-2.9	0.2-0.8	.10	.32				
415: Newbon-----	0-2	10-20	1.35-1.45	4.00-14.00	0.13-0.15	0.0-2.9	2.0-6.0	.20	.32	5	6	48	
	2-13	10-20	1.35-1.45	4.00-14.00	0.13-0.15	0.0-2.9	1.0-5.0	.20	.32				
	13-25	10-20	1.35-1.45	4.00-14.00	0.11-0.13	0.0-2.9	0.5-1.5	.15	.32				
	25-60	10-20	1.35-1.45	4.00-14.00	0.10-0.12	0.0-2.9	0.2-0.8	.10	.32				
416: Newbon-----	0-5	10-20	1.35-1.45	4.00-14.00	0.13-0.15	0.0-2.9	2.0-6.0	.20	.32	5	6	48	
	5-13	10-20	1.35-1.45	4.00-14.00	0.13-0.15	0.0-2.9	1.0-5.0	.20	.32				
	13-25	10-20	1.35-1.45	4.00-14.00	0.11-0.13	0.0-2.9	0.5-1.5	.15	.32				
	25-60	10-20	1.35-1.45	4.00-14.00	0.10-0.12	0.0-2.9	0.2-0.8	.10	.32				

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility	erodi- bility	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
417: Newbon-----	0-2	10-20	1.35-1.45	4.00-14.00	0.13-0.15	0.0-2.9	2.0-6.0	.20	.32	5	6	48	
	2-13	10-20	1.35-1.45	4.00-14.00	0.13-0.15	0.0-2.9	1.0-5.0	.20	.32				
	13-25	10-20	1.35-1.45	4.00-14.00	0.11-0.13	0.0-2.9	0.5-1.5	.15	.32				
	25-60	10-20	1.35-1.45	4.00-14.00	0.10-0.12	0.0-2.9	0.2-0.8	.10	.32				
418: Newbon, extremely stony surface-----	0-2	10-20	1.35-1.45	4.00-14.00	0.13-0.15	0.0-2.9	2.0-6.0	.20	.32	5	6	48	
	2-13	10-20	1.35-1.45	4.00-14.00	0.13-0.15	0.0-2.9	1.0-5.0	.20	.32				
	13-25	10-20	1.35-1.45	4.00-14.00	0.11-0.13	0.0-2.9	0.5-1.5	.15	.32				
	25-60	10-20	1.35-1.45	4.00-14.00	0.10-0.12	0.0-2.9	0.2-0.8	.10	.32				
419: Newbon, eroded-----	0-1	10-20	1.35-1.45	4.00-14.00	0.10-0.12	0.0-2.9	2.0-6.0	.20	.32	5	7	38	
	1-13	10-20	1.35-1.45	4.00-14.00	0.10-0.12	0.0-2.9	1.0-5.0	.20	.32				
	13-25	10-20	1.35-1.45	4.00-14.00	0.11-0.13	0.0-2.9	0.5-1.5	.15	.32				
	25-60	10-20	1.35-1.45	4.00-14.00	0.10-0.12	0.0-2.9	0.2-0.8	.10	.32				
420: Newhorn-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134	
	1-5	3-7	0.65-0.90	14.00-42.00	0.17-0.21	0.0-2.9	1.0-4.0	.32	.37				
	5-14	3-7	0.65-0.90	14.00-42.00	0.17-0.21	0.0-2.9	1.0-4.0	.28	.37				
	14-29	5-15	1.60-1.80	14.00-42.00	0.07-0.12	0.0-2.9	0.0-0.5	.15	.28				
	29-37	5-15	1.60-1.80	14.00-42.00	0.07-0.12	0.0-2.9	0.0-0.5	.15	.28				
	37-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.24				
421: Newhorn, moist-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134	
	1-5	3-7	0.65-0.90	14.00-42.00	0.17-0.21	0.0-2.9	1.0-4.0	.32	.37				
	5-14	3-7	0.65-0.90	14.00-42.00	0.17-0.21	0.0-2.9	1.0-4.0	.28	.37				
	14-29	5-15	1.60-1.80	14.00-42.00	0.07-0.12	0.0-2.9	0.0-0.5	.15	.28				
	29-37	5-15	1.60-1.80	14.00-42.00	0.07-0.12	0.0-2.9	0.0-0.5	.15	.28				
	37-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.24				
422: Nicmar-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	4	86	
	1-5	8-15	0.80-1.00	14.00-42.00	0.18-0.21	0.0-2.9	2.0-4.0	.28	.32				
	5-17	8-15	0.80-1.20	14.00-42.00	0.16-0.19	0.0-2.9	1.0-3.0	.24	.32				
	17-24	25-35	1.40-1.60	4.00-14.00	0.13-0.15	3.0-5.9	0.5-1.0	.10	.24				
	24-34	25-35	1.40-1.60	4.00-14.00	0.13-0.15	3.0-5.9	0.2-0.8	.10	.24				
	34-60	20-30	1.60-1.80	4.00-14.00	0.10-0.12	3.0-5.9	0.2-0.8	.10	.28				

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility	erodi- bility	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
423: Nicmar-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	5	48	
	1-5	8-15	0.80-1.00	14.00-42.00	0.18-0.21	0.0-2.9	2.0-4.0	.28	.32				
	5-17	8-15	0.80-1.20	14.00-42.00	0.16-0.19	0.0-2.9	1.0-3.0	.24	.32				
	17-24	25-35	1.40-1.60	4.00-14.00	0.13-0.15	3.0-5.9	0.5-1.0	.10	.24				
	24-34	25-35	1.40-1.60	4.00-14.00	0.13-0.15	3.0-5.9	0.2-0.8	.10	.24				
	34-60	20-30	1.60-1.80	4.00-14.00	0.10-0.12	3.0-5.9	0.2-0.8	.10	.28				
424: Nicmar, warm-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	4	86	
	1-5	8-15	0.80-1.00	14.00-42.00	0.18-0.21	0.0-2.9	2.0-4.0	.28	.32				
	5-17	8-15	0.80-1.20	14.00-42.00	0.16-0.19	0.0-2.9	1.0-3.0	.24	.32				
	17-24	25-35	1.40-1.60	4.00-14.00	0.13-0.15	3.0-5.9	0.5-1.0	.10	.24				
	24-34	25-35	1.40-1.60	4.00-14.00	0.13-0.15	3.0-5.9	0.2-0.8	.10	.24				
	34-60	20-30	1.60-1.80	4.00-14.00	0.10-0.12	3.0-5.9	0.2-0.8	.10	.28				
Baldknob-----	0-3	10-20	1.00-1.30	4.00-14.00	0.13-0.14	0.0-2.9	1.0-5.0	.17	.32	1	5	56	
	3-12	10-20	1.10-1.40	4.00-14.00	0.10-0.11	0.0-2.9	0.0-2.0	.10	.32				
	12-16	---	---	---	---	---	---	---	---				
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---	
425: Nicmar-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	4	86	
	1-5	8-15	0.80-1.00	14.00-42.00	0.18-0.21	0.0-2.9	2.0-4.0	.28	.32				
	5-17	8-15	0.80-1.20	14.00-42.00	0.16-0.19	0.0-2.9	1.0-3.0	.24	.32				
	17-24	25-35	1.40-1.60	4.00-14.00	0.13-0.15	3.0-5.9	0.5-1.0	.10	.24				
	24-34	25-35	1.40-1.60	4.00-14.00	0.13-0.15	3.0-5.9	0.2-0.8	.10	.24				
	34-60	20-30	1.60-1.80	4.00-14.00	0.10-0.12	3.0-5.9	0.2-0.8	.10	.28				
Santop-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86	
	2-7	3-7	1.10-1.40	14.00-42.00	0.14-0.16	0.0-2.9	1.0-3.0	.15	.28				
	7-17	3-7	1.10-1.40	14.00-42.00	0.11-0.13	0.0-2.9	0.5-2.0	.10	.28				
	17-36	5-15	1.45-1.60	14.00-42.00	0.07-0.11	0.0-2.9	0.0-0.5	.10	.24				
	36-40	---	---	---	---	---	---	---	---				
426: Nighthawk-----	0-4	10-20	1.25-1.35	4.00-14.00	0.12-0.14	0.0-2.9	2.0-6.0	.17	.32	5	5	56	
	4-8	10-20	1.25-1.35	4.00-14.00	0.12-0.14	0.0-2.9	1.0-5.0	.17	.32				
	8-13	10-20	1.25-1.35	4.00-14.00	0.10-0.12	0.0-2.9	0.5-1.5	.15	.32				
	13-22	10-20	1.25-1.35	4.00-14.00	0.05-0.07	0.0-2.9	0.5-1.5	.10	.32				
	22-32	5-15	1.25-1.35	4.00-14.00	0.05-0.07	0.0-2.9	0.2-0.8	.10	.32				
	32-60	5-15	1.25-1.35	4.00-14.00	0.05-0.07	0.0-2.9	0.0-0.5	.05	.28				

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
427: Nighthawk-----	0-4	10-20	1.25-1.35	4.00-14.00	0.12-0.14	0.0-2.9	2.0-6.0	.17	.32	5	5	56
	4-8	10-20	1.25-1.35	4.00-14.00	0.12-0.14	0.0-2.9	1.0-5.0	.17	.32			
	8-13	10-20	1.25-1.35	4.00-14.00	0.10-0.12	0.0-2.9	0.5-1.5	.15	.32			
	13-22	10-20	1.25-1.35	4.00-14.00	0.05-0.07	0.0-2.9	0.5-1.5	.10	.32			
	22-32	5-15	1.25-1.35	4.00-14.00	0.05-0.07	0.0-2.9	0.2-0.8	.10	.32			
	32-60	5-15	1.25-1.35	4.00-14.00	0.05-0.07	0.0-2.9	0.0-0.5	.05	.28			
428: Nighthawk-----	0-4	10-20	1.25-1.35	4.00-14.00	0.12-0.14	0.0-2.9	2.0-6.0	.17	.32	5	5	56
	4-8	10-20	1.25-1.35	4.00-14.00	0.12-0.14	0.0-2.9	1.0-5.0	.17	.32			
	8-13	10-20	1.25-1.35	4.00-14.00	0.10-0.12	0.0-2.9	0.5-1.5	.15	.32			
	13-22	10-20	1.25-1.35	4.00-14.00	0.05-0.07	0.0-2.9	0.5-1.5	.10	.32			
	22-32	5-15	1.25-1.35	4.00-14.00	0.05-0.07	0.0-2.9	0.2-0.8	.10	.32			
	32-60	5-15	1.25-1.35	4.00-14.00	0.05-0.07	0.0-2.9	0.0-0.5	.05	.28			
429: Nighthawk, extremely stony surface-----	0-4	10-20	1.25-1.35	4.00-14.00	0.12-0.14	0.0-2.9	2.0-6.0	.17	.32	5	6	48
	4-8	10-20	1.25-1.35	4.00-14.00	0.12-0.14	0.0-2.9	1.0-5.0	.17	.32			
	8-13	10-20	1.25-1.35	4.00-14.00	0.10-0.12	0.0-2.9	0.5-1.5	.15	.32			
	13-22	10-20	1.25-1.35	4.00-14.00	0.05-0.07	0.0-2.9	0.5-1.5	.10	.32			
	22-32	5-15	1.25-1.35	4.00-14.00	0.05-0.07	0.0-2.9	0.2-0.8	.10	.32			
	32-60	5-15	1.25-1.35	4.00-14.00	0.05-0.07	0.0-2.9	0.0-0.5	.05	.28			
430: Nighthawk, extremely stony surface-----	0-4	10-20	1.25-1.35	4.00-14.00	0.12-0.14	0.0-2.9	2.0-6.0	.17	.32	5	6	48
	4-8	10-20	1.25-1.35	4.00-14.00	0.12-0.14	0.0-2.9	1.0-5.0	.17	.32			
	8-13	10-20	1.25-1.35	4.00-14.00	0.10-0.12	0.0-2.9	0.5-1.5	.15	.32			
	13-22	10-20	1.25-1.35	4.00-14.00	0.05-0.07	0.0-2.9	0.5-1.5	.10	.32			
	22-32	5-15	1.25-1.35	4.00-14.00	0.05-0.07	0.0-2.9	0.2-0.8	.10	.32			
	32-60	5-15	1.25-1.35	4.00-14.00	0.05-0.07	0.0-2.9	0.0-0.5	.05	.28			
431: Okanogan-----	0-3	10-20	1.35-1.45	4.00-14.00	0.15-0.17	0.0-2.9	2.0-6.0	.28	.32	5	5	56
	3-14	10-20	1.35-1.45	4.00-14.00	0.17-0.19	0.0-2.9	1.0-5.0	.28	.32			
	14-31	10-15	1.35-1.45	4.00-14.00	0.17-0.19	0.0-2.9	1.0-5.0	.28	.32			
	31-45	5-15	1.40-1.50	4.00-14.00	0.18-0.20	0.0-2.9	1.0-4.0	.28	.32			
	45-48	5-15	1.40-1.50	4.00-14.00	0.11-0.13	0.0-2.9	0.5-1.0	.32	.37			
	48-60	5-15	1.50-1.60	4.00-14.00	0.10-0.12	0.0-2.9	0.2-0.8	.32	.37			

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility group	erodi- bility index	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
432: Okanogan-----	0-3	10-20	1.35-1.45	4.00-14.00	0.15-0.17	0.0-2.9	2.0-6.0	.28	.32	5	5	56	
	3-14	10-20	1.35-1.45	4.00-14.00	0.17-0.19	0.0-2.9	1.0-5.0	.28	.32				
	14-31	10-20	1.35-1.45	4.00-14.00	0.17-0.19	0.0-2.9	1.0-5.0	.28	.32				
	31-45	5-15	1.40-1.50	4.00-14.00	0.18-0.20	0.0-2.9	1.0-4.0	.28	.32				
	45-48	5-10	1.50-1.60	4.00-14.00	0.03-0.05	0.0-2.9	0.5-1.0	.10	.17				
	48-60	0-5	1.50-1.60	4.00-14.00	0.03-0.05	0.0-2.9	0.2-0.8	.10	.17				
433: Owhi-----	0-5	3-7	1.30-1.50	42.00-141.00	0.12-0.14	0.0-2.9	1.0-3.0	.24	.28	3	2	134	
	5-11	3-7	1.20-1.40	42.00-141.00	0.09-0.12	0.0-2.9	1.0-3.0	.17	.28				
	11-24	5-15	1.20-1.30	42.00-141.00	0.06-0.07	0.0-2.9	0.5-1.5	.10	.28				
	24-31	0-5	1.50-1.70	141.00-705.00	0.03-0.04	0.0-2.9	0.2-0.8	.05	.17				
	31-60	0-5	1.50-1.70	141.00-705.00	0.03-0.04	0.0-2.9	0.2-0.8	.05	.20				
434: Owhi-----	0-5	3-7	1.30-1.50	42.00-141.00	0.12-0.14	0.0-2.9	1.0-3.0	.24	.28	3	2	134	
	5-11	3-7	1.20-1.40	42.00-141.00	0.09-0.12	0.0-2.9	1.0-3.0	.17	.28				
	11-24	5-15	1.20-1.30	42.00-141.00	0.06-0.07	0.0-2.9	0.5-1.5	.10	.28				
	24-31	0-5	1.50-1.70	141.00-705.00	0.03-0.04	0.0-2.9	0.2-0.8	.05	.17				
	31-60	0-5	1.50-1.70	141.00-705.00	0.03-0.04	0.0-2.9	0.2-0.8	.05	.20				
435: Owhi, extremely stony surface-----	0-5	3-7	1.30-1.50	42.00-141.00	0.12-0.14	0.0-2.9	1.0-3.0	.24	.28	3	2	134	
	5-11	3-7	1.20-1.40	42.00-141.00	0.09-0.12	0.0-2.9	1.0-3.0	.17	.28				
	11-24	5-15	1.20-1.30	42.00-141.00	0.06-0.07	0.0-2.9	0.5-1.5	.10	.28				
	24-31	0-5	1.50-1.70	141.00-705.00	0.03-0.04	0.0-2.9	0.2-0.8	.05	.17				
	31-60	0-5	1.50-1.70	141.00-705.00	0.03-0.04	0.0-2.9	0.2-0.8	.05	.20				
436: Owhi, extremely stony surface-----	0-5	3-7	1.30-1.50	42.00-141.00	0.12-0.14	0.0-2.9	1.0-3.0	.24	.28	3	2	134	
	5-11	3-7	1.20-1.40	42.00-141.00	0.09-0.12	0.0-2.9	1.0-3.0	.17	.28				
	11-24	5-15	1.20-1.30	42.00-141.00	0.06-0.07	0.0-2.9	0.5-1.5	.10	.28				
	24-31	0-5	1.50-1.70	141.00-705.00	0.03-0.04	0.0-2.9	0.2-0.8	.05	.17				
	31-60	0-5	1.50-1.70	141.00-705.00	0.03-0.04	0.0-2.9	0.2-0.8	.05	.20				
437: Owhi-----	0-5	3-7	1.30-1.50	42.00-141.00	0.12-0.14	0.0-2.9	1.0-3.0	.24	.28	3	3	86	
	5-11	3-7	1.20-1.40	42.00-141.00	0.09-0.12	0.0-2.9	1.0-3.0	.17	.28				
	11-24	5-15	1.20-1.30	42.00-141.00	0.06-0.07	0.0-2.9	0.5-1.5	.10	.28				
	24-31	0-5	1.50-1.70	141.00-705.00	0.03-0.04	0.0-2.9	0.2-0.8	.05	.17				
	31-60	0-5	1.50-1.70	141.00-705.00	0.03-0.04	0.0-2.9	0.2-0.8	.05	.20				

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
438:												
Owhi-----	0-5	3-7	1.30-1.50	42.00-141.00	0.12-0.14	0.0-2.9	1.0-3.0	.24	.28	3	2	134
	5-11	3-7	1.20-1.40	42.00-141.00	0.09-0.12	0.0-2.9	1.0-3.0	.17	.28			
	11-24	5-15	1.20-1.30	42.00-141.00	0.06-0.07	0.0-2.9	0.5-1.5	.10	.28			
	24-31	0-5	1.50-1.70	141.00-705.00	0.03-0.04	0.0-2.9	0.2-0.8	.05	.17			
	31-60	0-5	1.50-1.70	141.00-705.00	0.03-0.04	0.0-2.9	0.2-0.8	.05	.20			
Haley-----	0-8	3-7	1.20-1.40	14.00-42.00	0.13-0.16	0.0-2.9	1.0-2.0	.37	.37	3	2	134
	8-12	3-7	1.20-1.40	14.00-42.00	0.13-0.16	0.0-2.9	1.0-2.0	.37	.37			
	12-25	3-7	1.35-1.50	14.00-42.00	0.13-0.16	0.0-2.9	1.0-2.0	.43	.43			
	25-60	0-5	1.50-1.60	141.00-705.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.10			
439:												
Owhi-----	0-5	3-7	1.30-1.50	42.00-141.00	0.12-0.14	0.0-2.9	1.0-3.0	.24	.28	3	2	134
	5-11	3-7	1.20-1.40	42.00-141.00	0.09-0.12	0.0-2.9	1.0-3.0	.17	.28			
	11-24	5-15	1.20-1.30	42.00-141.00	0.06-0.07	0.0-2.9	0.5-1.5	.10	.28			
	24-31	0-5	1.50-1.70	141.00-705.00	0.03-0.04	0.0-2.9	0.2-0.8	.05	.17			
	31-60	0-5	1.50-1.70	141.00-705.00	0.03-0.04	0.0-2.9	0.2-0.8	.05	.20			
Haley-----	0-8	3-7	1.20-1.40	14.00-42.00	0.13-0.16	0.0-2.9	1.0-2.0	.37	.37	3	2	134
	8-12	3-7	1.20-1.40	14.00-42.00	0.13-0.16	0.0-2.9	1.0-2.0	.37	.37			
	12-25	3-7	1.35-1.50	14.00-42.00	0.13-0.16	0.0-2.9	1.0-2.0	.43	.43			
	25-60	0-5	1.50-1.60	141.00-705.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.10			
440:												
Owhi-----	0-5	3-7	1.30-1.50	42.00-141.00	0.12-0.14	0.0-2.9	1.0-3.0	.24	.28	3	2	134
	5-11	3-7	1.20-1.40	42.00-141.00	0.09-0.12	0.0-2.9	1.0-3.0	.17	.28			
	11-24	5-15	1.20-1.30	42.00-141.00	0.06-0.07	0.0-2.9	0.5-1.5	.10	.28			
	24-31	0-5	1.50-1.70	141.00-705.00	0.03-0.04	0.0-2.9	0.2-0.8	.05	.17			
	31-60	0-5	1.50-1.70	141.00-705.00	0.03-0.04	0.0-2.9	0.2-0.8	.05	.20			
Haley-----	0-8	3-7	1.20-1.40	14.00-42.00	0.13-0.16	0.0-2.9	1.0-2.0	.37	.37	3	2	134
	8-12	3-7	1.20-1.40	14.00-42.00	0.13-0.16	0.0-2.9	1.0-2.0	.37	.37			
	12-25	3-7	1.35-1.50	14.00-42.00	0.13-0.16	0.0-2.9	1.0-2.0	.43	.43			
	25-60	0-5	1.50-1.60	141.00-705.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.10			
441:												
Oxerine-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	2	134
	1-5	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-4.0	.37	.37			
	5-11	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-4.0	.37	.37			
	11-20	5-15	1.35-1.50	14.00-42.00	0.06-0.10	0.0-2.9	0.0-0.5	.10	.28			
	20-32	5-15	1.40-1.60	14.00-42.00	0.03-0.08	0.0-2.9	0.0-0.5	.10	.28			
	32-36	---	---	---	---	---	---	---	---			

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility	erodi- bility	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
442:													
Oxerine, warm-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86	
	1-5	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-4.0	.37	.37				
	5-11	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-4.0	.37	.37				
	11-20	5-15	1.35-1.50	14.00-42.00	0.06-0.10	0.0-2.9	0.0-0.5	.10	.28				
	20-32	5-15	1.40-1.60	14.00-42.00	0.03-0.08	0.0-2.9	0.0-0.5	.10	.28				
	32-36	---	---	---	---	---	---	---	---				
Lithic Haploxerepts, forested, cool-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	1	3	86	
	1-4	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37				
	4-13	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37				
	13-19	5-15	1.30-1.50	14.00-42.00	0.04-0.15	0.0-2.9	0.0-1.0	.15	.37				
	19-23	---	---	---	---	---	---	---	---				
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---	
443:													
Oxerine, warm-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86	
	1-5	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-4.0	.37	.37				
	5-11	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-4.0	.37	.37				
	11-20	5-15	1.35-1.50	14.00-42.00	0.06-0.10	0.0-2.9	0.0-0.5	.10	.28				
	20-32	5-15	1.40-1.60	14.00-42.00	0.03-0.08	0.0-2.9	0.0-0.5	.10	.28				
	32-36	---	---	---	---	---	---	---	---				
Nevine, warm-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134	
	1-4	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-4.0	.37	.37				
	4-9	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-3.0	.24	.37				
	9-21	3-7	0.75-0.90	14.00-42.00	0.20-0.22	0.0-2.9	1.0-2.0	.24	.37				
	21-38	5-15	1.60-1.80	14.00-42.00	0.06-0.10	0.0-2.9	0.0-0.5	.10	.28				
	38-51	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
	51-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
444:													
Oxerine, cool-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86	
	1-5	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-4.0	.37	.37				
	5-11	3-7	0.75-0.90	14.00-42.00	0.21-0.25	0.0-2.9	1.0-4.0	.37	.37				
	11-20	5-15	1.35-1.50	14.00-42.00	0.06-0.10	0.0-2.9	0.0-0.5	.10	.28				
	20-32	5-15	1.40-1.60	14.00-42.00	0.03-0.08	0.0-2.9	0.0-0.5	.10	.28				
	32-36	---	---	---	---	---	---	---	---				
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---	

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
445: Pebcreek-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86
	2-7	3-7	1.00-1.25	14.00-42.00	0.15-0.18	0.0-2.9	2.0-4.0	.15	.28			
	7-13	3-7	1.00-1.25	14.00-42.00	0.14-0.16	0.0-2.9	1.0-2.0	.15	.28			
	13-39	0-5	1.50-1.65	141.00-705.00	0.03-0.06	0.0-2.9	0.0-0.5	.05	.15			
	39-44	0-5	1.60-1.80	141.00-705.00	0.03-0.06	0.0-2.9	0.0-0.5	.05	.15			
	44-60	3-10	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.05	.15			
446: Pebcreek-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	2	134
	2-7	3-7	1.00-1.25	14.00-42.00	0.15-0.18	0.0-2.9	2.0-4.0	.28	.28			
	7-13	3-7	1.00-1.25	14.00-42.00	0.14-0.16	0.0-2.9	1.0-2.0	.15	.28			
	13-39	0-5	1.50-1.65	141.00-705.00	0.03-0.06	0.0-2.9	0.0-0.5	.05	.15			
	39-44	0-5	1.60-1.80	141.00-705.00	0.03-0.06	0.0-2.9	0.0-0.5	.05	.15			
	44-60	3-10	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.05	.15			
Brevco, cool-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86
	1-4	3-7	1.20-1.40	14.00-42.00	0.14-0.16	0.0-2.9	1.0-3.0	.17	.20			
	4-12	3-7	1.30-1.55	14.00-42.00	0.13-0.16	0.0-2.9	1.0-2.0	.10	.20			
	12-26	5-15	1.40-1.60	14.00-42.00	0.03-0.08	0.0-2.9	0.0-0.5	.05	.17			
	26-39	5-15	1.45-1.65	14.00-42.00	0.03-0.08	0.0-2.9	0.0-0.5	.05	.17			
	39-43	---	---	---	---	---	---	---	---			
447: Pebcreek-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	2	134
	2-7	3-7	1.00-1.25	14.00-42.00	0.15-0.18	0.0-2.9	2.0-4.0	.28	.28			
	7-13	3-7	1.00-1.25	14.00-42.00	0.14-0.16	0.0-2.9	1.0-2.0	.15	.28			
	13-39	0-5	1.50-1.65	141.00-705.00	0.03-0.06	0.0-2.9	0.0-0.5	.05	.15			
	39-44	0-5	1.60-1.80	141.00-705.00	0.03-0.06	0.0-2.9	0.0-0.5	.05	.15			
	44-60	3-10	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.05	.15			
Brevco, cool-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86
	1-4	3-7	1.20-1.40	14.00-42.00	0.14-0.16	0.0-2.9	1.0-3.0	.17	.20			
	4-12	3-7	1.30-1.55	14.00-42.00	0.13-0.16	0.0-2.9	1.0-2.0	.10	.20			
	12-26	5-15	1.40-1.60	14.00-42.00	0.03-0.08	0.0-2.9	0.0-0.5	.05	.17			
	26-39	5-15	1.45-1.65	14.00-42.00	0.03-0.08	0.0-2.9	0.0-0.5	.05	.17			
	39-43	---	---	---	---	---	---	---	---			
448: Pebcreek, dry-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86
	2-7	3-7	1.00-1.25	14.00-42.00	0.15-0.18	0.0-2.9	2.0-4.0	.15	.28			
	7-13	3-7	1.00-1.25	14.00-42.00	0.14-0.16	0.0-2.9	1.0-2.0	.15	.28			
	13-39	0-5	1.50-1.65	141.00-705.00	0.03-0.06	0.0-2.9	0.0-0.5	.05	.15			
	39-44	0-5	1.60-1.80	141.00-705.00	0.03-0.06	0.0-2.9	0.0-0.5	.05	.15			
	44-60	3-10	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.05	.15			

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
448: Lithic Haploxerepts, forested, dry-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	1	3	86
	1-4	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37			
	4-13	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37			
	13-19	5-15	1.30-1.50	14.00-42.00	0.04-0.15	0.0-2.9	0.0-1.0	.15	.37			
	19-23	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---
449: Peka-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	3	86
	1-7	3-7	1.10-1.30	14.00-42.00	0.14-0.17	0.0-2.9	2.0-5.0	.17	.28			
	7-16	3-7	1.10-1.30	14.00-42.00	0.09-0.12	0.0-2.9	2.0-5.0	.17	.28			
	16-25	5-15	1.40-1.60	14.00-42.00	0.05-0.08	0.0-2.9	1.0-2.0	.10	.28			
	25-50	5-15	1.60-1.80	14.00-42.00	0.05-0.08	0.0-2.9	1.0-2.0	.10	.28			
	50-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28			
450: Peka, moist-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	3	86
	1-7	3-7	1.10-1.30	14.00-42.00	0.14-0.17	0.0-2.9	2.0-5.0	.17	.28			
	7-16	3-7	1.10-1.30	14.00-42.00	0.09-0.12	0.0-2.9	2.0-5.0	.17	.28			
	16-25	5-15	1.40-1.60	14.00-42.00	0.05-0.08	0.0-2.9	1.0-2.0	.10	.28			
	25-50	5-15	1.60-1.80	14.00-42.00	0.05-0.08	0.0-2.9	1.0-2.0	.10	.28			
	50-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28			
Donavan-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	4	86
	1-7	8-15	1.10-1.40	14.00-42.00	0.14-0.18	0.0-2.9	2.0-4.0	.24	.32			
	7-11	8-15	1.10-1.40	14.00-42.00	0.14-0.17	0.0-2.9	1.0-3.0	.20	.28			
	11-16	3-15	1.10-1.40	14.00-42.00	0.13-0.16	0.0-2.9	0.5-1.0	.20	.28			
	16-27	5-15	1.60-1.80	14.00-42.00	0.13-0.16	0.0-2.9	0.0-0.5	.20	.28			
	27-34	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.20	.28			
	34-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.20	.28			
451: Peka-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	3	86
	1-7	3-7	1.10-1.30	14.00-42.00	0.14-0.17	0.0-2.9	2.0-5.0	.17	.28			
	7-16	3-7	1.10-1.30	14.00-42.00	0.09-0.12	0.0-2.9	2.0-5.0	.17	.28			
	16-25	5-15	1.40-1.60	14.00-42.00	0.05-0.08	0.0-2.9	1.0-2.0	.10	.28			
	25-50	5-15	1.60-1.80	14.00-42.00	0.05-0.08	0.0-2.9	1.0-2.0	.10	.28			
	50-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28			
Swakane-----	0-4	3-7	1.30-1.45	14.00-42.00	0.05-0.09	0.0-2.9	2.0-4.0	.10	.24	1	5	56
	4-11	3-7	1.35-1.45	14.00-42.00	0.04-0.08	0.0-2.9	1.0-3.0	.10	.28			
	11-17	5-15	1.40-1.55	14.00-42.00	0.04-0.08	0.0-2.9	0.0-0.5	.10	.28			
	17-21	---	---	---	---	---	---	---	---			

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility group	erodi- bility index	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
451: Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---	---
452: Pelican-----	0-11	8-15	1.10-1.30	14.00-42.00	0.16-0.20	0.0-2.9	2.0-4.0	.24	.32	4	5	56	
	11-18	5-15	1.15-1.30	14.00-42.00	0.06-0.11	0.0-2.9	1.0-3.0	.15	.28				
	18-28	5-15	1.25-1.40	14.00-42.00	0.06-0.09	0.0-2.9	1.0-2.0	.10	.28				
	28-37	5-15	1.60-1.80	14.00-42.00	0.06-0.09	0.0-2.9	0.0-0.5	.10	.28				
	37-46	5-15	1.60-1.80	14.00-42.00	0.06-0.09	0.0-2.9	0.0-0.5	.10	.28				
	46-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
453: Pettijohn-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	3	86	
	2-6	3-7	0.85-0.95	4.00-14.00	0.20-0.22	0.0-2.9	2.0-4.0	.24	.37				
	6-26	3-7	0.85-0.95	4.00-14.00	0.18-0.20	0.0-2.9	2.0-4.0	.10	.37				
	26-44	3-7	0.85-0.95	4.00-14.00	0.17-0.19	0.0-2.9	1.0-3.0	.10	.37				
	44-60	5-15	1.45-1.65	4.00-14.00	0.04-0.08	0.0-2.9	0.0-0.5	.05	.20				
Mineral-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	5	56	
	1-7	3-10	1.00-1.20	14.00-42.00	0.13-0.16	0.0-2.9	2.0-4.0	.17	.28				
	7-13	3-10	1.40-1.60	14.00-42.00	0.13-0.16	0.0-2.9	0.5-1.0	.10	.28				
	13-24	3-10	1.40-1.60	14.00-42.00	0.06-0.11	0.0-2.9	0.0-0.5	.10	.24				
	24-28	---	---	---	---	---	---	---	---				
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---	---
454: Pettijohn-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	3	86	
	2-6	3-7	0.85-0.95	4.00-14.00	0.20-0.22	0.0-2.9	2.0-4.0	.24	.37				
	6-26	3-7	0.85-0.95	4.00-14.00	0.18-0.20	0.0-2.9	2.0-4.0	.10	.37				
	26-44	3-7	0.85-0.95	4.00-14.00	0.17-0.19	0.0-2.9	1.0-3.0	.10	.37				
	44-60	5-15	1.45-1.65	4.00-14.00	0.04-0.08	0.0-2.9	0.0-0.5	.05	.20				
Wilma-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86	
	1-7	3-7	0.70-0.90	14.00-42.00	0.13-0.17	0.0-2.9	1.0-3.0	.24	.37				
	7-13	3-7	0.70-0.90	14.00-42.00	0.13-0.17	0.0-2.9	0.0-0.5	.20	.32				
	13-18	5-15	1.35-1.55	14.00-42.00	0.06-0.10	0.0-2.9	0.0-0.5	.10	.28				
	18-29	5-15	1.40-1.60	14.00-42.00	0.05-0.08	0.0-2.9	0.0-0.5	.10	.28				
	29-33	---	---	---	---	---	---	---	---				
455: Pogue-----	0-6	5-10	1.40-1.50	14.00-42.00	0.13-0.14	0.0-2.9	2.0-6.0	.28	.32	3	3	86	
	6-12	5-10	1.40-1.50	14.00-42.00	0.10-0.12	0.0-2.9	1.0-5.0	.17	.32				
	12-29	5-10	1.40-1.50	14.00-42.00	0.09-0.11	0.0-2.9	0.5-1.5	.17	.37				
	29-60	0-5	1.55-1.65	141.00-705.00	0.02-0.04	0.0-2.9	0.2-0.8	.05	.20				

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility	erodi- bility	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
456: Pogue-----	0-6	5-10	1.40-1.50	14.00-42.00	0.13-0.14	0.0-2.9	2.0-6.0	.28	.32	3	3	86	
	6-12	5-10	1.40-1.50	14.00-42.00	0.10-0.12	0.0-2.9	1.0-5.0	.17	.32				
	12-29	5-10	1.40-1.50	14.00-42.00	0.09-0.11	0.0-2.9	0.5-1.5	.17	.37				
	29-60	0-5	1.55-1.65	141.00-705.00	0.02-0.04	0.0-2.9	0.2-0.8	.05	.20				
457: Pogue-----	0-6	5-10	1.40-1.50	14.00-42.00	0.13-0.14	0.0-2.9	2.0-6.0	.28	.32	3	3	86	
	6-12	5-10	1.40-1.50	14.00-42.00	0.10-0.12	0.0-2.9	1.0-5.0	.17	.32				
	12-29	5-10	1.40-1.50	14.00-42.00	0.09-0.11	0.0-2.9	0.5-1.5	.17	.37				
	29-60	0-5	1.55-1.65	141.00-705.00	0.02-0.04	0.0-2.9	0.2-0.8	.05	.20				
458: Pogue-----	0-6	5-10	1.40-1.50	14.00-42.00	0.13-0.14	0.0-2.9	2.0-6.0	.28	.32	3	3	86	
	6-12	5-10	1.40-1.50	14.00-42.00	0.10-0.12	0.0-2.9	1.0-5.0	.17	.32				
	12-29	5-10	1.40-1.50	14.00-42.00	0.09-0.11	0.0-2.9	0.5-1.5	.17	.37				
	29-60	0-5	1.55-1.65	141.00-705.00	0.02-0.04	0.0-2.9	0.2-0.8	.05	.20				
459: Pogue, extremely stony surface-----	0-6	5-10	1.40-1.50	14.00-42.00	0.13-0.14	0.0-2.9	2.0-6.0	.28	.32	3	5	56	
	6-12	5-10	1.40-1.50	14.00-42.00	0.10-0.12	0.0-2.9	1.0-5.0	.17	.32				
	12-29	5-10	1.40-1.50	14.00-42.00	0.09-0.11	0.0-2.9	0.5-1.5	.17	.37				
	29-60	0-5	1.55-1.65	141.00-705.00	0.02-0.04	0.0-2.9	0.2-0.8	.05	.20				
460: Pogue, extremely stony surface-----	0-6	5-10	1.40-1.50	14.00-42.00	0.13-0.14	0.0-2.9	2.0-6.0	.28	.32	3	5	56	
	6-12	5-10	1.40-1.50	14.00-42.00	0.10-0.12	0.0-2.9	1.0-5.0	.17	.32				
	12-29	5-10	1.40-1.50	14.00-42.00	0.09-0.11	0.0-2.9	0.5-1.5	.17	.37				
	29-60	0-5	1.55-1.65	141.00-705.00	0.02-0.04	0.0-2.9	0.2-0.8	.05	.20				
461: Pogue-----	0-6	5-10	1.40-1.50	14.00-42.00	0.13-0.14	0.0-2.9	2.0-6.0	.28	.32	3	5	56	
	6-12	5-10	1.40-1.50	14.00-42.00	0.10-0.12	0.0-2.9	1.0-5.0	.17	.32				
	12-29	5-10	1.40-1.50	14.00-42.00	0.09-0.11	0.0-2.9	0.5-1.5	.17	.37				
	29-60	0-5	1.55-1.65	141.00-705.00	0.02-0.04	0.0-2.9	0.2-0.8	.05	.20				
462: Pogue-----	0-6	5-10	1.40-1.50	14.00-42.00	0.13-0.14	0.0-2.9	2.0-6.0	.28	.32	3	5	56	
	6-12	5-10	1.40-1.50	14.00-42.00	0.10-0.12	0.0-2.9	1.0-5.0	.17	.32				
	12-29	5-10	1.40-1.50	14.00-42.00	0.09-0.11	0.0-2.9	0.5-1.5	.17	.37				
	29-60	0-5	1.55-1.65	141.00-705.00	0.02-0.04	0.0-2.9	0.2-0.8	.05	.20				

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
463: Radercreek-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	3	86
	1-6	3-7	1.10-1.40	14.00-42.00	0.14-0.18	0.0-2.9	2.0-4.0	.20	.28			
	6-13	3-7	1.10-1.40	14.00-42.00	0.14-0.18	0.0-2.9	1.0-3.0	.20	.28			
	13-18	3-7	1.10-1.40	14.00-42.00	0.10-0.14	0.0-2.9	1.0-3.0	.20	.28			
	18-25	5-15	1.45-1.60	14.00-42.00	0.09-0.14	0.0-2.9	0.0-1.0	.05	.20			
	25-44	5-15	1.45-1.60	14.00-42.00	0.09-0.11	0.0-2.9	0.0-1.0	.05	.20			
	44-48	---	---	---	---	---	---	---	---			
Santop-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86
	2-7	3-7	1.10-1.40	14.00-42.00	0.14-0.16	0.0-2.9	1.0-3.0	.15	.28			
	7-17	3-7	1.10-1.40	14.00-42.00	0.11-0.13	0.0-2.9	0.5-2.0	.10	.28			
	17-36	5-15	1.45-1.60	14.00-42.00	0.07-0.11	0.0-2.9	0.0-0.5	.10	.24			
	36-40	---	---	---	---	---	---	---	---			
464: Redpeak-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86
	1-5	3-7	1.10-1.40	14.00-42.00	0.14-0.18	0.0-2.9	2.0-4.0	.17	.28			
	5-10	3-7	1.10-1.40	14.00-42.00	0.14-0.18	0.0-2.9	1.0-3.0	.15	.28			
	10-17	3-7	1.10-1.40	14.00-42.00	0.10-0.13	0.0-2.9	1.0-3.0	.15	.28			
	17-29	5-15	1.45-1.60	14.00-42.00	0.05-0.08	0.0-2.9	0.0-1.0	.10	.28			
	29-36	5-15	1.45-1.60	14.00-42.00	0.05-0.08	0.0-2.9	0.0-1.0	.10	.28			
	36-40	---	---	---	---	---	---	---	---			
Ontrail-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	3	86
	1-5	3-7	1.10-1.40	14.00-42.00	0.11-0.13	0.0-2.9	2.0-4.0	.17	.28			
	5-17	3-7	1.10-1.40	14.00-42.00	0.10-0.13	0.0-2.9	1.0-3.0	.15	.28			
	17-33	5-15	1.50-1.70	14.00-42.00	0.06-0.09	0.0-2.9	0.0-0.5	.10	.28			
	33-60	5-15	1.50-1.70	14.00-42.00	0.06-0.09	0.0-2.9	0.0-0.5	.10	.28			
465: Rommel-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	5	56
	1-5	3-7	0.75-0.95	14.00-42.00	0.10-0.14	0.0-2.9	1.0-4.0	.10	.28			
	5-9	3-7	0.75-0.95	14.00-42.00	0.10-0.14	0.0-2.9	1.0-2.0	.15	.28			
	9-14	3-7	0.75-0.95	14.00-42.00	0.10-0.14	0.0-2.9	1.0-2.0	.15	.28			
	14-30	5-15	0.95-1.15	14.00-42.00	0.06-0.10	0.0-2.9	0.0-0.5	.10	.24			
	30-42	5-15	1.45-1.60	14.00-42.00	0.05-0.09	0.0-2.9	0.0-0.5	.05	.20			
	42-60	0-5	1.50-1.65	42.00-141.00	0.02-0.06	0.0-2.9	0.0-0.5	.05	.17			
Devore, cold-----	0-3	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86
	3-4	3-7	0.65-0.85	14.00-42.00	0.15-0.17	0.0-2.9	1.0-4.0	.32	.37			
	4-7	3-7	0.65-0.85	14.00-42.00	0.12-0.16	0.0-2.9	1.0-3.0	.15	.37			
	7-14	3-7	0.65-0.85	14.00-42.00	0.12-0.16	0.0-2.9	1.0-2.0	.15	.37			
	14-26	5-15	1.30-1.65	14.00-42.00	0.06-0.09	0.0-2.9	0.0-0.5	.05	.24			
	26-35	5-15	1.30-1.65	14.00-42.00	0.06-0.09	0.0-2.9	0.0-0.5	.05	.24			
	35-39	---	---	---	---	---	---	---	---			

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility	erodi- bility	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
465: Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---	---
466: Rendovy-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	3	86	
	2-7	3-7	0.75-0.90	14.00-42.00	0.12-0.16	0.0-2.9	1.0-3.0	.24	.37				
	7-14	3-7	0.75-0.90	14.00-42.00	0.10-0.13	0.0-2.9	1.0-2.0	.24	.37				
	14-26	5-30	1.40-1.60	14.00-42.00	0.08-0.11	0.0-2.9	0.0-0.5	.10	.28				
	26-37	20-30	1.35-1.60	1.40-4.00	0.10-0.14	3.0-5.9	0.0-0.5	.10	.32				
	37-48	20-30	1.35-1.60	1.40-4.00	0.10-0.14	3.0-5.9	0.0-0.5	.10	.32				
	48-60	20-30	1.35-1.60	1.40-4.00	0.10-0.14	3.0-5.9	0.0-0.5	.10	.32				
Goshawk-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86	
	1-10	3-7	0.75-0.90	14.00-42.00	0.15-0.19	0.0-2.9	1.0-3.0	.20	.28				
	10-15	3-7	0.75-0.90	14.00-42.00	0.12-0.16	0.0-2.9	1.0-2.0	.05	.28				
	15-21	10-20	1.40-1.55	4.00-14.00	0.07-0.11	0.0-2.9	0.0-0.5	.10	.32				
	21-28	10-20	1.40-1.55	4.00-14.00	0.07-0.11	0.0-2.9	0.0-0.5	.10	.32				
	28-36	---	---	---	---	---	---	---	---				
467: Republic-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	4	86	
	1-7	8-15	1.00-1.35	4.00-14.00	0.17-0.21	0.0-2.9	2.0-4.0	.24	.32				
	7-16	3-7	1.00-1.35	4.00-14.00	0.13-0.18	0.0-2.9	2.0-4.0	.20	.28				
	16-29	5-15	1.30-1.50	4.00-14.00	0.12-0.17	0.0-2.9	1.0-2.0	.20	.28				
	29-36	5-15	1.30-1.50	4.00-14.00	0.11-0.16	0.0-2.9	1.0-2.0	.17	.24				
	36-60	5-15	1.35-1.55	14.00-42.00	0.07-0.12	0.0-2.9	1.0-2.0	.15	.20				
468: Republic-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	4	86	
	1-7	8-15	1.00-1.35	4.00-14.00	0.17-0.21	0.0-2.9	2.0-4.0	.24	.32				
	7-16	3-7	1.00-1.35	4.00-14.00	0.13-0.18	0.0-2.9	2.0-4.0	.20	.28				
	16-29	5-15	1.30-1.50	4.00-14.00	0.12-0.17	0.0-2.9	1.0-2.0	.20	.28				
	29-36	5-15	1.30-1.50	4.00-14.00	0.11-0.16	0.0-2.9	1.0-2.0	.17	.24				
	36-60	5-15	1.35-1.55	14.00-42.00	0.07-0.12	0.0-2.9	1.0-2.0	.15	.20				
469: Republic-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	4	86	
	1-7	8-15	1.00-1.35	4.00-14.00	0.17-0.21	0.0-2.9	2.0-4.0	.24	.32				
	7-16	3-7	1.00-1.35	4.00-14.00	0.13-0.18	0.0-2.9	2.0-4.0	.20	.28				
	16-29	5-15	1.30-1.50	4.00-14.00	0.12-0.17	0.0-2.9	1.0-2.0	.20	.28				
	29-36	5-15	1.30-1.50	4.00-14.00	0.11-0.16	0.0-2.9	1.0-2.0	.17	.24				
	36-60	5-15	1.35-1.55	14.00-42.00	0.07-0.12	0.0-2.9	1.0-2.0	.15	.20				

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
470: Republic-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	4	86
	1-7	8-15	1.00-1.35	4.00-14.00	0.17-0.21	0.0-2.9	2.0-4.0	.24	.32			
	7-16	3-7	1.00-1.35	4.00-14.00	0.13-0.18	0.0-2.9	2.0-4.0	.20	.28			
	16-29	5-15	1.30-1.50	4.00-14.00	0.12-0.17	0.0-2.9	1.0-2.0	.20	.28			
	29-36	5-15	1.30-1.50	4.00-14.00	0.11-0.16	0.0-2.9	1.0-2.0	.17	.24			
	36-60	5-15	1.35-1.55	14.00-42.00	0.07-0.12	0.0-2.9	1.0-2.0	.15	.20			
471: Republic, extremely stony surface-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	4	86
	1-7	8-15	1.00-1.35	4.00-14.00	0.17-0.21	0.0-2.9	2.0-4.0	.24	.32			
	7-16	3-7	1.00-1.35	4.00-14.00	0.13-0.18	0.0-2.9	2.0-4.0	.20	.28			
	16-29	5-15	1.30-1.50	4.00-14.00	0.12-0.17	0.0-2.9	1.0-2.0	.20	.28			
	29-36	5-15	1.30-1.50	4.00-14.00	0.11-0.16	0.0-2.9	1.0-2.0	.17	.24			
	36-60	5-15	1.35-1.55	14.00-42.00	0.07-0.12	0.0-2.9	1.0-2.0	.15	.20			
472: Resner-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	2	134
	1-2	5-10	0.65-0.85	14.00-42.00	0.20-0.24	0.0-2.9	3.0-7.0	.37	.43			
	2-6	3-7	0.70-0.90	14.00-42.00	0.20-0.24	0.0-2.9	2.0-5.0	.37	.37			
	6-19	3-7	0.80-1.00	14.00-42.00	0.18-0.20	0.0-2.9	1.0-2.0	.28	.37			
	19-60	0-5	1.60-1.80	42.00-141.00	0.04-0.06	0.0-2.9	0.0-0.5	.05	.17			
473: Resner, cool-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	2	134
	1-2	5-10	0.65-0.85	14.00-42.00	0.20-0.24	0.0-2.9	3.0-7.0	.37	.43			
	2-6	3-7	0.70-0.90	14.00-42.00	0.20-0.24	0.0-2.9	2.0-5.0	.37	.37			
	6-19	3-7	0.80-1.00	14.00-42.00	0.18-0.20	0.0-2.9	1.0-2.0	.28	.37			
	19-60	0-5	1.60-1.80	42.00-141.00	0.04-0.06	0.0-2.9	0.0-0.5	.05	.17			
Sitdown, cold-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86
	2-5	3-7	0.75-0.99	14.00-42.00	0.13-0.16	0.0-2.9	1.0-4.0	.17	.28			
	5-13	3-7	0.75-0.99	14.00-42.00	0.13-0.16	0.0-2.9	1.0-3.0	.17	.28			
	13-26	0-10	1.50-1.70	42.00-141.00	0.02-0.05	0.0-2.9	0.0-0.5	.05	.17			
	26-60	0-10	1.50-1.70	42.00-141.00	0.02-0.05	0.0-2.9	0.0-0.5	.05	.17			
474: Resner-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	2	134
	1-2	5-10	0.65-0.85	14.00-42.00	0.20-0.24	0.0-2.9	3.0-7.0	.37	.43			
	2-6	3-7	0.70-0.90	14.00-42.00	0.20-0.24	0.0-2.9	2.0-5.0	.37	.37			
	6-19	3-7	0.80-1.00	14.00-42.00	0.18-0.20	0.0-2.9	1.0-2.0	.28	.37			
	19-60	0-5	1.60-1.80	42.00-141.00	0.04-0.06	0.0-2.9	0.0-0.5	.05	.17			

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
474: Sitdown-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86
	2-5	3-7	0.75-0.99	14.00-42.00	0.13-0.16	0.0-2.9	1.0-4.0	.17	.28			
	5-13	3-7	0.75-0.99	14.00-42.00	0.13-0.16	0.0-2.9	1.0-3.0	.17	.28			
	13-26	0-10	1.50-1.70	42.00-141.00	0.02-0.05	0.0-2.9	0.0-0.5	.05	.17			
	26-60	0-10	1.50-1.70	42.00-141.00	0.02-0.05	0.0-2.9	0.0-0.5	.05	.17			
475: Riverwash-----	0-60	---	---	---	---	---	---	---	---	-	---	---
476: Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---
477: Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---
Donavan-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	5	56
	1-7	8-15	1.10-1.40	14.00-42.00	0.14-0.18	0.0-2.9	2.0-4.0	.24	.32			
	7-11	8-15	1.10-1.40	14.00-42.00	0.14-0.17	0.0-2.9	1.0-3.0	.20	.28			
	11-16	3-15	1.10-1.40	14.00-42.00	0.13-0.16	0.0-2.9	0.5-1.0	.20	.28			
	16-27	5-15	1.60-1.80	14.00-42.00	0.13-0.16	0.0-2.9	0.0-0.5	.20	.28			
	27-34	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.20	.28			
	34-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.20	.28			
Peka-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	3	86
	1-7	3-7	1.10-1.30	14.00-42.00	0.14-0.17	0.0-2.9	2.0-5.0	.17	.28			
	7-16	3-7	1.10-1.30	14.00-42.00	0.09-0.12	0.0-2.9	2.0-5.0	.17	.28			
	16-25	5-15	1.40-1.60	14.00-42.00	0.05-0.08	0.0-2.9	1.0-2.0	.10	.28			
	25-50	5-15	1.60-1.80	14.00-42.00	0.05-0.08	0.0-2.9	1.0-2.0	.10	.28			
	50-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28			
478: Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---
Lithic Haplocrypts, xeric, forested-----	0-4	3-7	0.70-0.90	14.00-42.00	0.16-0.20	0.0-2.9	2.0-4.0	.15	.37	1	2	134
	4-16	3-7	0.75-0.95	14.00-42.00	0.16-0.20	0.0-2.9	1.0-2.0	.17	.37			
	16-20	---	---	---	---	---	---	---	---			
Rubble land-----	0-60	---	---	---	---	---	---	---	---	-	---	---
479: Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---
Rubble land-----	0-60	---	---	---	---	---	---	---	---	-	---	---

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Soil Survey of Okanogan County Area, Washington

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
480:												
Rufus-----	0-6	3-7	1.20-1.30	14.00-42.00	0.14-0.16	0.0-2.9	1.0-3.0	.15	.28	1	3	86
	6-14	3-7	1.45-1.55	14.00-42.00	0.08-0.12	0.0-2.9	0.0-0.5	.10	.28			
	14-18	3-7	1.45-1.55	14.00-42.00	0.08-0.12	0.0-2.9	0.0-0.5	.10	.28			
	18-28	---	---	---	---	---	---	---	---			
Wynhoff-----	0-5	5-15	1.20-1.30	14.00-42.00	0.14-0.16	0.0-2.9	1.0-4.0	.17	.28	2	5	56
	5-9	5-15	1.20-1.30	14.00-42.00	0.11-0.13	0.0-2.9	1.0-4.0	.17	.28			
	9-18	5-15	1.35-1.45	14.00-42.00	0.05-0.10	0.0-2.9	0.0-0.5	.10	.28			
	18-24	5-15	1.45-1.55	14.00-42.00	0.04-0.08	0.0-2.9	0.0-0.5	.10	.28			
	24-34	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---
481:												
Rufus-----	0-6	3-7	1.20-1.30	14.00-42.00	0.14-0.16	0.0-2.9	1.0-3.0	.15	.28	1	3	86
	6-14	3-7	1.45-1.55	14.00-42.00	0.08-0.12	0.0-2.9	0.0-0.5	.10	.28			
	14-18	3-7	1.45-1.55	14.00-42.00	0.08-0.12	0.0-2.9	0.0-0.5	.10	.28			
	18-28	---	---	---	---	---	---	---	---			
Wynhoff-----	0-5	5-15	1.20-1.30	14.00-42.00	0.07-0.11	0.0-2.9	1.0-4.0	.17	.28	2	5	56
	5-9	5-15	1.20-1.30	14.00-42.00	0.07-0.11	0.0-2.9	1.0-4.0	.17	.28			
	9-18	5-15	1.35-1.45	14.00-42.00	0.05-0.10	0.0-2.9	0.0-0.5	.10	.28			
	18-24	5-15	1.45-1.55	14.00-42.00	0.04-0.08	0.0-2.9	0.0-0.5	.10	.28			
	24-34	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---
482:												
Sacheen-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	2	134
	1-6	0-10	1.00-1.40	42.00-141.00	0.07-0.09	0.0-2.9	0.5-1.5	.17	.20			
	6-16	0-10	1.00-1.40	42.00-141.00	0.03-0.05	0.0-2.9	0.5-1.0	.17	.20			
	16-60	0-10	1.00-1.40	42.00-141.00	0.03-0.05	0.0-2.9	0.5-1.0	.17	.20			
483:												
Salcreek-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	4	86
	1-7	8-15	1.10-1.40	4.00-14.00	0.16-0.20	0.0-2.9	2.0-5.0	.28	.32			
	7-14	3-15	1.10-1.40	4.00-14.00	0.15-0.17	0.0-2.9	2.0-5.0	.28	.32			
	14-21	3-15	1.10-1.40	4.00-14.00	0.14-0.16	0.0-2.9	1.0-3.0	.17	.28			
	21-29	10-20	1.60-1.80	4.00-14.00	0.14-0.16	0.0-2.9	0.0-0.5	.20	.37			
	29-36	15-35	1.60-1.80	1.40-4.00	0.12-0.16	3.0-5.9	0.0-0.5	.20	.37			
	36-45	15-35	1.60-1.80	1.40-4.00	0.12-0.16	3.0-5.9	0.0-0.5	.20	.37			
	45-60	15-35	1.60-1.80	1.40-4.00	0.12-0.16	3.0-5.9	0.0-0.5	.20	.37			

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Soil Survey of Okanogan County Area, Washington

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility group	erodi- bility index	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
484: Salcreek-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	4	86	
	1-7	8-15	1.10-1.40	4.00-14.00	0.16-0.20	0.0-2.9	2.0-5.0	.28	.32				
	7-14	3-15	1.10-1.40	4.00-14.00	0.15-0.17	0.0-2.9	2.0-5.0	.28	.32				
	14-21	3-15	1.10-1.40	4.00-14.00	0.14-0.16	0.0-2.9	1.0-3.0	.17	.28				
	21-29	10-20	1.60-1.80	4.00-14.00	0.14-0.16	0.0-2.9	0.0-0.5	.20	.37				
	29-37	15-35	1.60-1.80	1.40-4.00	0.12-0.16	3.0-5.9	0.0-0.5	.20	.37				
	37-45	15-35	1.60-1.80	1.40-4.00	0.12-0.16	3.0-5.9	0.0-0.5	.20	.37				
	45-60	15-35	1.60-1.80	1.40-4.00	0.12-0.16	3.0-5.9	0.0-0.5	.20	.37				
485: Scheiner-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	2	134	
	1-3	3-7	1.00-1.35	14.00-42.00	0.15-0.18	0.0-2.9	2.0-4.0	.24	.28				
	3-8	3-7	1.00-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-3.0	.24	.28				
	8-13	3-7	1.00-1.35	14.00-42.00	0.12-0.15	0.0-2.9	0.5-1.5	.24	.28				
	13-17	0-5	1.30-1.50	42.00-141.00	0.06-0.08	0.0-2.9	0.5-1.0	.17	.20				
	17-49	0-5	1.40-1.60	42.00-141.00	0.04-0.07	0.0-2.9	0.5-1.0	.15	.17				
	49-60	0-5	1.40-1.60	42.00-141.00	0.03-0.05	0.0-2.9	0.5-1.0	.10	.17				
Myerscreek-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134	
	1-2	5-10	0.75-0.90	14.00-42.00	0.16-0.20	0.0-2.9	1.0-4.0	.37	.37				
	2-5	3-7	0.75-0.90	14.00-42.00	0.16-0.20	0.0-2.9	1.0-4.0	.37	.37				
	5-13	3-7	0.75-0.90	14.00-42.00	0.15-0.19	0.0-2.9	1.0-2.0	.28	.37				
	13-32	5-15	1.60-1.80	14.00-42.00	0.04-0.09	0.0-2.9	0.0-0.5	.10	.28				
	32-47	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
	47-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
486: Scoop-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	5	56	
	2-9	8-15	1.20-1.35	4.00-14.00	0.18-0.20	0.0-2.9	2.0-5.0	.24	.32				
	9-22	3-7	1.20-1.35	4.00-14.00	0.18-0.20	0.0-2.9	1.0-3.0	.24	.32				
	22-34	5-15	1.30-1.50	4.00-14.00	0.08-0.12	0.0-2.9	0.0-1.0	.24	.32				
	34-44	5-15	1.30-1.50	14.00-42.00	0.06-0.11	0.0-2.9	0.0-1.0	.10	.28				
	44-60	5-15	1.30-1.50	14.00-42.00	0.06-0.11	0.0-2.9	0.0-1.0	.10	.28				
487: Setill-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	4	86	
	1-7	8-15	1.00-1.30	4.00-14.00	0.21-0.23	0.0-2.9	2.0-6.0	.32	.32				
	7-11	8-15	1.00-1.30	4.00-14.00	0.21-0.23	0.0-2.9	1.0-5.0	.20	.32				
	11-20	8-15	1.00-1.30	4.00-14.00	0.18-0.20	0.0-2.9	1.0-3.0	.17	.32				
	20-27	10-30	1.60-1.80	1.40-4.00	0.09-0.14	0.0-2.9	0.0-0.5	.15	.37				
	27-39	25-35	1.70-2.00	0.40-1.40	0.04-0.07	3.0-5.9	0.0-0.5	.15	.37				
	39-60	25-35	1.70-2.00	0.40-1.40	0.04-0.07	3.0-5.9	0.0-0.5	.15	.37				

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Soil Survey of Okanogan County Area, Washington

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
487: Johntom-----	0-3	8-15	1.00-1.30	4.00-14.00	0.14-0.18	0.0-2.9	1.0-3.0	.24	.32	1	6	48
	3-12	10-20	1.10-1.40	4.00-14.00	0.12-0.16	0.0-2.9	0.5-2.0	.10	.32			
	12-16	---	---	---	---	---	---	---	---			
488: Shalrock, cool-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	5	56
	1-8	3-7	1.00-1.20	14.00-42.00	0.14-0.16	0.0-2.9	2.0-4.0	.10	.28			
	8-11	3-7	1.00-1.20	14.00-42.00	0.14-0.16	0.0-2.9	1.0-3.0	.15	.28			
	11-16	3-7	1.00-1.20	14.00-42.00	0.13-0.15	0.0-2.9	0.5-1.5	.10	.28			
	16-25	5-15	1.45-1.65	14.00-42.00	0.05-0.10	0.0-2.9	0.0-0.5	.10	.24			
	25-29	---	---	---	---	---	---	---	---			
Johntom-----	0-3	8-15	1.00-1.30	4.00-14.00	0.14-0.18	0.0-2.9	1.0-3.0	.24	.32	1	6	48
	3-12	10-20	1.10-1.40	4.00-14.00	0.12-0.16	0.0-2.9	0.5-2.0	.10	.32			
	12-16	---	---	---	---	---	---	---	---			
489: Shalrock-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	5	56
	1-8	3-7	1.00-1.20	14.00-42.00	0.14-0.16	0.0-2.9	2.0-4.0	.10	.28			
	8-11	3-7	1.00-1.20	14.00-42.00	0.14-0.16	0.0-2.9	1.0-3.0	.15	.28			
	11-16	3-7	1.00-1.20	14.00-42.00	0.13-0.15	0.0-2.9	0.5-1.5	.10	.28			
	16-25	5-15	1.45-1.65	14.00-42.00	0.05-0.10	0.0-2.9	0.0-0.5	.10	.24			
	25-29	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---
490: Shalrock-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	5	56
	1-8	3-7	1.00-1.20	14.00-42.00	0.14-0.16	0.0-2.9	2.0-4.0	.10	.28			
	8-11	3-7	1.00-1.20	14.00-42.00	0.14-0.16	0.0-2.9	1.0-3.0	.15	.28			
	11-16	3-7	1.00-1.20	14.00-42.00	0.13-0.15	0.0-2.9	0.5-1.5	.10	.28			
	16-25	5-15	1.45-1.65	14.00-42.00	0.05-0.10	0.0-2.9	0.0-0.5	.10	.24			
	25-29	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---
491: Sinlahekin-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	3	86
	1-7	3-7	1.20-1.40	14.00-42.00	0.12-0.14	0.0-2.9	1.0-5.0	.17	.28			
	7-14	3-7	1.20-1.40	14.00-42.00	0.12-0.14	0.0-2.9	1.0-3.0	.17	.28			
	14-23	5-15	1.30-1.50	14.00-42.00	0.09-0.11	0.0-2.9	0.5-1.0	.10	.24			
	23-35	5-15	1.30-1.50	14.00-42.00	0.04-0.05	0.0-2.9	0.2-0.8	.02	.24			
	35-60	0-10	1.30-1.50	42.00-141.00	0.01-0.02	0.0-2.9	0.0-0.5	.02	.20			

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Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility group	erodi- bility index	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
491: Peka-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	3	86	
	1-7	3-7	1.10-1.30	14.00-42.00	0.14-0.17	0.0-2.9	2.0-5.0	.17	.28				
	7-16	3-7	1.10-1.30	14.00-42.00	0.09-0.12	0.0-2.9	2.0-5.0	.17	.28				
	16-25	5-15	1.40-1.60	14.00-42.00	0.05-0.08	0.0-2.9	1.0-2.0	.10	.28				
	25-50	5-15	1.60-1.80	14.00-42.00	0.05-0.08	0.0-2.9	1.0-2.0	.10	.28				
	50-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
Hodgson-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	4	86	
	1-7	5-10	1.00-1.35	4.00-14.00	0.23-0.25	0.0-2.9	2.0-6.0	.32	.37				
	7-10	5-10	1.00-1.35	4.00-14.00	0.23-0.25	0.0-2.9	1.0-3.0	.32	.37				
	10-16	20-35	1.20-1.40	1.40-4.20	0.19-0.21	0.0-2.9	0.5-1.5	.32	.37				
	16-26	20-35	1.20-1.40	1.40-4.20	0.19-0.21	0.0-2.9	0.2-1.0	.32	.37				
	26-41	27-40	1.25-1.40	1.40-4.20	0.19-0.21	3.0-5.9	0.2-0.8	.28	.32				
	41-60	27-40	1.25-1.40	1.40-4.20	0.19-0.21	3.0-5.9	0.2-0.8	.28	.32				
492: Sitdown, cool-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86	
	2-5	3-7	0.75-0.99	14.00-42.00	0.13-0.16	0.0-2.9	1.0-4.0	.17	.28				
	5-13	3-7	0.75-0.99	14.00-42.00	0.13-0.16	0.0-2.9	1.0-3.0	.17	.28				
	13-26	0-10	1.50-1.70	42.00-141.00	0.02-0.05	0.0-2.9	0.0-0.5	.05	.17				
	26-60	0-10	1.50-1.70	42.00-141.00	0.02-0.05	0.0-2.9	0.0-0.5	.05	.17				
493: Sitdown, cool-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86	
	2-5	3-7	0.75-0.99	14.00-42.00	0.13-0.16	0.0-2.9	1.0-4.0	.17	.28				
	5-13	3-7	0.75-1.10	14.00-42.00	0.13-0.16	0.0-2.9	1.0-3.0	.17	.28				
	13-26	0-10	1.50-1.70	42.00-141.00	0.02-0.05	0.0-2.9	0.0-0.5	.05	.17				
	26-60	0-10	1.50-1.70	42.00-141.00	0.02-0.05	0.0-2.9	0.0-0.5	.05	.17				
494: Sitdown-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86	
	2-5	3-7	0.75-0.99	14.00-42.00	0.13-0.16	0.0-2.9	1.0-4.0	.17	.28				
	5-13	3-7	0.75-0.99	14.00-42.00	0.13-0.16	0.0-2.9	1.0-3.0	.17	.28				
	13-26	0-10	1.50-1.70	42.00-141.00	0.02-0.05	0.0-2.9	0.0-0.5	.05	.17				
	26-60	0-10	1.50-1.70	42.00-141.00	0.02-0.05	0.0-2.9	0.0-0.5	.05	.17				
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---	
495: Sitdown, cool-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86	
	2-5	3-7	0.75-0.99	14.00-42.00	0.13-0.16	0.0-2.9	1.0-4.0	.17	.28				
	5-13	3-7	0.75-0.99	14.00-42.00	0.13-0.16	0.0-2.9	1.0-3.0	.17	.28				
	13-26	0-10	1.50-1.70	42.00-141.00	0.02-0.05	0.0-2.9	0.0-0.5	.05	.17				
	26-60	0-10	1.50-1.70	42.00-141.00	0.02-0.05	0.0-2.9	0.0-0.5	.05	.17				

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Soil Survey of Okanogan County Area, Washington

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
495: Wellsfar-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	3	86
	2-5	3-7	0.90-1.30	14.00-42.00	0.12-0.15	0.0-2.9	1.0-3.0	.15	.28			
	5-10	3-7	0.90-1.30	14.00-42.00	0.12-0.15	0.0-2.9	0.5-1.5	.15	.28			
	10-18	5-15	1.50-1.70	14.00-42.00	0.07-0.09	0.0-2.9	0.5-1.0	.10	.20			
	18-27	5-15	1.50-1.70	14.00-42.00	0.05-0.07	0.0-2.9	0.2-0.8	.05	.20			
	27-37	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---
496: Skaha-----	0-7	0-10	1.55-1.65	42.00-141.00	0.04-0.06	0.0-2.9	0.5-1.5	.10	.20	5	2	134
	7-13	0-10	1.55-1.65	42.00-141.00	0.03-0.05	0.0-2.9	0.0-0.5	.10	.20			
	13-23	0-5	1.55-1.65	42.00-141.00	0.02-0.04	0.0-2.9	0.0-0.5	.10	.20			
	23-60	0-5	1.55-1.65	141.00-705.00	0.02-0.04	0.0-2.9	0.0-0.5	.05	.17			
497: Skaha-----	0-7	0-10	1.55-1.65	42.00-141.00	0.04-0.06	0.0-2.9	0.5-1.5	.10	.20	5	2	134
	7-13	0-10	1.55-1.65	42.00-141.00	0.03-0.05	0.0-2.9	0.0-0.5	.10	.20			
	13-23	0-5	1.55-1.65	42.00-141.00	0.02-0.04	0.0-2.9	0.0-0.5	.10	.20			
	23-60	0-5	1.55-1.65	141.00-705.00	0.02-0.04	0.0-2.9	0.0-0.5	.05	.17			
498: Skaha-----	0-7	0-10	1.55-1.65	42.00-141.00	0.04-0.06	0.0-2.9	0.5-1.5	.10	.20	5	2	134
	7-13	0-10	1.55-1.65	42.00-141.00	0.03-0.05	0.0-2.9	0.0-0.5	.10	.20			
	13-23	0-5	1.55-1.65	42.00-141.00	0.02-0.04	0.0-2.9	0.0-0.5	.10	.20			
	23-60	0-5	1.55-1.65	141.00-705.00	0.02-0.04	0.0-2.9	0.0-0.5	.05	.17			
499: Smokejump-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86
	1-5	3-7	0.80-0.95	14.00-42.00	0.13-0.16	0.0-2.9	1.0-4.0	.10	.28			
	5-14	3-7	0.80-0.95	14.00-42.00	0.11-0.13	0.0-2.9	1.0-3.0	.10	.28			
	14-29	5-15	1.30-1.55	14.00-42.00	0.07-0.09	0.0-2.9	0.0-0.5	.05	.24			
	29-33	5-15	1.30-1.55	14.00-42.00	0.06-0.09	0.0-2.9	0.0-0.5	.05	.24			
	33-37	---	---	---	---	---	---	---	---			
Jantill-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	3	86
	2-4	5-10	0.75-1.00	14.00-42.00	0.16-0.18	0.0-2.9	1.0-4.0	.17	.28			
	4-6	3-7	0.75-0.99	14.00-42.00	0.15-0.17	0.0-2.9	1.0-4.0	.17	.28			
	6-13	3-7	0.75-1.10	14.00-42.00	0.14-0.16	0.0-2.9	1.0-3.0	.17	.28			
	13-29	0-7	1.60-1.80	42.00-141.00	0.04-0.06	0.0-2.9	0.0-0.5	.05	.17			
	29-60	0-7	1.60-1.80	42.00-141.00	0.04-0.06	0.0-2.9	0.0-0.5	.05	.17			

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind
								Kw	Kf	T	erodi- bility	erodi- bility
	In	Pct	g/cc	um/sec	In/in	Pct	Pct				group	index
500: Smokejump-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86
	1-5	3-7	0.80-0.95	14.00-42.00	0.13-0.16	0.0-2.9	1.0-4.0	.10	.28			
	5-14	3-7	0.80-0.95	14.00-42.00	0.11-0.13	0.0-2.9	1.0-3.0	.10	.28			
	14-29	5-15	1.30-1.55	14.00-42.00	0.07-0.09	0.0-2.9	0.0-0.5	.05	.24			
	29-33	5-15	1.30-1.55	14.00-42.00	0.06-0.09	0.0-2.9	0.0-0.5	.05	.24			
	33-37	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---
501: Smokejump-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86
	1-5	3-7	0.80-0.95	14.00-42.00	0.13-0.16	0.0-2.9	1.0-4.0	.10	.28			
	5-14	3-7	0.80-0.95	14.00-42.00	0.11-0.13	0.0-2.9	1.0-3.0	.10	.28			
	14-29	5-15	1.30-1.55	14.00-42.00	0.07-0.09	0.0-2.9	0.0-0.5	.05	.24			
	29-33	5-15	1.30-1.55	14.00-42.00	0.06-0.09	0.0-2.9	0.0-0.5	.05	.24			
	33-37	---	---	---	---	---	---	---	---			
Twentymile-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134
	1-2	5-10	0.75-0.90	14.00-42.00	0.16-0.20	0.0-2.9	1.0-3.0	.37	.37			
	2-5	3-7	0.75-0.90	14.00-42.00	0.16-0.20	0.0-2.9	1.0-3.0	.37	.37			
	5-14	3-7	0.75-0.90	14.00-42.00	0.15-0.20	0.0-2.9	1.0-2.0	.28	.37			
	14-32	5-15	1.60-1.80	14.00-42.00	0.04-0.09	0.0-2.9	0.0-0.5	.10	.28			
	32-45	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28			
	45-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28			
502: Stapaloop-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	2	134
	1-4	3-7	1.20-1.45	14.00-42.00	0.17-0.21	0.0-2.9	1.0-4.0	.32	.32			
	4-14	3-7	1.20-1.45	14.00-42.00	0.16-0.20	0.0-2.9	0.5-2.0	.32	.32			
	14-22	3-7	1.20-1.45	14.00-42.00	0.16-0.20	0.0-2.9	0.0-0.5	.32	.32			
	22-35	5-15	1.30-1.50	14.00-42.00	0.12-0.15	0.0-2.9	0.0-0.5	.32	.32			
	35-51	5-15	1.30-1.50	14.00-42.00	0.09-0.13	0.0-2.9	0.0-0.5	.24	.28			
	51-60	5-15	1.35-1.55	14.00-42.00	0.07-0.12	0.0-2.9	0.0-0.5	.24	.28			
503: Stemilt-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	3	86
	1-8	3-7	1.10-1.40	14.00-42.00	0.14-0.16	0.0-2.9	2.0-5.0	.15	.28			
	8-13	3-7	1.10-1.40	14.00-42.00	0.13-0.15	0.0-2.9	2.0-5.0	.15	.28			
	13-22	3-7	1.10-1.40	14.00-42.00	0.12-0.14	0.0-2.9	1.0-3.0	.10	.28			
	22-33	25-35	1.40-1.55	4.00-14.00	0.11-0.13	3.0-5.9	0.0-0.5	.15	.37			
	33-47	25-35	1.40-1.55	4.00-14.00	0.11-0.13	3.0-5.9	0.0-0.5	.15	.37			
	47-60	25-35	1.40-1.55	4.00-14.00	0.11-0.13	3.0-5.9	0.0-0.5	.15	.37			

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Soil Survey of Okanogan County Area, Washington

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
503: Midpeak-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86
	1-7	3-7	1.00-1.20	14.00-42.00	0.14-0.16	0.0-2.9	2.0-5.0	.15	.28			
	7-16	3-7	1.00-1.20	14.00-42.00	0.13-0.15	0.0-2.9	2.0-4.0	.10	.28			
	16-24	5-15	1.00-1.20	14.00-42.00	0.07-0.10	0.0-2.9	1.0-3.0	.10	.28			
	24-37	5-15	1.30-1.50	14.00-42.00	0.04-0.08	0.0-2.9	0.5-1.5	.10	.28			
	37-41	---	---	---	---	---	---	---	---			
504: Stepstone-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134
	1-2	3-7	0.65-0.85	14.00-42.00	0.19-0.22	0.0-2.9	1.0-4.0	.37	.37			
	2-6	3-7	0.65-0.85	14.00-42.00	0.18-0.20	0.0-2.9	1.0-4.0	.37	.37			
	6-19	3-7	0.65-0.85	14.00-42.00	0.18-0.20	0.0-2.9	1.0-2.0	.28	.37			
	19-23	5-15	0.75-0.85	14.00-42.00	0.10-0.13	0.0-2.9	0.0-0.5	.15	.28			
	23-39	0-10	1.60-2.00	1.40-4.00	0.06-0.08	0.0-2.9	0.0-0.5	.15	.37			
	39-60	0-10	1.60-2.00	1.40-4.00	0.03-0.06	0.0-2.9	0.0-0.5	.10	.37			
505: Stepstone, dry-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134
	1-2	3-7	0.65-0.85	14.00-42.00	0.19-0.22	0.0-2.9	1.0-4.0	.37	.37			
	2-6	3-7	0.65-0.85	14.00-42.00	0.18-0.20	0.0-2.9	1.0-4.0	.37	.37			
	6-19	3-7	0.65-0.85	14.00-42.00	0.18-0.20	0.0-2.9	1.0-2.0	.28	.37			
	19-23	5-15	0.75-0.85	14.00-42.00	0.10-0.13	0.0-2.9	0.0-0.5	.15	.28			
	23-39	0-10	1.60-2.00	1.40-4.00	0.06-0.08	0.0-2.9	0.0-0.5	.15	.37			
	39-60	0-10	1.60-2.00	1.40-4.00	0.03-0.06	0.0-2.9	0.0-0.5	.10	.37			
506: Stepstone-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134
	1-2	3-7	0.65-0.85	14.00-42.00	0.19-0.22	0.0-2.9	1.0-4.0	.37	.37			
	2-6	3-7	0.65-0.85	14.00-42.00	0.18-0.20	0.0-2.9	1.0-4.0	.37	.37			
	6-19	3-7	0.65-0.85	14.00-42.00	0.18-0.20	0.0-2.9	1.0-2.0	.28	.37			
	19-23	5-15	0.75-0.85	14.00-42.00	0.10-0.13	0.0-2.9	0.0-0.5	.15	.28			
	23-39	0-10	1.60-2.00	1.40-4.00	0.06-0.08	0.0-2.9	0.0-0.5	.15	.37			
	39-60	0-10	1.60-2.00	1.40-4.00	0.03-0.06	0.0-2.9	0.0-0.5	.10	.37			
Torboy-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	2	134
	1-6	3-7	1.20-1.35	14.00-42.00	0.16-0.18	0.0-2.9	1.0-4.0	.28	.28			
	6-11	3-7	1.20-1.40	14.00-42.00	0.15-0.17	0.0-2.9	1.0-2.0	.20	.28			
	11-19	3-7	1.20-1.40	14.00-42.00	0.15-0.17	0.0-2.9	0.0-1.0	.20	.28			
	19-28	0-7	1.35-1.60	42.00-141.00	0.04-0.07	0.0-2.9	0.0-0.5	.15	.17			
	28-38	0-7	1.35-1.60	42.00-141.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.17			
	38-60	0-7	1.35-1.60	42.00-141.00	0.03-0.07	0.0-2.9	0.0-0.5	.10	.17			

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Soil Survey of Okanogan County Area, Washington

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
507:												
Storer-----	0-5	5-15	1.30-1.40	14.00-42.00	0.14-0.17	0.0-2.9	2.0-5.0	.20	.28	3	5	56
	5-12	5-15	1.30-1.40	14.00-42.00	0.09-0.12	0.0-2.9	2.0-4.0	.20	.28			
	12-19	5-15	1.35-1.45	14.00-42.00	0.05-0.09	0.0-2.9	1.0-2.0	.10	.24			
	19-31	5-15	1.45-1.60	14.00-42.00	0.05-0.08	0.0-2.9	0.0-0.5	.05	.24			
	31-42	5-15	1.45-1.60	14.00-42.00	0.05-0.08	0.0-2.9	0.0-0.5	.05	.24			
	42-46	---	---	---	---	---	---	---	---			
Swakane-----	0-4	3-7	1.30-1.45	14.00-42.00	0.05-0.09	0.0-2.9	2.0-4.0	.10	.24	1	5	56
	4-11	3-7	1.35-1.45	14.00-42.00	0.04-0.08	0.0-2.9	1.0-3.0	.10	.28			
	11-17	5-15	1.40-1.55	14.00-42.00	0.04-0.08	0.0-2.9	0.0-0.5	.10	.28			
	17-21	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---
508:												
Strat-----	0-10	10-15	1.35-1.45	4.00-14.00	0.10-0.12	0.0-2.9	1.0-5.0	.17	.32	5	5	56
	10-18	10-15	1.35-1.45	14.00-42.00	0.08-0.10	0.0-2.9	0.5-1.5	.10	.32			
	18-22	10-15	1.35-1.45	14.00-42.00	0.08-0.10	0.0-2.9	0.5-1.5	.10	.32			
	22-60	0-5	1.25-1.35	141.00-705.00	0.01-0.03	0.0-2.9	0.2-0.8	.05	.20			
509:												
Swakane-----	0-4	3-7	1.30-1.45	14.00-42.00	0.05-0.09	0.0-2.9	2.0-4.0	.10	.24	1	5	56
	4-11	3-7	1.35-1.45	14.00-42.00	0.04-0.08	0.0-2.9	1.0-3.0	.10	.28			
	11-17	5-15	1.40-1.55	14.00-42.00	0.04-0.08	0.0-2.9	0.0-0.5	.10	.28			
	17-21	---	---	---	---	---	---	---	---			
Peka, moist-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	3	86
	1-7	3-7	1.10-1.30	14.00-42.00	0.14-0.17	0.0-2.9	2.0-5.0	.17	.28			
	7-16	3-7	1.10-1.30	14.00-42.00	0.09-0.12	0.0-2.9	2.0-5.0	.17	.28			
	16-25	5-15	1.40-1.60	14.00-42.00	0.05-0.08	0.0-2.9	1.0-2.0	.10	.28			
	25-50	5-15	1.60-1.80	14.00-42.00	0.05-0.08	0.0-2.9	1.0-2.0	.10	.28			
	50-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---
510:												
Swakane-----	0-4	3-7	1.30-1.45	14.00-42.00	0.05-0.09	0.0-2.9	2.0-4.0	.10	.24	1	5	56
	4-11	3-7	1.35-1.45	14.00-42.00	0.04-0.08	0.0-2.9	1.0-3.0	.10	.28			
	11-17	5-15	1.40-1.55	14.00-42.00	0.04-0.08	0.0-2.9	0.0-0.5	.10	.28			
	17-21	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
511: Swakane-----	0-4	3-7	1.30-1.45	14.00-42.00	0.05-0.09	0.0-2.9	2.0-4.0	.10	.24	1	5	56
	4-11	3-7	1.35-1.45	14.00-42.00	0.04-0.08	0.0-2.9	1.0-3.0	.10	.28			
	11-17	5-15	1.40-1.55	14.00-42.00	0.04-0.08	0.0-2.9	0.0-0.5	.10	.28			
	17-21	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---
Peka, moist-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	3	86
	1-7	3-7	1.10-1.30	14.00-42.00	0.14-0.17	0.0-2.9	2.0-5.0	.17	.28			
	7-16	3-7	1.10-1.30	14.00-42.00	0.09-0.12	0.0-2.9	2.0-5.0	.17	.28			
	16-25	5-15	1.40-1.60	14.00-42.00	0.05-0.08	0.0-2.9	1.0-2.0	.10	.28			
	25-50	5-15	1.60-1.80	14.00-42.00	0.05-0.08	0.0-2.9	1.0-2.0	.10	.28			
	50-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28			
512: Sycreek-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	4	86
	2-8	8-15	1.10-1.30	4.00-14.00	0.21-0.23	0.0-2.9	2.0-5.0	.32	.32			
	8-16	8-15	1.10-1.30	4.00-14.00	0.21-0.23	0.0-2.9	2.0-5.0	.20	.32			
	16-27	20-30	1.60-1.80	1.40-4.00	0.09-0.12	3.0-5.9	0.0-0.5	.15	.37			
	27-44	20-30	1.60-1.80	1.40-4.00	0.09-0.12	3.0-5.9	0.0-0.5	.15	.37			
	44-60	25-35	1.70-2.00	0.42-1.40	0.04-0.07	3.0-5.9	0.0-0.5	.15	.37			
513: Synarep-----	0-8	5-10	0.65-0.85	4.00-14.00	0.19-0.21	0.0-2.9	1.0-3.0	.49	.49	5	2	134
	8-33	5-10	0.65-0.85	4.00-14.00	0.19-0.21	0.0-2.9	0.0-1.0	.49	.49			
	33-46	5-10	0.65-0.85	4.00-14.00	0.19-0.21	0.0-2.9	0.0-1.0	.49	.49			
	46-60	5-10	0.85-1.10	14.00-42.00	0.13-0.16	0.0-2.9	0.0-0.5	.32	.37			
Colville, poorly drained-----	0-4	18-27	1.15-1.35	4.00-14.00	0.21-0.24	0.0-2.9	2.0-6.0	.37	.37	5	6	48
	4-9	18-30	1.15-1.35	4.00-14.00	0.21-0.24	0.0-2.9	2.0-4.0	.37	.37			
	9-17	18-35	1.15-1.35	1.40-14.00	0.21-0.24	3.0-5.9	1.0-5.0	.32	.32			
	17-21	18-27	1.25-1.35	1.40-14.00	0.18-0.20	3.0-5.9	1.0-3.0	.32	.32			
	21-33	27-35	1.25-1.35	1.40-14.00	0.18-0.20	3.0-5.9	0.5-1.5	.32	.32			
	33-43	25-35	1.25-1.35	1.40-14.00	0.18-0.20	3.0-5.9	0.5-1.5	.32	.32			
	43-60	25-35	1.25-1.35	1.40-14.00	0.18-0.20	3.0-5.9	0.5-1.5	.32	.32			
Xerofluvents-----	0-8	5-15	1.20-1.40	14.00-42.00	0.12-0.15	0.0-2.9	1.0-2.0	.37	.37	5	3	86
	8-30	5-15	1.35-1.50	14.00-42.00	0.10-0.13	0.0-2.9	0.0-1.0	.43	.43			
	30-60	0-5	1.40-1.60	42.00-141.00	0.06-0.09	0.0-2.9	0.0-1.0	.17	.17			

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind
								Kw	Kf	T	erodi- bility	erodi- bility
	In	Pct	g/cc	um/sec	In/in	Pct	Pct				group	index
514:												
Thout-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86
	1-5	3-7	1.00-1.35	10.00-100.00	0.10-0.13	0.0-2.9	1.0-3.0	.15	.28			
	5-12	3-7	1.00-1.35	10.00-100.00	0.07-0.10	0.0-2.9	1.0-2.0	.10	.28			
	12-25	5-15	1.30-1.55	10.00-100.00	0.07-0.10	0.0-2.9	1.0-2.0	.10	.28			
	25-29	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---
515:												
Thow-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	2	134
	1-6	0-7	0.65-0.85	14.00-42.00	0.20-0.23	0.0-2.9	1.0-3.0	.24	.28			
	6-12	3-7	0.65-0.85	14.00-42.00	0.18-0.22	0.0-2.9	2.0-4.0	.20	.28			
	12-38	3-7	0.65-0.85	14.00-42.00	0.17-0.19	0.0-2.9	1.0-3.0	.15	.24			
	38-51	0-7	0.65-0.85	14.00-42.00	0.16-0.18	0.0-2.9	1.0-3.0	.15	.17			
	51-60	0-7	0.70-1.00	14.00-42.00	0.14-0.16	0.0-2.9	0.0-1.0	.10	.20			
Vingulch-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	2	134
	1-4	0-7	0.65-0.85	14.00-42.00	0.21-0.25	0.0-2.9	2.0-4.0	.37	.37			
	4-12	3-7	0.65-0.85	14.00-42.00	0.18-0.20	0.0-2.9	2.0-4.0	.20	.24			
	12-22	3-7	0.65-0.85	14.00-42.00	0.16-0.18	0.0-2.9	1.0-3.0	.15	.24			
	22-28	3-7	0.65-0.85	14.00-42.00	0.15-0.17	0.0-2.9	1.0-3.0	.15	.24			
	28-34	3-7	0.65-0.85	14.00-42.00	0.15-0.17	0.0-2.9	0.0-1.0	.15	.24			
	34-39	3-7	1.50-1.65	14.00-42.00	0.05-0.08	0.0-2.9	0.0-1.0	.10	.24			
	39-43	---	---	---	---	---	---	---	---			
516:												
Thrapp-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	4	86
	1-5	8-15	1.10-1.30	14.00-42.00	0.21-0.25	0.0-2.9	2.0-4.0	.32	.32			
	5-13	8-15	1.10-1.30	14.00-42.00	0.21-0.25	0.0-2.9	1.0-4.0	.32	.32			
	13-23	5-15	1.25-1.40	14.00-42.00	0.11-0.14	0.0-2.9	1.0-2.0	.15	.24			
	23-30	5-15	1.60-1.80	14.00-42.00	0.07-0.11	0.0-2.9	0.0-0.5	.15	.20			
	30-37	5-15	1.60-1.80	14.00-42.00	0.07-0.11	0.0-2.9	0.0-0.5	.15	.20			
	37-60	5-15	1.70-2.00	1.40-4.00	0.04-0.08	0.0-2.9	0.0-0.5	.10	.17			
Aquandic Xerofluvents	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	2	134
	1-5	3-7	0.75-0.90	14.00-42.00	0.20-0.23	0.0-2.9	1.0-2.0	.28	.28			
	5-9	3-7	0.75-0.90	14.00-42.00	0.20-0.23	0.0-2.9	1.0-2.0	.28	.28			
	9-14	3-7	0.80-1.10	14.00-42.00	0.20-0.23	0.0-2.9	0.0-1.0	.28	.28			
	14-25	3-8	1.30-1.50	42.00-141.00	0.06-0.08	0.0-2.9	0.0-1.0	.17	.20			
	25-45	5-15	1.30-1.50	14.00-42.00	0.11-0.13	0.0-2.9	0.0-1.0	.24	.28			
	45-51	3-8	1.30-1.50	42.00-141.00	0.05-0.06	0.0-2.9	0.0-1.0	.15	.20			
	51-60	3-8	1.30-1.55	42.00-141.00	0.04-0.05	0.0-2.9	0.0-1.0	.10	.20			

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Soil Survey of Okanogan County Area, Washington

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility	erodi- bility	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
517: Thuso-----	0-12	8-15	1.00-1.35	4.00-14.00	0.15-0.17	0.0-2.9	1.0-5.0	.24	.32	5	4	86	
	12-25	3-7	1.00-1.35	14.00-42.00	0.12-0.15	0.0-2.9	0.5-2.5	.15	.28				
	25-37	5-15	1.20-1.40	14.00-42.00	0.06-0.08	0.0-2.9	0.2-1.0	.10	.28				
	37-61	5-15	1.20-1.40	14.00-42.00	0.05-0.08	0.0-2.9	0.2-1.0	.10	.28				
518: Thuso-----	0-12	8-15	1.00-1.35	4.00-14.00	0.15-0.17	0.0-2.9	1.0-5.0	.24	.32	5	4	86	
	12-25	3-7	1.00-1.35	14.00-42.00	0.12-0.15	0.0-2.9	0.5-2.5	.15	.28				
	25-37	5-15	1.20-1.40	14.00-42.00	0.06-0.08	0.0-2.9	0.2-1.0	.10	.28				
	37-61	5-15	1.20-1.40	14.00-42.00	0.05-0.08	0.0-2.9	0.2-1.0	.10	.28				
519: Thuso, cool-----	0-12	8-15	1.00-1.35	4.00-14.00	0.15-0.17	0.0-2.9	1.0-5.0	.24	.32	5	2	134	
	12-25	3-7	1.00-1.35	14.00-42.00	0.12-0.15	0.0-2.9	0.5-2.5	.15	.28				
	25-37	5-15	1.20-1.40	14.00-42.00	0.06-0.08	0.0-2.9	0.2-1.0	.10	.28				
	37-61	5-15	1.20-1.40	14.00-42.00	0.05-0.08	0.0-2.9	0.2-1.0	.10	.28				
520: Thuso-----	0-12	8-15	1.00-1.35	4.00-14.00	0.15-0.17	0.0-2.9	1.0-5.0	.24	.32	5	4	86	
	12-25	3-7	1.00-1.35	14.00-42.00	0.12-0.15	0.0-2.9	0.5-2.5	.15	.28				
	25-37	5-15	1.20-1.40	14.00-42.00	0.06-0.08	0.0-2.9	0.2-1.0	.10	.28				
	37-61	5-15	1.20-1.40	14.00-42.00	0.05-0.08	0.0-2.9	0.2-1.0	.10	.28				
Lithic Haploxerepts, range, moist-----	0-3	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37	1	3	86	
	3-12	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37				
	12-18	5-15	1.30-1.50	14.00-42.00	0.04-0.15	0.0-2.9	0.0-1.0	.15	.37				
	18-22	---	---	---	---	---	---	---	---				
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---	
521: Toats-----	0-5	8-15	1.15-1.25	4.00-14.00	0.21-0.23	0.0-2.9	2.0-5.0	.32	.32	2	4	86	
	5-14	8-15	1.15-1.25	4.00-14.00	0.15-0.17	0.0-2.9	2.0-5.0	.32	.32				
	14-23	10-20	1.60-1.80	4.00-14.00	0.13-0.15	0.0-2.9	1.0-3.0	.15	.32				
	23-40	5-15	1.60-1.80	4.00-14.00	0.07-0.09	0.0-2.9	0.0-0.5	.05	.20				
	40-52	5-15	1.60-1.80	4.00-14.00	0.07-0.09	0.0-2.9	0.0-0.5	.05	.20				
	52-60	5-15	1.70-1.90	4.00-14.00	0.06-0.08	0.0-2.9	0.0-0.5	.05	.20				
Longswamp-----	0-7	8-15	1.15-1.25	4.00-14.00	0.17-0.21	0.0-2.9	3.0-5.0	.32	.32	5	4	86	
	7-20	8-15	1.15-1.25	4.00-14.00	0.16-0.20	0.0-2.9	2.0-4.0	.32	.32				
	20-25	20-30	1.30-1.45	4.00-14.00	0.16-0.20	0.0-2.9	1.0-2.0	.24	.37				
	25-39	20-30	1.50-1.70	4.00-14.00	0.12-0.16	0.0-2.9	0.0-0.5	.24	.37				
	39-60	5-30	1.50-1.70	4.00-14.00	0.12-0.16	0.0-2.9	0.0-0.5	.20	.37				

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility	erodi- bility	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
522: Tonasket-----	0-8	5-20	1.05-1.15	4.00-14.00	0.19-0.21	0.0-2.9	2.0-6.0	.43	.49	5	5	56	
	8-15	5-20	1.05-1.15	4.00-14.00	0.19-0.21	0.0-2.9	1.0-2.0	.43	.49				
	15-28	5-20	1.30-1.40	4.00-14.00	0.16-0.19	0.0-2.9	0.5-1.0	.43	.49				
	28-41	5-15	1.30-1.40	1.40-4.20	0.15-0.19	0.0-2.9	0.0-0.8	.28	.32				
	41-65	5-15	1.30-1.40	1.40-4.20	0.15-0.19	0.0-2.9	0.0-0.8	.28	.32				
523: Tonasket-----	0-8	5-20	1.05-1.15	4.00-14.00	0.19-0.21	0.0-2.9	2.0-6.0	.43	.49	5	5	56	
	8-15	5-20	1.05-1.15	4.00-14.00	0.19-0.21	0.0-2.9	1.0-2.0	.43	.49				
	15-28	5-20	1.30-1.40	4.00-14.00	0.16-0.19	0.0-2.9	0.5-1.0	.43	.49				
	28-41	5-15	1.30-1.40	1.40-4.20	0.15-0.19	0.0-2.9	0.0-0.8	.28	.32				
	41-65	5-15	1.30-1.40	1.40-4.20	0.15-0.19	0.0-2.9	0.0-0.8	.28	.32				
524: Tonasket-----	0-8	5-20	1.05-1.15	4.00-14.00	0.19-0.21	0.0-2.9	2.0-6.0	.43	.49	5	5	56	
	8-15	5-20	1.05-1.15	4.00-14.00	0.19-0.21	0.0-2.9	1.0-2.0	.43	.49				
	15-28	5-20	1.30-1.40	4.00-14.00	0.16-0.19	0.0-2.9	0.5-1.0	.43	.49				
	28-41	5-15	1.30-1.40	1.40-4.20	0.15-0.19	0.0-2.9	0.0-0.8	.28	.32				
	41-65	5-15	1.30-1.40	1.40-4.20	0.15-0.19	0.0-2.9	0.0-0.8	.28	.32				
525: Tonasket-----	0-8	5-20	1.05-1.15	4.00-14.00	0.19-0.21	0.0-2.9	2.0-6.0	.43	.49	5	5	56	
	8-15	5-20	1.05-1.15	4.00-14.00	0.19-0.21	0.0-2.9	1.0-2.0	.43	.49				
	15-28	5-20	1.30-1.40	4.00-14.00	0.16-0.19	0.0-2.9	0.5-1.0	.43	.49				
	28-41	5-15	1.30-1.40	1.40-4.20	0.15-0.19	0.0-2.9	0.0-0.8	.28	.32				
	41-65	5-15	1.30-1.40	1.40-4.20	0.15-0.19	0.0-2.9	0.0-0.8	.28	.32				
526: Tonasket-----	0-8	5-20	1.05-1.15	4.00-14.00	0.19-0.21	0.0-2.9	2.0-6.0	.43	.49	5	5	56	
	8-15	5-20	1.05-1.15	4.00-14.00	0.19-0.21	0.0-2.9	1.0-2.0	.43	.49				
	15-28	5-20	1.30-1.40	4.00-14.00	0.16-0.19	0.0-2.9	0.5-1.0	.43	.49				
	28-41	5-15	1.30-1.40	1.40-4.20	0.15-0.19	0.0-2.9	0.0-0.8	.28	.32				
	41-65	5-15	1.30-1.40	1.40-4.20	0.15-0.19	0.0-2.9	0.0-0.8	.28	.32				
527: Tonasket, extremely stony surface-----	0-8	5-20	1.05-1.15	4.00-14.00	0.19-0.21	0.0-2.9	2.0-6.0	.43	.49	5	5	56	
	8-15	5-20	1.05-1.15	4.00-14.00	0.19-0.21	0.0-2.9	1.0-2.0	.43	.49				
	15-28	5-20	1.30-1.40	4.00-14.00	0.16-0.19	0.0-2.9	0.5-1.0	.43	.49				
	28-41	5-15	1.30-1.40	1.40-4.20	0.15-0.19	0.0-2.9	0.0-0.8	.28	.32				
	41-65	5-15	1.30-1.40	1.40-4.20	0.15-0.19	0.0-2.9	0.0-0.8	.28	.32				

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility	erodi- bility	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
528: Twentymile-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134	
	1-2	5-10	0.75-0.90	14.00-42.00	0.16-0.20	0.0-2.9	1.0-3.0	.37	.37				
	2-5	3-7	0.75-0.90	14.00-42.00	0.16-0.20	0.0-2.9	1.0-3.0	.37	.37				
	5-14	3-7	0.75-0.90	14.00-42.00	0.15-0.20	0.0-2.9	1.0-2.0	.28	.37				
	14-32	5-15	1.60-1.80	14.00-42.00	0.04-0.09	0.0-2.9	0.0-0.5	.10	.28				
	32-45	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
	45-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
529: Twentymile-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134	
	1-2	5-10	0.75-0.90	14.00-42.00	0.16-0.20	0.0-2.9	1.0-3.0	.37	.37				
	2-5	3-7	0.75-0.90	14.00-42.00	0.16-0.20	0.0-2.9	1.0-3.0	.37	.37				
	5-14	3-7	0.75-0.90	14.00-42.00	0.15-0.20	0.0-2.9	1.0-2.0	.28	.37				
	14-32	5-15	1.60-1.80	14.00-42.00	0.04-0.09	0.0-2.9	0.0-0.5	.10	.28				
	32-45	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
	45-60	5-15	1.70-2.00	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28				
Smokejump-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86	
	1-5	3-7	0.80-0.95	14.00-42.00	0.13-0.16	0.0-2.9	1.0-4.0	.10	.28				
	5-14	3-7	0.80-0.95	14.00-42.00	0.11-0.13	0.0-2.9	1.0-3.0	.10	.28				
	14-29	5-15	1.30-1.55	14.00-42.00	0.07-0.09	0.0-2.9	0.0-0.5	.05	.24				
	29-33	5-15	1.30-1.55	14.00-42.00	0.06-0.09	0.0-2.9	0.0-0.5	.05	.24				
	33-37	---	---	---	---	---	---	---	---				
530: Vallan-----	0-2	8-15	1.15-1.40	4.00-14.00	0.13-0.16	3.0-5.9	1.0-3.0	.28	.28	1	5	56	
	2-10	20-30	1.25-1.40	4.00-14.00	0.15-0.19	3.0-5.9	0.0-0.5	.24	.28				
	10-16	20-27	1.25-1.40	4.00-14.00	0.15-0.19	3.0-5.9	0.0-0.5	.24	.28				
	16-20	---	---	---	---	---	---	---	---				
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---	
531: Vanbrunt-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86	
	1-8	3-7	1.30-1.40	14.00-42.00	0.14-0.16	0.0-2.9	2.0-4.0	.15	.24				
	8-13	3-7	1.50-1.60	14.00-42.00	0.13-0.15	0.0-2.9	1.0-2.0	.10	.24				
	13-20	5-15	1.50-1.60	14.00-42.00	0.05-0.10	0.0-2.9	1.0-2.0	.10	.24				
	20-26	5-15	1.50-1.60	14.00-42.00	0.04-0.09	0.0-2.9	0.0-0.5	.10	.24				
	26-30	---	---	---	---	---	---	---	---				
Swakane-----	0-4	3-7	1.30-1.45	14.00-42.00	0.05-0.09	0.0-2.9	2.0-4.0	.10	.24	1	5	56	
	4-11	3-7	1.35-1.45	14.00-42.00	0.04-0.08	0.0-2.9	1.0-3.0	.10	.28				
	11-17	5-15	1.40-1.55	14.00-42.00	0.04-0.08	0.0-2.9	0.0-0.5	.10	.28				
	17-21	---	---	---	---	---	---	---	---				

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility group	erodi- bility index	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
531: Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	-	---	---
532: Verhart, cold-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86	
	1-5	3-7	1.10-1.30	14.00-42.00	0.14-0.16	0.0-2.9	2.0-4.0	.20	.28				
	5-12	3-7	1.10-1.30	14.00-42.00	0.14-0.16	0.0-2.9	1.0-2.0	.10	.28				
	12-25	5-15	1.50-1.60	14.00-42.00	0.05-0.09	0.0-2.9	0.0-0.5	.05	.20				
	25-29	---	---	---	---	---	---	---	---				
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---	---
533: Veridge-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86	
	1-5	3-7	0.80-0.90	14.00-42.00	0.12-0.14	0.0-2.9	2.0-4.0	.20	.32				
	5-13	3-7	0.80-0.90	14.00-42.00	0.12-0.15	0.0-2.9	1.0-3.0	.20	.32				
	13-22	5-15	1.45-1.55	14.00-42.00	0.06-0.08	0.0-2.9	0.0-0.5	.10	.20				
	22-31	5-15	1.50-1.65	14.00-42.00	0.05-0.08	0.0-2.9	0.0-0.5	.10	.20				
	31-35	---	---	---	---	---	---	---	---				
Farway-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	3	86	
	1-5	3-7	0.80-0.90	14.00-42.00	0.18-0.22	0.0-2.9	2.0-4.0	.20	.32				
	5-10	3-7	0.80-0.90	14.00-42.00	0.16-0.20	0.0-2.9	1.0-3.0	.20	.32				
	10-21	3-7	0.80-0.90	14.00-42.00	0.16-0.20	0.0-2.9	0.0-1.0	.20	.32				
	21-60	5-15	1.50-1.65	14.00-42.00	0.05-0.08	0.0-2.9	0.0-0.5	.05	.20				
534: Veridge, moist-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86	
	1-5	3-7	0.80-0.90	14.00-42.00	0.12-0.14	0.0-2.9	2.0-4.0	.20	.32				
	5-13	3-7	0.80-0.90	14.00-42.00	0.12-0.15	0.0-2.9	1.0-3.0	.20	.32				
	13-22	5-15	1.45-1.55	14.00-42.00	0.06-0.08	0.0-2.9	0.0-0.5	.10	.20				
	22-31	5-15	1.50-1.65	14.00-42.00	0.05-0.08	0.0-2.9	0.0-0.5	.10	.20				
	31-35	---	---	---	---	---	---	---	---				
Farway, moist-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	3	86	
	1-5	3-7	0.80-0.90	14.00-42.00	0.18-0.22	0.0-2.9	2.0-4.0	.20	.32				
	5-10	3-7	0.80-0.90	14.00-42.00	0.16-0.20	0.0-2.9	1.0-3.0	.20	.32				
	10-21	3-7	0.80-0.90	14.00-42.00	0.16-0.20	0.0-2.9	0.0-1.0	.20	.32				
	21-60	5-15	1.50-1.65	14.00-42.00	0.05-0.08	0.0-2.9	0.0-0.5	.05	.20				

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
535: Veridge-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86
	1-5	3-7	0.80-0.90	14.00-42.00	0.12-0.14	0.0-2.9	2.0-4.0	.20	.32			
	5-13	3-7	0.80-0.90	14.00-42.00	0.12-0.15	0.0-2.9	1.0-3.0	.20	.32			
	13-22	5-15	1.45-1.55	14.00-42.00	0.06-0.08	0.0-2.9	0.0-0.5	.10	.20			
	22-31	5-15	1.50-1.65	14.00-42.00	0.05-0.08	0.0-2.9	0.0-0.5	.10	.20			
	31-35	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---
536: Vinegar-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	2	134
	1-6	3-7	0.65-0.85	14.00-42.00	0.20-0.23	0.0-2.9	2.0-4.0	.24	.32			
	6-16	3-7	0.65-0.85	14.00-42.00	0.19-0.21	0.0-2.9	0.5-3.0	.15	.24			
	16-34	3-7	0.65-0.85	14.00-42.00	0.19-0.21	0.0-2.9	0.5-3.0	.15	.24			
	34-60	3-7	0.65-0.85	14.00-42.00	0.18-0.20	0.0-2.9	0.5-3.0	.15	.24			
537: Vinegar-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	2	134
	1-6	3-7	0.65-0.85	14.00-42.00	0.20-0.23	0.0-2.9	2.0-4.0	.24	.32			
	6-16	3-7	0.65-0.85	14.00-42.00	0.19-0.21	0.0-2.9	0.5-3.0	.15	.24			
	16-34	3-7	0.65-0.85	14.00-42.00	0.19-0.21	0.0-2.9	0.5-3.0	.15	.24			
	34-60	3-7	0.65-0.85	14.00-42.00	0.18-0.20	0.0-2.9	0.5-3.0	.15	.24			
Thow-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	2	134
	1-6	0-7	0.65-0.85	14.00-42.00	0.20-0.23	0.0-2.9	1.0-3.0	.24	.28			
	6-12	3-7	0.65-0.85	14.00-42.00	0.18-0.22	0.0-2.9	2.0-4.0	.20	.28			
	12-38	3-7	0.65-0.85	14.00-42.00	0.17-0.19	0.0-2.9	1.0-3.0	.15	.24			
	38-51	0-7	0.65-0.85	14.00-42.00	0.16-0.18	0.0-2.9	1.0-3.0	.15	.17			
	51-60	0-7	0.70-1.00	14.00-42.00	0.14-0.16	0.0-2.9	0.0-1.0	.10	.20			
538: Vingulch-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	2	134
	1-4	0-7	0.65-0.85	14.00-42.00	0.21-0.25	0.0-2.9	2.0-4.0	.37	.37			
	4-12	3-7	0.65-0.85	14.00-42.00	0.18-0.20	0.0-2.9	2.0-4.0	.20	.24			
	12-22	3-7	0.65-0.85	14.00-42.00	0.16-0.18	0.0-2.9	1.0-3.0	.15	.24			
	22-28	3-7	0.65-0.85	14.00-42.00	0.15-0.17	0.0-2.9	1.0-3.0	.15	.24			
	28-34	3-7	0.65-0.85	14.00-42.00	0.15-0.17	0.0-2.9	0.0-1.0	.15	.24			
	34-39	3-7	1.50-1.65	14.00-42.00	0.05-0.08	0.0-2.9	0.0-1.0	.10	.24			
	39-43	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility	erodi- bility	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
539: Vitrandic Humicryepts, nonforested-----	0-4	3-7	0.75-0.90	14.00-42.00	0.15-0.19	0.0-2.9	2.0-6.0	.24	.37	2	3	86	
	4-12	3-7	0.75-0.90	14.00-42.00	0.15-0.18	0.0-2.9	2.0-4.0	.15	.32				
	12-20	3-7	1.45-1.60	14.00-42.00	0.08-0.11	0.0-2.9	0.0-0.5	.10	.28				
	20-31	5-15	1.50-1.60	14.00-42.00	0.08-0.11	0.0-2.9	0.0-0.5	.10	.24				
	31-35	---	---	---	---	---	---	---	---				
Lithic Humicryepts, nonforested, udic----	0-5	3-7	0.70-0.90	14.00-42.00	0.13-0.15	0.0-2.9	2.0-4.0	.15	.37	1	5	56	
	5-11	3-7	0.75-0.95	14.00-42.00	0.10-0.14	0.0-2.9	1.0-2.0	.17	.37				
	11-20	5-15	1.25-1.40	14.00-42.00	0.07-0.11	0.0-2.9	0.0-0.5	.10	.28				
	20-30	---	---	---	---	---	---	---	---				
540: Vitrandic Haploxerepts	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	3	86	
	2-6	3-7	1.00-1.20	14.00-42.00	0.11-0.13	0.0-2.9	2.0-5.0	.20	.28				
	6-11	3-7	1.00-1.20	14.00-42.00	0.08-0.13	0.0-2.9	1.0-3.0	.20	.28				
	11-17	3-7	1.00-1.20	14.00-42.00	0.08-0.13	0.0-2.9	0.0-1.0	.20	.28				
	17-24	5-10	1.20-1.35	14.00-42.00	0.08-0.13	0.0-2.9	0.0-1.0	.20	.28				
	24-37	5-10	1.45-1.65	14.00-42.00	0.04-0.08	0.0-2.9	0.0-1.0	.10	.20				
	37-47	5-10	1.45-1.65	14.00-42.00	0.03-0.08	0.0-2.9	0.0-1.0	.10	.20				
	47-49	---	---	---	---	---	---	---	---				
Lithic Haploxerepts, forested, dry-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	1	3	86	
	1-4	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37				
	4-13	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37				
	13-19	5-15	1.30-1.50	14.00-42.00	0.04-0.15	0.0-2.9	0.0-1.0	.15	.37				
	19-23	---	---	---	---	---	---	---	---				
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---	
541: Vitrixerandic Haplocryepts, forested-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134	
	1-4	3-7	0.85-1.20	14.00-42.00	0.13-0.18	0.0-2.9	2.0-4.0	.37	.37				
	4-12	3-7	0.85-1.20	14.00-42.00	0.13-0.18	0.0-2.9	2.0-4.0	.37	.37				
	12-21	3-15	0.90-1.30	14.00-42.00	0.10-0.15	0.0-2.9	1.0-2.0	.17	.28				
	21-28	5-15	1.30-1.45	14.00-42.00	0.07-0.13	0.0-2.9	0.5-1.0	.10	.24				
	28-42	5-15	1.30-1.45	14.00-42.00	0.07-0.13	0.0-2.9	0.5-1.0	.10	.24				
	42-60	5-15	1.30-1.50	14.00-42.00	0.03-0.08	0.0-2.9	0.0-0.5	.05	.20				

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
541: Cryaquolls, somewhat poorly drained, till substratum-----	0-2	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	5	56
	2-9	8-15	1.25-1.40	14.00-42.00	0.15-0.19	0.0-2.9	2.0-5.0	.24	.28			
	9-17	8-15	1.25-1.40	14.00-42.00	0.15-0.19	0.0-2.9	2.0-5.0	.24	.28			
	17-21	5-15	1.30-1.50	14.00-42.00	0.12-0.19	0.0-2.9	0.5-1.0	.15	.24			
	21-31	5-10	1.70-1.90	1.40-4.00	0.08-0.10	0.0-2.9	0.0-0.5	.10	.20			
	31-40	2-10	1.50-1.70	14.00-42.00	0.04-0.08	0.0-2.9	0.0-0.5	.10	.17			
	40-60	2-10	1.50-1.70	14.00-42.00	0.04-0.08	0.0-2.9	0.0-0.5	.10	.17			
542: Wadams-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134
	1-5	3-7	0.90-1.20	14.00-42.00	0.13-0.15	0.0-2.9	1.0-5.0	.28	.28			
	5-24	3-7	0.90-1.20	14.00-42.00	0.13-0.15	0.0-2.9	1.0-3.0	.17	.28			
	24-32	3-7	0.90-1.20	14.00-42.00	0.15-0.18	0.0-2.9	0.5-1.5	.24	.28			
	32-45	0-10	1.50-1.70	14.00-42.00	0.06-0.08	0.0-2.9	0.2-0.8	.17	.20			
	45-60	0-10	1.50-1.70	14.00-42.00	0.04-0.06	0.0-2.9	0.2-0.8	.10	.20			
543: Wadams, extremely stony surface-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134
	1-5	3-7	0.90-1.20	14.00-42.00	0.13-0.15	0.0-2.9	1.0-5.0	.28	.28			
	5-24	3-7	0.90-1.20	14.00-42.00	0.13-0.15	0.0-2.9	1.0-3.0	.17	.28			
	24-32	3-7	0.90-1.20	14.00-42.00	0.15-0.18	0.0-2.9	0.5-1.5	.24	.28			
	32-45	0-10	1.50-1.70	14.00-42.00	0.06-0.08	0.0-2.9	0.2-0.8	.17	.20			
	45-60	0-10	1.50-1.70	14.00-42.00	0.04-0.06	0.0-2.9	0.2-0.8	.10	.20			
544: Wagberg-----	0-10	3-7	1.00-1.30	14.00-42.00	0.15-0.18	0.0-2.9	1.0-5.0	.20	.28	5	3	86
	10-14	3-7	1.00-1.30	14.00-42.00	0.12-0.15	0.0-2.9	1.0-3.0	.17	.28			
	14-24	5-15	1.30-1.50	14.00-42.00	0.06-0.10	0.0-2.9	1.0-2.0	.15	.24			
	24-35	5-15	1.60-1.80	14.00-42.00	0.05-0.08	0.0-2.9	0.0-0.5	.15	.24			
	35-60	0-10	1.60-1.80	14.00-42.00	0.03-0.05	0.0-2.9	0.0-0.5	.10	.20			
545: Wagberg-----	0-10	3-7	1.00-1.30	14.00-42.00	0.15-0.18	0.0-2.9	1.0-5.0	.20	.28	5	3	86
	10-14	3-7	1.00-1.30	14.00-42.00	0.12-0.15	0.0-2.9	1.0-3.0	.17	.28			
	14-24	5-15	1.30-1.50	14.00-42.00	0.06-0.10	0.0-2.9	1.0-2.0	.15	.24			
	24-35	5-15	1.60-1.80	14.00-42.00	0.05-0.08	0.0-2.9	0.0-0.5	.15	.24			
	35-60	0-10	1.60-1.80	14.00-42.00	0.03-0.05	0.0-2.9	0.0-0.5	.10	.20			

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility	erodi- bility	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
546:													
Wagberg, cool-----	0-10	3-7	1.00-1.30	14.00-42.00	0.15-0.18	0.0-2.9	1.0-5.0	.20	.28	5	3	86	
	10-14	3-7	1.00-1.30	14.00-42.00	0.12-0.15	0.0-2.9	1.0-3.0	.17	.28				
	14-24	5-15	1.30-1.50	14.00-42.00	0.06-0.10	0.0-2.9	1.0-2.0	.15	.24				
	24-35	5-15	1.60-1.80	14.00-42.00	0.05-0.08	0.0-2.9	0.0-0.5	.15	.24				
	35-60	0-10	1.60-1.80	14.00-42.00	0.03-0.05	0.0-2.9	0.0-0.5	.10	.20				
Lithic Ultic Haploxerolls-----	0-10	8-15	1.30-1.45	14.00-42.00	0.10-0.13	0.0-2.9	2.0-5.0	.10	.24	1	4	86	
	10-15	8-15	1.40-1.65	14.00-42.00	0.05-0.09	0.0-2.9	1.0-3.0	.05	.24				
	15-25	---	---	---	---	---	---	---	---				
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---	
547:													
Wagberg-----	0-10	3-7	1.00-1.30	14.00-42.00	0.15-0.18	0.0-2.9	1.0-5.0	.20	.28	5	2	134	
	10-14	3-7	1.00-1.30	14.00-42.00	0.12-0.15	0.0-2.9	1.0-3.0	.17	.28				
	14-24	5-15	1.30-1.50	14.00-42.00	0.06-0.10	0.0-2.9	1.0-2.0	.15	.24				
	24-35	5-15	1.60-1.80	14.00-42.00	0.05-0.08	0.0-2.9	0.0-0.5	.15	.24				
	35-60	0-10	1.60-1.80	14.00-42.00	0.03-0.05	0.0-2.9	0.0-0.5	.10	.20				
Swakane-----	0-4	3-7	1.30-1.45	14.00-42.00	0.05-0.09	0.0-2.9	2.0-4.0	.10	.24	1	5	56	
	4-11	3-7	1.35-1.45	14.00-42.00	0.04-0.08	0.0-2.9	1.0-3.0	.10	.28				
	11-17	5-15	1.40-1.55	14.00-42.00	0.04-0.08	0.0-2.9	0.0-0.5	.10	.28				
	17-21	---	---	---	---	---	---	---	---				
548:													
Wagberg-----	0-10	3-7	1.00-1.30	14.00-42.00	0.15-0.18	0.0-2.9	1.0-5.0	.20	.28	5	2	134	
	10-14	3-7	1.00-1.30	14.00-42.00	0.12-0.15	0.0-2.9	1.0-3.0	.17	.28				
	14-24	5-15	1.30-1.50	14.00-42.00	0.06-0.10	0.0-2.9	1.0-2.0	.15	.24				
	24-35	5-15	1.60-1.80	14.00-42.00	0.05-0.08	0.0-2.9	0.0-0.5	.15	.24				
	35-60	0-10	1.60-1.80	14.00-42.00	0.03-0.05	0.0-2.9	0.0-0.5	.10	.20				
Swakane-----	0-4	3-7	1.30-1.45	14.00-42.00	0.05-0.09	0.0-2.9	2.0-4.0	.10	.24	1	5	56	
	4-11	3-7	1.35-1.45	14.00-42.00	0.04-0.08	0.0-2.9	1.0-3.0	.10	.28				
	11-17	5-15	1.40-1.55	14.00-42.00	0.04-0.08	0.0-2.9	0.0-0.5	.10	.28				
	17-21	---	---	---	---	---	---	---	---				
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---	

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
549: Wagberg, extremely stony surface-----	0-10	3-7	1.00-1.30	14.00-42.00	0.15-0.18	0.0-2.9	1.0-5.0	.20	.28	5	2	134
	10-14	3-7	1.00-1.30	14.00-42.00	0.12-0.15	0.0-2.9	1.0-3.0	.17	.28			
	14-24	5-15	1.30-1.50	14.00-42.00	0.06-0.10	0.0-2.9	1.0-2.0	.15	.24			
	24-35	5-15	1.60-1.80	14.00-42.00	0.05-0.08	0.0-2.9	0.0-0.5	.15	.24			
	35-60	0-10	1.60-1.80	14.00-42.00	0.03-0.05	0.0-2.9	0.0-0.5	.10	.20			
Swakane-----	0-4	3-7	1.30-1.45	14.00-42.00	0.05-0.09	0.0-2.9	2.0-4.0	.10	.24	1	5	56
	4-11	3-7	1.35-1.45	14.00-42.00	0.04-0.08	0.0-2.9	1.0-3.0	.10	.28			
	11-17	5-15	1.40-1.55	14.00-42.00	0.04-0.08	0.0-2.9	0.0-0.5	.10	.28			
	17-21	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---
550: Wapal, cool-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	2	134
	1-5	3-7	1.20-1.55	14.00-42.00	0.14-0.16	0.0-2.9	2.0-4.0	.24	.24			
	5-12	3-7	1.20-1.55	14.00-42.00	0.11-0.13	0.0-2.9	0.5-1.5	.10	.24			
	12-33	0-5	1.55-1.65	42.00-141.00	0.01-0.03	0.0-2.9	0.0-0.5	.05	.10			
	33-60	0-5	1.55-1.65	42.00-141.00	0.01-0.03	0.0-2.9	0.0-0.5	.05	.10			
551: Wapal, cool-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86
	1-5	3-7	1.20-1.55	14.00-42.00	0.14-0.16	0.0-2.9	2.0-4.0	.20	.24			
	5-12	3-7	1.20-1.55	14.00-42.00	0.11-0.13	0.0-2.9	0.5-1.5	.10	.24			
	12-33	0-5	1.55-1.65	42.00-141.00	0.01-0.03	0.0-2.9	0.0-0.5	.05	.10			
	33-60	0-5	1.55-1.65	42.00-141.00	0.01-0.03	0.0-2.9	0.0-0.5	.05	.10			
552: Wapal, dry-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86
	1-5	3-7	1.20-1.55	14.00-42.00	0.14-0.16	0.0-2.9	2.0-4.0	.20	.24			
	5-12	3-7	1.20-1.55	14.00-42.00	0.11-0.13	0.0-2.9	0.5-1.5	.10	.24			
	12-33	0-5	1.55-1.65	42.00-141.00	0.01-0.03	0.0-2.9	0.0-0.5	.05	.10			
	33-60	0-5	1.55-1.65	42.00-141.00	0.01-0.03	0.0-2.9	0.0-0.5	.05	.10			
553: Wapal-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86
	1-5	3-7	1.20-1.55	14.00-42.00	0.14-0.16	0.0-2.9	2.0-4.0	.20	.24			
	5-12	3-7	1.20-1.55	14.00-42.00	0.11-0.13	0.0-2.9	0.5-1.5	.10	.24			
	12-33	0-5	1.55-1.65	42.00-141.00	0.01-0.03	0.0-2.9	0.0-0.5	.05	.10			
	33-60	0-5	1.55-1.65	42.00-141.00	0.01-0.03	0.0-2.9	0.0-0.5	.05	.10			

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility	erodi- bility	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
554: Wapal-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86	
	1-5	3-7	1.20-1.55	14.00-42.00	0.14-0.16	0.0-2.9	2.0-4.0	.20	.24				
	5-12	3-7	1.20-1.55	14.00-42.00	0.11-0.13	0.0-2.9	0.5-1.5	.10	.24				
	12-33	0-5	1.55-1.65	42.00-141.00	0.01-0.03	0.0-2.9	0.0-0.5	.05	.10				
	33-60	0-5	1.55-1.65	42.00-141.00	0.01-0.03	0.0-2.9	0.0-0.5	.05	.10				
Brevco-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86	
	1-4	3-7	1.20-1.40	14.00-42.00	0.14-0.16	0.0-2.9	1.0-3.0	.17	.20				
	4-12	3-7	1.30-1.55	14.00-42.00	0.13-0.16	0.0-2.9	1.0-2.0	.10	.20				
	12-26	5-15	1.40-1.60	14.00-42.00	0.03-0.08	0.0-2.9	0.0-0.5	.05	.17				
	26-39	5-15	1.45-1.65	14.00-42.00	0.03-0.08	0.0-2.9	0.0-0.5	.05	.17				
	39-43	---	---	---	---	---	---	---	---				
555: Wapal-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86	
	1-5	3-7	1.20-1.55	14.00-42.00	0.14-0.16	0.0-2.9	2.0-4.0	.20	.24				
	5-12	3-7	1.20-1.55	14.00-42.00	0.11-0.13	0.0-2.9	0.5-1.5	.10	.24				
	12-33	0-5	1.55-1.65	42.00-141.00	0.01-0.03	0.0-2.9	0.0-0.5	.05	.10				
	33-60	0-5	1.55-1.65	42.00-141.00	0.01-0.03	0.0-2.9	0.0-0.5	.05	.10				
Brevco-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86	
	1-4	3-7	1.20-1.40	14.00-42.00	0.14-0.16	0.0-2.9	1.0-3.0	.17	.20				
	4-12	3-7	1.30-1.55	14.00-42.00	0.13-0.16	0.0-2.9	1.0-2.0	.10	.20				
	12-26	5-15	1.40-1.60	14.00-42.00	0.03-0.08	0.0-2.9	0.0-0.5	.05	.17				
	26-39	5-15	1.45-1.65	14.00-42.00	0.03-0.08	0.0-2.9	0.0-0.5	.05	.17				
	39-43	---	---	---	---	---	---	---	---				
556: Wapal, dry-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86	
	1-5	3-7	1.20-1.55	14.00-42.00	0.14-0.16	0.0-2.9	2.0-4.0	.20	.24				
	5-12	3-7	1.20-1.55	14.00-42.00	0.11-0.13	0.0-2.9	0.5-1.5	.10	.24				
	12-33	0-5	1.55-1.65	42.00-141.00	0.01-0.03	0.0-2.9	0.0-0.5	.05	.10				
	33-60	0-5	1.55-1.65	42.00-141.00	0.01-0.03	0.0-2.9	0.0-0.5	.05	.10				
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---	---
557: Wapal, dry, warm-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86	
	1-5	3-7	1.20-1.55	14.00-42.00	0.14-0.16	0.0-2.9	2.0-4.0	.20	.24				
	5-12	3-7	1.20-1.55	14.00-42.00	0.11-0.13	0.0-2.9	0.5-1.5	.10	.24				
	12-33	0-5	1.55-1.65	42.00-141.00	0.01-0.03	0.0-2.9	0.0-0.5	.05	.10				
	33-60	0-5	1.55-1.65	42.00-141.00	0.01-0.03	0.0-2.9	0.0-0.5	.05	.10				

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
557: Sacheen-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	2	134
	1-6	0-10	1.00-1.40	42.00-141.00	0.07-0.09	0.0-2.9	0.5-1.5	.17	.20			
	6-16	0-10	1.00-1.40	42.00-141.00	0.03-0.05	0.0-2.9	0.5-1.0	.17	.20			
	16-60	0-10	1.00-1.40	42.00-141.00	0.03-0.05	0.0-2.9	0.5-1.0	.17	.20			
558: Water-----	---	---	---	---	---	---	---	---	---		---	---
559: Wenner-----	0-5	8-15	1.00-1.30	14.00-42.00	0.18-0.21	0.0-2.9	2.0-5.0	.32	.32	5	4	86
	5-12	8-15	1.00-1.30	14.00-42.00	0.17-0.20	0.0-2.9	2.0-4.0	.20	.28			
	12-18	3-15	1.00-1.30	14.00-42.00	0.15-0.18	0.0-2.9	1.0-3.0	.20	.28			
	18-25	25-35	1.35-1.45	1.40-4.00	0.15-0.18	3.0-5.9	0.0-0.5	.24	.37			
	25-33	25-35	1.35-1.45	1.40-4.00	0.15-0.18	3.0-5.9	0.0-0.5	.24	.37			
	33-60	25-35	1.35-1.45	1.40-4.00	0.15-0.18	3.0-5.9	0.0-0.5	.24	.37			
560: Wilder-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	2	134
	1-7	3-7	1.00-1.35	4.00-14.00	0.12-0.13	0.0-2.9	2.0-4.0	.20	.28			
	7-11	3-7	1.00-1.35	4.00-14.00	0.12-0.13	0.0-2.9	2.0-4.0	.24	.28			
	11-16	3-7	1.00-1.35	4.00-14.00	0.13-0.15	0.0-2.9	2.0-4.0	.24	.28			
	16-22	0-5	1.65-1.75	42.00-141.00	0.03-0.05	0.0-2.9	0.0-2.0	.10	.17			
	22-40	0-5	1.65-1.75	42.00-141.00	0.03-0.05	0.0-2.9	0.0-2.0	.10	.17			
	40-60	0-5	1.50-1.65	42.00-141.00	0.11-0.16	0.0-2.9	0.0-0.5	.05	.10			
Republic-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	4	86
	1-7	8-15	1.00-1.35	4.00-14.00	0.17-0.21	0.0-2.9	2.0-4.0	.24	.32			
	7-16	3-7	1.00-1.35	4.00-14.00	0.13-0.18	0.0-2.9	2.0-4.0	.20	.28			
	16-29	5-15	1.30-1.50	4.00-14.00	0.12-0.17	0.0-2.9	1.0-2.0	.20	.28			
	29-36	5-15	1.30-1.50	4.00-14.00	0.11-0.16	0.0-2.9	1.0-2.0	.17	.24			
	36-60	5-15	1.35-1.55	14.00-42.00	0.07-0.12	0.0-2.9	1.0-2.0	.15	.20			
561: Wilma-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86
	1-7	3-7	0.70-0.90	14.00-42.00	0.13-0.17	0.0-2.9	1.0-3.0	.24	.37			
	7-13	3-7	0.70-0.90	14.00-42.00	0.13-0.17	0.0-2.9	0.0-0.5	.20	.32			
	13-18	5-15	1.35-1.55	14.00-42.00	0.06-0.10	0.0-2.9	0.0-0.5	.10	.28			
	18-29	5-15	1.40-1.60	14.00-42.00	0.05-0.08	0.0-2.9	0.0-0.5	.10	.28			
	29-33	---	---	---	---	---	---	---	---			

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility	erodi- bility	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
561: Lithic Haploxerepts, forested-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	1	3	86	
	1-4	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37				
	4-13	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37				
	13-19	5-15	1.30-1.50	14.00-42.00	0.04-0.15	0.0-2.9	0.0-1.0	.15	.37				
	19-23	---	---	---	---	---	---	---	---				
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---	---
562: Wilma, moist-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86	
	1-7	3-7	0.70-0.90	14.00-42.00	0.13-0.17	0.0-2.9	1.0-3.0	.24	.37				
	7-13	3-7	0.70-0.90	14.00-42.00	0.13-0.17	0.0-2.9	0.0-0.5	.20	.32				
	13-18	5-15	1.35-1.55	14.00-42.00	0.06-0.10	0.0-2.9	0.0-0.5	.10	.28				
	18-29	5-15	1.40-1.60	14.00-42.00	0.05-0.08	0.0-2.9	0.0-0.5	.10	.28				
	29-33	---	---	---	---	---	---	---	---				
Lithic Haploxerepts, forested-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	1	3	86	
	1-4	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37				
	4-13	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37				
	13-19	5-15	1.30-1.50	14.00-42.00	0.04-0.15	0.0-2.9	0.0-1.0	.15	.37				
	19-23	---	---	---	---	---	---	---	---				
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---	---
563: Wilma, cool-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86	
	1-7	3-7	0.70-0.90	14.00-42.00	0.13-0.17	0.0-2.9	1.0-3.0	.24	.37				
	7-13	3-7	0.70-0.90	14.00-42.00	0.13-0.17	0.0-2.9	0.0-0.5	.20	.32				
	13-18	5-15	1.35-1.55	14.00-42.00	0.06-0.10	0.0-2.9	0.0-0.5	.10	.28				
	18-29	5-15	1.40-1.60	14.00-42.00	0.05-0.08	0.0-2.9	0.0-0.5	.10	.28				
	29-33	---	---	---	---	---	---	---	---				
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---	---
564: Winsand-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	3	86	
	1-6	3-7	1.10-1.30	14.00-42.00	0.14-0.16	0.0-2.9	2.0-4.0	.17	.28				
	6-13	3-7	1.10-1.30	14.00-42.00	0.14-0.16	0.0-2.9	1.0-3.0	.15	.28				
	13-25	5-15	1.50-1.65	14.00-42.00	0.06-0.09	0.0-2.9	0.0-0.5	.10	.28				
	25-44	5-15	1.50-1.65	14.00-42.00	0.06-0.09	0.0-2.9	0.0-0.5	.10	.28				
	44-48	---	---	---	---	---	---	---	---				

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Soil Survey of Okanogan County Area, Washington

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	Pct	Pct					
564: Verhart-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86
	1-5	3-7	1.10-1.30	14.00-42.00	0.14-0.16	0.0-2.9	2.0-4.0	.20	.28			
	5-12	3-7	1.10-1.30	14.00-42.00	0.14-0.16	0.0-2.9	1.0-2.0	.10	.28			
	12-25	5-15	1.50-1.60	14.00-42.00	0.05-0.09	0.0-2.9	0.0-0.5	.05	.20			
	25-29	---	---	---	---	---	---	---	---			
565: Winthrop-----	0-5	2-7	1.60-1.70	42.00-141.00	0.04-0.06	0.0-2.9	2.0-6.0	.10	.20	5	2	134
	5-13	2-10	1.60-1.70	42.00-141.00	0.04-0.06	0.0-2.9	1.0-5.0	.10	.20			
	13-25	0-5	1.60-1.70	42.00-141.00	0.04-0.05	0.0-2.9	0.2-0.8	.10	.20			
	25-60	0-5	1.60-1.70	141.00-705.00	0.01-0.02	0.0-2.9	0.2-0.8	.05	.17			
566: Winthrop, extremely stony surface-----	0-5	2-7	1.60-1.70	42.00-141.00	0.04-0.06	0.0-2.9	2.0-6.0	.10	.20	5	2	134
	5-13	2-10	1.60-1.70	42.00-141.00	0.04-0.06	0.0-2.9	1.0-5.0	.10	.20			
	13-25	0-5	1.60-1.70	42.00-141.00	0.04-0.05	0.0-2.9	0.2-0.8	.10	.20			
	25-60	0-5	1.60-1.70	141.00-705.00	0.01-0.02	0.0-2.9	0.2-0.8	.05	.17			
567: Wynhoff-----	0-5	5-15	1.20-1.30	14.00-42.00	0.14-0.16	0.0-2.9	1.0-4.0	.17	.28	2	5	56
	5-9	5-15	1.20-1.30	14.00-42.00	0.11-0.13	0.0-2.9	1.0-4.0	.17	.28			
	9-18	5-15	1.35-1.45	14.00-42.00	0.05-0.10	0.0-2.9	0.0-0.5	.10	.28			
	18-24	5-15	1.45-1.55	14.00-42.00	0.04-0.08	0.0-2.9	0.0-0.5	.10	.28			
	24-34	---	---	---	---	---	---	---	---			
568: Wynhoff-----	0-5	5-15	1.20-1.30	14.00-42.00	0.14-0.16	0.0-2.9	1.0-4.0	.17	.28	2	5	56
	5-9	5-15	1.20-1.30	14.00-42.00	0.11-0.13	0.0-2.9	1.0-4.0	.17	.28			
	9-18	5-15	1.35-1.45	14.00-42.00	0.05-0.10	0.0-2.9	0.0-0.5	.10	.28			
	18-24	5-15	1.45-1.55	14.00-42.00	0.04-0.08	0.0-2.9	0.0-0.5	.10	.28			
	24-34	---	---	---	---	---	---	---	---			
Lithic Haploxerepts, range, moist-----	0-3	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37	1	3	86
	3-12	3-7	1.15-1.35	14.00-42.00	0.15-0.18	0.0-2.9	1.0-2.0	.32	.37			
	12-18	5-15	1.30-1.50	14.00-42.00	0.04-0.15	0.0-2.9	0.0-1.0	.15	.37			
	18-22	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---
569: Xerofluvents, wet-----	0-8	5-15	1.20-1.40	14.00-42.00	0.12-0.15	0.0-2.9	1.0-2.0	.37	.37	5	3	86
	8-30	5-15	1.35-1.50	14.00-42.00	0.10-0.13	0.0-2.9	0.0-1.0	.43	.43			
	30-60	0-5	1.40-1.60	42.00-141.00	0.06-0.09	0.0-2.9	0.0-1.0	.17	.17			

Table 8.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility group	erodi- bility index	
	In	Pct	g/cc	um/sec	In/in	Pct	Pct						
570: Yellcreek-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	3	86	
	1-6	3-7	1.00-1.20	14.00-42.00	0.11-0.13	0.0-2.9	2.0-5.0	.15	.28				
	6-13	3-7	1.00-1.20	14.00-42.00	0.10-0.12	0.0-2.9	2.0-5.0	.10	.28				
	13-26	3-7	1.00-1.20	14.00-42.00	0.10-0.12	0.0-2.9	2.0-3.0	.10	.28				
	26-36	5-15	1.45-1.60	14.00-42.00	0.04-0.08	0.0-2.9	1.0-2.0	.05	.28				
	36-60	5-15	1.45-1.60	14.00-42.00	0.04-0.08	0.0-2.9	1.0-2.0	.05	.28				
Midpeak-----	0-1	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86	
	1-7	3-7	1.00-1.20	14.00-42.00	0.14-0.16	0.0-2.9	2.0-5.0	.15	.28				
	7-16	3-7	1.00-1.20	14.00-42.00	0.13-0.15	0.0-2.9	2.0-4.0	.10	.28				
	16-24	5-15	1.00-1.20	14.00-42.00	0.07-0.10	0.0-2.9	1.0-3.0	.10	.28				
	24-37	5-15	1.30-1.50	14.00-42.00	0.04-0.08	0.0-2.9	0.5-1.5	.10	.28				
	37-41	---	---	---	---	---	---	---	---				
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	-	---	---	

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils

(Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	mmhos/cm	
200:						
Aeneas-----	0-2	8.0-12	6.1-7.3	0	0	0
	2-8	6.0-10	6.1-7.3	0	0	0
	8-16	2.0-6.0	6.1-7.3	0	0	0
	16-26	2.0-6.0	6.1-7.3	0	0	0
	26-30	1.0-3.0	6.6-7.8	0	0	0
	30-60	1.0-3.0	6.6-7.8	0	0	0
201:						
Aeneas-----	0-2	8.0-12	6.1-7.3	0	0	0
	2-8	6.0-10	6.1-7.3	0	0	0
	8-16	2.0-6.0	6.1-7.3	0	0	0
	16-26	2.0-6.0	6.1-7.3	0	0	0
	26-30	1.0-3.0	6.6-7.8	0	0	0
	30-60	1.0-3.0	6.6-7.8	0	0	0
202:						
Aits-----	0-1	40-90	4.5-6.0	0	0	0
	1-3	44-66	6.1-6.5	0	0	0
	3-12	33-55	6.1-6.5	0	0	0
	12-17	3.0-7.0	6.1-7.3	0	0	0
	17-34	3.0-7.0	6.1-7.3	0	0	0
	34-45	3.0-7.0	6.1-7.3	0	0	0
	45-60	3.0-11	6.1-6.5	0	0	0
203:						
Andic Dystricryepts, forested-----	0-1	40-90	4.5-6.0	0	0	0
	1-2	5.0-25	5.6-6.5	0	0	0
	2-5	10-25	5.6-6.5	0	0	0
	5-11	10-25	5.6-6.5	0	0	0
	11-22	1.0-3.0	5.6-6.5	0	0	0
	22-60	1.0-3.0	5.6-7.3	0	0	0
Rock outcrop-----	0-60	---	---	---	---	---
Rubble land-----	0-60	---	---	---	---	---
204:						
Andic Dystricryepts, forested-----	0-1	40-90	4.5-6.0	0	0	0
	1-2	5.0-25	5.6-6.5	0	0	0
	2-5	10-25	5.6-6.5	0	0	0
	5-11	10-25	5.6-6.5	0	0	0
	11-22	1.0-3.0	5.6-6.5	0	0	0
	22-60	1.0-3.0	5.6-7.3	0	0	0
Vitrandic Humicryepts, nonforested-----	0-4	15-30	6.1-7.3	0	0	0
	4-12	15-30	6.1-7.3	0	0	0
	12-20	1.0-5.0	6.1-7.3	0	0	0
	20-31	1.0-5.0	6.1-7.3	0	0	0
	31-35	---	---	---	---	---

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	mmhos/cm	
205:						
Aquandic Endoaquolls	0-4	20-90	4.5-6.0	0	0	0
	4-11	10-20	6.1-7.3	0	0	0
	11-18	5.0-15	6.1-7.3	0	0	0
	18-23	1.0-3.0	6.1-7.3	0	0	0
	23-39	1.0-3.0	6.1-7.3	0	0	0
	39-60	1.0-3.0	6.1-7.3	0	0	0
206:						
Aquandic Endoaquolls	0-4	20-90	4.5-6.0	0	0	0
	4-11	10-20	6.1-7.3	0	0	0
	11-18	5.0-15	6.1-7.3	0	0	0
	18-23	1.0-3.0	6.1-7.3	0	0	0
	23-39	1.0-3.0	6.1-7.3	0	0	0
	39-60	1.0-3.0	6.1-7.3	0	0	0
Haplosaprists-----	0-8	20-90	4.5-6.0	0	0	0
	8-18	50-120	4.5-6.0	0	0	0
	18-34	5.0-15	6.6-7.3	0	0	0
	34-44	5.0-15	6.6-7.3	0	0	0
	44-55	5.0-15	6.6-7.3	0	0	0
	55-60	50-120	4.5-6.0	0	0	0
207:						
Aquandic Xerofluvents	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-20	6.6-7.3	0	0	0
	5-9	10-20	6.6-7.3	0	0	0
	9-14	10-20	6.6-7.3	0	0	0
	14-25	2.0-6.0	6.6-7.3	0	0	0
	25-45	1.0-5.0	6.6-7.3	0	0	0
	45-51	1.0-5.0	6.6-7.3	0	0	0
	51-60	1.0-5.0	6.6-7.3	0	0	0
208:						
Badland-----	0-60	---	---	---	---	---
209:						
Baldknob-----	0-3	3.0-10	6.1-7.3	0	0	0
	3-12	1.0-5.0	6.1-7.3	0	0	0
	12-16	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
210:						
Baldknob-----	0-3	3.0-10	6.1-7.3	0	0	0
	3-12	1.0-5.0	6.1-7.3	0	0	0
	12-16	---	---	---	---	---
Rubble land-----	0-60	---	---	---	---	---
Thout-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	5.0-12	6.1-6.5	0	0	0
	5-12	5.0-12	5.6-6.0	0	0	0
	12-25	1.0-4.0	5.6-6.0	0	0	0
	25-29	---	---	---	---	---
211:						
Baldknob-----	0-3	3.0-10	6.1-7.3	0	0	0
	3-12	1.0-5.0	6.1-7.3	0	0	0
	12-16	---	---	---	---	---

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
211:						
Thout-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	5.0-12	6.1-6.5	0	0	0
	5-12	5.0-12	5.6-6.0	0	0	0
	12-25	1.0-4.0	5.6-6.0	0	0	0
	25-29	---	---	---	---	---
Nicmar-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-20	6.6-7.3	0	0	0
	5-17	10-20	6.6-7.3	0	0	0
	17-24	20-30	6.6-7.3	0	0	0
	24-34	20-30	6.6-7.3	0	0	0
	34-60	15-30	6.6-7.3	0	0	0
212:						
Bearspring-----	0-1	40-90	4.5-6.0	0	0	0
	1-8	5.0-12	6.1-7.3	0	0	0
	8-13	5.0-12	6.1-7.3	0	0	0
	13-20	5.0-12	6.1-7.3	0	0	0
	20-37	2.0-5.0	6.1-7.3	0	0	0
	37-60	2.0-5.0	6.1-7.3	0	0	0
213:						
Bluebuck-----	0-1	40-90	4.5-6.0	0	0	0
	1-2	10-20	6.1-6.5	0	0	0
	2-4	10-20	6.1-6.5	0	0	0
	4-12	10-20	6.1-6.5	0	0	0
	12-25	1.0-3.0	6.1-6.5	0	0	0
	25-36	1.0-3.0	6.1-6.5	0	0	0
	36-55	1.0-3.0	6.1-6.5	0	0	0
	55-60	1.0-3.0	6.1-6.5	0	0	0
214:						
Boesel-----	0-8	5.0-15	6.6-7.3	0	0	0
	8-27	4.0-10	6.6-7.3	0	0	0
	27-37	1.0-4.0	6.6-7.3	0	0	0
	37-60	0.0-3.0	6.6-7.3	0	0	0
215:						
Boesel-----	0-8	5.0-15	6.6-7.3	0	0	0
	8-27	4.0-10	6.6-7.3	0	0	0
	27-37	1.0-4.0	6.6-7.3	0	0	0
	37-60	0.0-3.0	6.6-7.3	0	0	0
Muckamuck-----	0-7	15-25	6.1-7.3	0	0	0
	7-18	15-20	6.6-7.3	0	0	0
	18-28	15-25	6.1-6.5	0	0	0
	28-60	15-25	6.1-6.5	0	0	0
216:						
Borgeau-----	0-5	10-20	6.6-7.3	0	0	0
	5-14	10-20	6.6-7.3	0	0	0
	14-27	10-20	6.6-7.3	0	0	0
	27-41	2.0-3.0	7.4-7.8	0	0	0
	41-60	2.0-3.0	7.4-7.8	0	0	0
Johntom-----	0-3	10-20	6.6-7.3	0	0	0
	3-12	5.0-7.0	6.6-7.3	0	0	0
	12-16	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	mmhos/cm	
217:						
Borgeau-----	0-5	10-20	6.6-7.3	0	0	0
	5-14	10-20	6.6-7.3	0	0	0
	14-27	10-20	6.6-7.3	0	0	0
	27-41	2.0-3.0	7.4-7.8	0	0	0
	41-60	2.0-3.0	7.4-7.8	0	0	0
Nicmar-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-20	6.6-7.3	0	0	0
	5-17	10-20	6.6-7.3	0	0	0
	17-24	20-30	6.6-7.3	0	0	0
	24-34	20-30	6.6-7.3	0	0	0
	34-60	15-30	6.6-7.3	0	0	0
Johntom-----	0-3	10-20	6.6-7.3	0	0	0
	3-12	5.0-7.0	6.6-7.3	0	0	0
	12-16	---	---	---	---	---
218:						
Borgeau-----	0-5	10-20	6.6-7.3	0	0	0
	5-14	10-20	6.6-7.3	0	0	0
	14-27	10-20	6.6-7.3	0	0	0
	27-41	2.0-3.0	7.4-7.8	0	0	0
	41-60	2.0-3.0	7.4-7.8	0	0	0
Peka, moist-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.1-7.3	0	0	0
	7-16	10-20	6.1-7.3	0	0	0
	16-25	10-20	6.1-7.3	0	0	0
	25-50	1.0-3.0	6.1-7.3	0	0	0
	50-60	1.0-3.0	6.1-7.3	0	0	0
219:						
Brevco-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-20	6.1-7.3	0	0	0
	4-12	10-20	6.1-7.3	0	0	0
	12-26	1.0-4.0	5.6-7.3	0	0	0
	26-39	1.0-4.0	5.6-7.3	0	0	0
	39-43	---	---	---	---	---
Lithic Haploxerepts, forested-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-20	6.1-7.8	0	0	0
	4-13	10-20	6.1-7.8	0	0	0
	13-19	5.0-8.0	6.1-7.8	0	0	0
	19-23	---	---	---	---	---
Pebcreek, dry-----	0-2	40-90	4.5-6.0	0	0	0
	2-7	10-20	6.1-7.3	0	0	0
	7-13	10-20	6.1-7.3	0	0	0
	13-39	1.0-2.0	6.1-7.3	0	0	0
	39-44	1.0-2.0	6.1-7.3	0	0	0
	44-60	1.0-2.0	6.1-7.3	0	0	0
220:						
Brevco, cool-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-20	6.1-7.3	0	0	0
	4-12	10-20	6.1-7.3	0	0	0
	12-26	1.0-4.0	5.6-7.3	0	0	0
	26-39	1.0-4.0	5.6-7.3	0	0	0
	39-43	---	---	---	---	---

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
220: Lithic Haploxerepts, forested-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-20	6.1-7.8	0	0	0
	4-13	10-20	6.1-7.8	0	0	0
	13-19	5.0-8.0	6.1-7.8	0	0	0
	19-23	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
221: Brevco-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-20	6.1-7.3	0	0	0
	4-12	10-20	6.1-7.3	0	0	0
	12-26	1.0-4.0	5.6-7.3	0	0	0
	26-39	1.0-4.0	5.6-7.3	0	0	0
	39-43	---	---	---	---	---
Lithic Haploxerepts, forested, moist-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-20	6.1-7.8	0	0	0
	4-13	10-20	6.1-7.8	0	0	0
	13-19	5.0-8.0	6.1-7.8	0	0	0
	19-23	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
222: Brevco, dry-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-20	6.1-7.3	0	0	0
	4-12	10-20	6.1-7.3	0	0	0
	12-26	1.0-4.0	5.6-7.3	0	0	0
	26-39	1.0-4.0	5.6-7.3	0	0	0
	39-43	---	---	---	---	---
Lithic Haploxerepts, forested, dry-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-20	6.1-7.8	0	0	0
	4-13	10-20	6.1-7.8	0	0	0
	13-19	5.0-8.0	6.1-7.8	0	0	0
	19-23	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
223: Burnscreek-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	6.0-10	6.1-6.5	0	0	0
	4-14	4.0-8.0	6.1-6.5	0	0	0
	14-33	2.0-6.0	6.6-7.3	0	0	0
	33-61	1.0-3.0	6.6-7.3	0	0	0
224: Cashmere-----	0-2	6.0-10	6.6-7.3	0	0	0
	2-8	4.0-8.0	6.6-7.3	0	0	0
	8-25	2.0-6.0	6.6-7.3	0	0	0
	25-44	2.0-6.0	6.6-7.3	0	0	0
	44-60	1.0-4.0	6.6-7.3	0	0	0

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	mmhos/cm	
225:						
Cashmere-----	0-2	6.0-10	6.6-7.3	0	0	0
	2-8	4.0-8.0	6.6-7.3	0	0	0
	8-25	2.0-6.0	6.6-7.3	0	0	0
	25-44	2.0-6.0	6.6-7.3	0	0	0
	44-60	1.0-4.0	6.6-7.3	0	0	0
226:						
Cashmere-----	0-2	6.0-10	6.6-7.3	0	0	0
	2-8	4.0-8.0	6.6-7.3	0	0	0
	8-25	2.0-6.0	6.6-7.3	0	0	0
	25-44	2.0-6.0	6.6-7.3	0	0	0
	44-60	1.0-4.0	6.6-7.3	0	0	0
227:						
Cashmere-----	0-2	6.0-10	6.6-7.3	0	0	0
	2-8	4.0-8.0	6.6-7.3	0	0	0
	8-25	2.0-6.0	6.6-7.3	0	0	0
	25-44	2.0-6.0	6.6-7.3	0	0	0
	44-60	1.0-4.0	6.6-7.3	0	0	0
228:						
Cashmont-----	0-3	8.0-12	6.6-7.3	0	0	0
	3-8	6.0-10	6.6-7.3	0	0	0
	8-23	2.0-6.0	6.6-7.3	0	0	0
	23-60	2.0-6.0	6.6-7.3	0	0	0
229:						
Cashmont-----	0-3	8.0-12	6.6-7.3	0	0	0
	3-8	6.0-10	6.6-7.3	0	0	0
	8-23	2.0-6.0	6.6-7.3	0	0	0
	23-60	2.0-6.0	6.6-7.3	0	0	0
230:						
Cashmont-----	0-3	8.0-12	6.6-7.3	0	0	0
	3-8	6.0-10	6.6-7.3	0	0	0
	8-23	2.0-6.0	6.6-7.3	0	0	0
	23-60	2.0-6.0	6.6-7.3	0	0	0
231:						
Cashmont-----	0-3	8.0-12	6.6-7.3	0	0	0
	3-8	6.0-10	6.6-7.3	0	0	0
	8-23	2.0-6.0	6.6-7.3	0	0	0
	23-60	2.0-6.0	6.6-7.3	0	0	0
232:						
Cashmont-----	0-3	8.0-12	6.6-7.3	0	0	0
	3-8	6.0-10	6.6-7.3	0	0	0
	8-23	2.0-6.0	6.6-7.3	0	0	0
	23-60	2.0-6.0	6.6-7.3	0	0	0
233:						
Cashmont, extremely stony surface-----	0-3	8.0-12	6.6-7.3	0	0	0
	3-8	6.0-10	6.6-7.3	0	0	0
	8-23	2.0-6.0	6.6-7.3	0	0	0
	23-60	2.0-6.0	6.6-7.3	0	0	0

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Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	mmhos/cm	
234: Cashmont, extremely stony surface-----	0-3	8.0-12	6.6-7.3	0	0	0
	3-8	6.0-10	6.6-7.3	0	0	0
	8-23	2.0-6.0	6.6-7.3	0	0	0
	23-60	2.0-6.0	6.6-7.3	0	0	0
235: Cassal-----	0-2	40-90	4.5-6.0	0	0	0
	2-6	10-20	6.6-7.3	0	0	0
	6-15	10-20	6.6-7.3	0	0	0
	15-20	10-20	6.6-7.3	0	0	0
	20-37	5.0-15	6.1-7.3	0	0	0
	37-48	5.0-15	6.1-7.3	0	0	0
	48-60	5.0-10	6.1-7.3	0	0	0
236: Chesaw-----	0-5	6.0-10	6.6-7.3	0	0	0
	5-17	2.0-6.0	6.6-7.3	0	0	0
	17-60	0.0-2.0	6.6-7.3	0	0	0
237: Chesaw, extremely stony surface-----	0-5	6.0-10	6.6-7.3	0	0	0
	5-17	2.0-6.0	6.6-7.3	0	0	0
	17-60	0.0-2.0	6.6-7.3	0	0	0
238: Chesaw-----	0-5	6.0-10	6.6-7.3	0	0	0
	5-17	2.0-6.0	6.6-7.3	0	0	0
	17-60	0.0-2.0	6.6-7.3	0	0	0
Bong-----	0-6	3.0-8.0	6.6-7.3	0	0	0
	6-10	3.0-8.0	6.6-7.3	0	0	0
	10-16	1.0-2.0	6.6-7.3	0	0	0
	16-26	0.0-1.0	6.1-7.3	0	0	0
	26-60	0.0-1.0	6.1-7.3	0	0	0
239: Chesaw-----	0-5	6.0-10	6.6-7.3	0	0	0
	5-17	2.0-6.0	6.6-7.3	0	0	0
	17-60	0.0-2.0	6.6-7.3	0	0	0
Bong-----	0-6	3.0-8.0	6.6-7.3	0	0	0
	6-10	3.0-8.0	6.6-7.3	0	0	0
	10-16	1.0-2.0	6.6-7.3	0	0	0
	16-26	0.0-1.0	6.1-7.3	0	0	0
	26-60	0.0-1.0	6.1-7.3	0	0	0
240: Chesaw-----	0-5	6.0-10	6.6-7.3	0	0	0
	5-17	2.0-6.0	6.6-7.3	0	0	0
	17-60	0.0-2.0	6.6-7.3	0	0	0
Bong-----	0-6	3.0-8.0	6.6-7.3	0	0	0
	6-10	3.0-8.0	6.6-7.3	0	0	0
	10-16	1.0-2.0	6.6-7.3	0	0	0
	16-26	0.0-1.0	6.1-7.3	0	0	0
	26-60	0.0-1.0	6.1-7.3	0	0	0

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Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
241:						
Chewack-----	0-2	40-90	4.5-6.0	0	0	0
	2-5	10-20	5.6-6.5	0	0	0
	5-25	10-20	5.6-6.5	0	0	0
	25-60	1.0-4.0	5.6-6.5	0	0	0
Sitdown, cool-----	0-2	40-90	4.5-6.0	0	0	0
	2-5	10-20	5.6-6.5	0	0	0
	5-13	10-20	5.6-6.5	0	0	0
	13-26	1.0-2.0	6.1-7.3	0	0	0
	26-60	1.0-2.0	6.1-7.3	0	0	0
Rock outcrop-----	0-60	---	---	---	---	---
242:						
Chumstick-----	0-5	10-20	6.6-7.3	0	0	0
	5-15	10-20	6.6-7.3	0	0	0
	15-19	---	---	---	---	---
Mineral-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.1-7.3	0	0	0
	7-13	10-20	6.1-7.3	0	0	0
	13-24	1.0-2.0	6.1-7.3	0	0	0
	24-28	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
243:						
Chumstick-----	0-5	10-20	6.6-7.3	0	0	0
	5-15	10-20	6.6-7.3	0	0	0
	15-19	---	---	---	---	---
Mineral-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.1-7.3	0	0	0
	7-13	10-20	6.1-7.3	0	0	0
	13-24	1.0-2.0	6.1-7.3	0	0	0
	24-28	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
244:						
Chumstick-----	0-5	10-20	6.6-7.3	0	0	0
	5-15	10-20	6.6-7.3	0	0	0
	15-19	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
245:						
Colville, poorly drained-----	0-4	15-30	7.9-8.4	1-5	0.0-2.0	0
	4-9	15-30	7.9-8.4	1-5	0.0-2.0	0
	9-17	15-30	7.9-8.4	1-5	0.0-2.0	0
	17-21	14-20	8.5-9.0	3-10	1.0-4.0	1-5
	21-33	10-20	8.5-9.0	3-10	1.0-4.0	1-5
	33-43	10-20	8.5-9.0	3-10	1.0-4.0	1-5
	43-60	10-20	8.5-9.0	3-10	1.0-4.0	1-5

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
246: Colville, somewhat poorly drained-----	0-4	15-30	7.9-8.4	1-5	0.0-2.0	0
	4-9	15-30	7.9-8.4	1-5	0.0-2.0	0
	9-17	15-30	7.9-8.4	1-5	0.0-2.0	0
	17-21	14-20	8.5-9.0	3-10	1.0-4.0	1-5
	21-33	10-20	8.5-9.0	3-10	1.0-4.0	1-5
	33-43	10-20	8.5-9.0	3-10	1.0-4.0	1-5
	43-60	10-20	8.5-9.0	3-10	1.0-4.0	1-5
247: Conconully-----	0-2	8.0-15	6.6-7.3	0	0	0
	2-13	7.3-14	6.6-7.3	0	0	0
	13-21	4.6-13	6.6-7.3	0	0	0
	21-33	4.6-13	6.6-7.3	0	0	0
	33-60	4.5-13	6.6-7.3	0	0	0
248: Conconully-----	0-2	8.0-15	6.6-7.3	0	0	0
	2-13	7.3-14	6.6-7.3	0	0	0
	13-21	4.6-13	6.6-7.3	0	0	0
	21-33	4.6-13	6.6-7.3	0	0	0
	33-60	4.5-13	6.6-7.3	0	0	0
249: Conconully-----	0-2	8.0-15	6.6-7.3	0	0	0
	2-13	7.3-14	6.6-7.3	0	0	0
	13-21	4.6-13	6.6-7.3	0	0	0
	21-33	4.6-13	6.6-7.3	0	0	0
	33-60	4.5-13	6.6-7.3	0	0	0
250: Conconully, extremely stony surface-----	0-2	8.0-15	6.6-7.3	0	0	0
	2-13	7.3-14	6.6-7.3	0	0	0
	13-21	4.6-13	6.6-7.3	0	0	0
	21-33	4.6-13	6.6-7.3	0	0	0
	33-60	4.5-13	6.6-7.3	0	0	0
251: Conconully, extremely stony surface-----	0-2	8.0-15	6.6-7.3	0	0	0
	2-13	7.3-14	6.6-7.3	0	0	0
	13-21	4.6-13	6.6-7.3	0	0	0
	21-33	4.6-13	6.6-7.3	0	0	0
	33-60	4.5-13	6.6-7.3	0	0	0
252: Conconully-----	0-2	8.0-15	6.6-7.3	0	0	0
	2-13	7.3-14	6.6-7.3	0	0	0
	13-21	4.6-13	6.6-7.3	0	0	0
	21-33	4.6-13	6.6-7.3	0	0	0
	33-60	4.5-13	6.6-7.3	0	0	0
Donavan-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.1-7.3	0	0	0
	7-11	10-20	6.1-7.3	0	0	0
	11-16	10-20	6.1-7.3	0	0	0
	16-27	2.0-4.0	6.1-7.3	0	0	0
	27-34	2.0-4.0	6.1-7.3	0	0	0
	34-60	2.0-4.0	6.1-7.3	0	0	0

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
253:						
Coxit-----	0-1	40-90	4.5-6.0	0	0	0
	1-2	10-20	6.1-7.3	0	0	0
	2-8	10-20	6.1-7.3	0	0	0
	8-24	10-20	5.6-7.3	0	0	0
	24-35	10-20	5.6-7.3	0	0	0
	35-49	2.0-5.0	5.6-7.3	0	0	0
	49-60	2.0-5.0	5.6-7.3	0	0	0
Pelican-----	0-11	10-20	6.1-7.3	0	0	0
	11-18	10-20	6.1-7.3	0	0	0
	18-28	10-20	6.1-7.3	0	0	0
	28-37	3.0-5.0	5.6-7.3	0	0	0
	37-46	3.0-5.0	5.6-7.3	0	0	0
	46-60	3.0-5.0	5.6-7.3	0	0	0
254:						
Crocamp-----	0-10	10-20	5.6-6.5	0	0	0
	10-17	10-20	5.6-6.5	0	0	0
	17-30	1.0-4.0	5.6-6.5	0	0	0
	30-42	1.0-4.0	5.6-6.5	0	0	0
	42-46	---	---	---	---	---
Burget-----	0-8	10-20	5.6-6.5	0	0	0
	8-11	1.0-2.0	5.6-6.5	0	0	0
	11-21	---	---	---	---	---
255:						
Crocamp-----	0-10	10-20	5.6-6.5	0	0	0
	10-17	10-20	5.6-6.5	0	0	0
	17-30	1.0-4.0	5.6-6.5	0	0	0
	30-42	1.0-4.0	5.6-6.5	0	0	0
	42-46	---	---	---	---	---
Burget-----	0-8	10-20	5.6-6.5	0	0	0
	8-11	1.0-2.0	5.6-6.5	0	0	0
	11-21	---	---	---	---	---
256:						
Crocamp-----	0-10	10-20	5.6-6.5	0	0	0
	10-17	10-20	5.6-6.5	0	0	0
	17-30	1.0-4.0	5.6-6.5	0	0	0
	30-42	1.0-4.0	5.6-6.5	0	0	0
	42-46	---	---	---	---	---
Lithic Humicryepts, nonforested, xeric--	0-5	10-20	5.1-6.0	0	0	0
	5-11	10-20	5.1-6.0	0	0	0
	11-20	1.0-5.0	5.1-6.0	0	0	0
	20-30	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
257:						
Cubhill-----	0-9	10-20	6.6-7.3	0	0	0
	9-18	10-20	6.6-7.3	0	0	0
	18-25	10-20	6.6-7.3	0	0	0
	25-36	5.0-10	6.1-7.3	0	0	0
	36-60	5.0-10	6.1-7.3	0	0	0

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
257: Johntom-----	0-3	10-20	6.6-7.3	0	0	0
	3-12	5.0-7.0	6.6-7.3	0	0	0
	12-16	---	---	---	---	---
258: Dams-----	---	---	---	---	---	---
259: Devore, warm-----	0-3	40-90	4.5-6.0	0	0	0
	3-4	10-20	5.6-6.5	0	0	0
	4-7	10-20	5.6-6.5	0	0	0
	7-14	10-20	5.6-6.5	0	0	0
	14-26	1.0-5.0	5.6-6.5	0	0	0
	26-35	1.0-5.0	5.6-6.5	0	0	0
	35-39	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
260: Devore-----	0-3	40-90	4.5-6.0	0	0	0
	3-4	10-20	5.6-6.5	0	0	0
	4-7	10-20	5.6-6.5	0	0	0
	7-14	10-20	5.6-6.5	0	0	0
	14-26	1.0-5.0	5.6-6.5	0	0	0
	26-35	1.0-5.0	5.6-6.5	0	0	0
	35-39	---	---	---	---	---
Treebutte-----	0-1	40-90	4.5-6.0	0	0	0
	1-2	10-20	5.6-6.5	0	0	0
	2-11	10-20	5.6-6.5	0	0	0
	11-20	1.0-4.0	5.6-6.5	0	0	0
	20-29	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
261: Devore-----	0-3	40-90	4.5-6.0	0	0	0
	3-4	10-20	5.6-6.5	0	0	0
	4-7	10-20	5.6-6.5	0	0	0
	7-14	10-20	5.6-6.5	0	0	0
	14-26	1.0-5.0	5.6-6.5	0	0	0
	26-35	1.0-5.0	5.6-6.5	0	0	0
	35-39	---	---	---	---	---
Treebutte-----	0-1	40-90	4.5-6.0	0	0	0
	1-2	10-20	5.6-6.5	0	0	0
	2-11	10-20	5.6-6.5	0	0	0
	11-20	1.0-4.0	5.6-6.5	0	0	0
	20-29	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
262: Disautel-----	0-9	1.0-7.0	6.6-7.8	0	0	0
	9-16	1.0-7.0	6.6-7.8	0	0	0
	16-24	1.0-4.0	6.6-7.8	0	0	0
	24-31	1.0-4.0	7.4-9.0	5-15	0	0
	31-60	1.0-3.0	7.4-9.0	5-15	0	0

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	mmhos/cm	
263: Disautel-----	0-9	1.0-7.0	6.6-7.8	0	0	0
	9-16	1.0-7.0	6.6-7.8	0	0	0
	16-24	1.0-4.0	6.6-7.8	0	0	0
	24-31	1.0-4.0	7.4-9.0	5-15	0	0
	31-60	1.0-3.0	7.4-9.0	5-15	0	0
264: Disautel, extremely stony surface-----	0-9	1.0-7.0	6.6-7.8	0	0	0
	9-16	1.0-7.0	6.6-7.8	0	0	0
	16-24	1.0-4.0	6.6-7.8	0	0	0
	24-31	1.0-4.0	7.4-9.0	5-15	0	0
	31-60	1.0-3.0	7.4-9.0	5-15	0	0
265: Disautel, extremely stony surface-----	0-9	1.0-7.0	6.6-7.8	0	0	0
	9-16	1.0-7.0	6.6-7.8	0	0	0
	16-24	1.0-4.0	6.6-7.8	0	0	0
	24-31	1.0-4.0	7.4-9.0	5-15	0	0
	31-60	1.0-3.0	7.4-9.0	5-15	0	0
266: Disautel, eroded-----	0-2	1.0-7.0	6.6-7.8	0	0	0
	2-16	1.0-7.0	6.6-7.8	0	0	0
	16-24	1.0-4.0	6.6-7.8	0	0	0
	24-31	1.0-4.0	7.4-9.0	5-15	0	0
	31-60	1.0-3.0	7.4-9.0	5-15	0	0
267: Donavan-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.1-7.3	0	0	0
	7-11	10-20	6.1-7.3	0	0	0
	11-16	10-20	6.1-7.3	0	0	0
	16-27	2.0-4.0	6.1-7.3	0	0	0
	27-34	2.0-4.0	6.1-7.3	0	0	0
	34-60	2.0-4.0	6.1-7.3	0	0	0
268: Donavan-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.1-7.3	0	0	0
	7-11	10-20	6.1-7.3	0	0	0
	11-16	10-20	6.1-7.3	0	0	0
	16-27	2.0-4.0	6.1-7.3	0	0	0
	27-34	2.0-4.0	6.1-7.3	0	0	0
	34-60	2.0-4.0	6.1-7.3	0	0	0
269: Donavan-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.1-7.3	0	0	0
	7-11	10-20	6.1-7.3	0	0	0
	11-16	10-20	6.1-7.3	0	0	0
	16-27	2.0-4.0	6.1-7.3	0	0	0
	27-34	2.0-4.0	6.1-7.3	0	0	0
	34-60	2.0-4.0	6.1-7.3	0	0	0

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	mmhos/cm	
270: Donavan, extremely stony surface-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.1-7.3	0	0	0
	7-11	10-20	6.1-7.3	0	0	0
	11-16	10-20	6.1-7.3	0	0	0
	16-27	2.0-4.0	6.1-7.3	0	0	0
	27-34	2.0-4.0	6.1-7.3	0	0	0
	34-60	2.0-4.0	6.1-7.3	0	0	0
271: Donavan, extremely stony surface-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.1-7.3	0	0	0
	7-11	10-20	6.1-7.3	0	0	0
	11-16	10-20	6.1-7.3	0	0	0
	16-27	2.0-4.0	6.1-7.3	0	0	0
	27-34	2.0-4.0	6.1-7.3	0	0	0
	34-60	2.0-4.0	6.1-7.3	0	0	0
272: Donavan, extremely stony surface-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.1-7.3	0	0	0
	7-11	10-20	6.1-7.3	0	0	0
	11-16	10-20	6.1-7.3	0	0	0
	16-27	2.0-4.0	6.1-7.3	0	0	0
	27-34	2.0-4.0	6.1-7.3	0	0	0
	34-60	2.0-4.0	6.1-7.3	0	0	0
Rock outcrop-----	0-60	---	---	---	---	---
273: Entiat-----	0-3	6.0-10	7.4-7.8	0	0	0
	3-8	4.0-8.0	7.4-7.8	0	0	0
	8-18	4.0-8.0	7.4-7.8	0	0	0
	18-28	---	---	---	---	---
274: Ewall-----	0-2	2.0-5.0	6.6-7.3	0	0	0
	2-7	2.0-5.0	6.6-7.3	0	0	0
	7-15	1.0-2.0	6.6-7.3	0	0	0
	15-26	1.0-2.0	6.6-7.3	0	0	0
	26-60	1.0-2.0	6.6-7.3	0	0	0
275: Ewall-----	0-2	2.0-5.0	6.6-7.3	0	0	0
	2-7	2.0-5.0	6.6-7.3	0	0	0
	7-15	1.0-2.0	6.6-7.3	0	0	0
	15-26	1.0-2.0	6.6-7.3	0	0	0
	26-60	1.0-2.0	6.6-7.3	0	0	0
276: Ewall-----	0-2	2.0-5.0	6.6-7.3	0	0	0
	2-7	2.0-5.0	6.6-7.3	0	0	0
	7-15	1.0-2.0	6.6-7.3	0	0	0
	15-26	1.0-2.0	6.6-7.3	0	0	0
	26-60	1.0-2.0	6.6-7.3	0	0	0

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Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
277:						
Farway, moist-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-20	6.1-7.3	0	0	0
	5-10	10-20	6.1-7.3	0	0	0
	10-21	10-20	6.1-7.3	0	0	0
	21-60	1.0-3.0	6.1-7.3	0	0	0
278:						
Finney-----	0-1	40-90	4.5-6.0	0	0	0
	1-3	10-20	5.6-7.3	0	0	0
	3-11	10-20	5.6-7.3	0	0	0
	11-21	3.0-5.0	6.1-7.3	0	0	0
	21-33	3.0-5.0	6.1-7.3	0	0	0
	33-44	3.0-5.0	6.1-7.3	0	0	0
	44-48	---	---	---	---	---
Myerscreek, moist----	0-1	40-90	4.5-6.0	0	0	0
	1-2	10-20	5.6-6.5	0	0	0
	2-5	10-20	5.6-6.5	0	0	0
	5-13	10-20	5.6-6.5	0	0	0
	13-32	1.0-3.0	6.1-7.3	0	0	0
	32-47	1.0-3.0	6.1-7.3	0	0	0
	47-60	1.0-3.0	6.1-7.3	0	0	0
279:						
Goddard-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.1-7.3	0	0	0
	7-13	10-20	6.1-7.3	0	0	0
	13-26	1.0-2.0	6.1-7.3	0	0	0
	26-60	1.0-2.0	6.1-7.3	0	0	0
Lithic Haploxerepts, forested-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-20	6.1-7.8	0	0	0
	4-13	10-20	6.1-7.8	0	0	0
	13-19	5.0-8.0	6.1-7.8	0	0	0
	19-23	---	---	---	---	---
280:						
Goddard-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.1-7.3	0	0	0
	7-13	10-20	6.1-7.3	0	0	0
	13-26	1.0-2.0	6.1-7.3	0	0	0
	26-60	1.0-2.0	6.1-7.3	0	0	0
Parmenter-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-20	6.1-7.3	0	0	0
	4-13	10-20	6.1-7.3	0	0	0
	13-23	10-20	6.1-7.3	0	0	0
	23-35	1.0-2.0	6.1-7.3	0	0	0
	35-60	1.0-2.0	6.1-7.3	0	0	0
281:						
Goddard, warm-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.1-7.3	0	0	0
	7-13	10-20	6.1-7.3	0	0	0
	13-26	1.0-2.0	6.1-7.3	0	0	0
	26-60	1.0-2.0	6.1-7.3	0	0	0

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Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
281: Parmenter, dry-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-20	6.1-7.3	0	0	0
	4-13	10-20	6.1-7.3	0	0	0
	13-23	10-20	6.1-7.3	0	0	0
	23-35	1.0-2.0	6.1-7.3	0	0	0
	35-60	1.0-2.0	6.1-7.3	0	0	0
282: Granflat-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	3.0-9.0	6.1-7.3	0	0	0
	7-10	3.0-9.0	6.1-7.3	0	0	0
	10-16	3.0-5.0	6.1-7.3	0	0	0
	16-26	0.0-1.0	6.1-7.3	0	0	0
	26-60	0.0-1.0	6.1-7.3	0	0	0
283: Haley-----	0-8	1.0-4.0	6.6-7.3	0	0	0
	8-12	1.0-4.0	6.6-7.3	0	0	0
	12-25	1.0-3.0	6.6-7.3	0	0	0
	25-60	1.0-2.0	6.6-7.3	0	0	0
284: Haley-----	0-8	1.0-4.0	6.6-7.3	0	0	0
	8-12	1.0-4.0	6.6-7.3	0	0	0
	12-25	1.0-3.0	6.6-7.3	0	0	0
	25-60	1.0-2.0	6.6-7.3	0	0	0
285: Haploxerandic Haplocryepts, forested, till substratum-----	0-1	40-90	4.5-6.0	0	0	0
	1-2	5.0-25	5.6-6.5	0	0	0
	2-5	10-25	5.6-6.5	0	0	0
	5-11	10-25	5.6-6.5	0	0	0
	11-22	1.0-3.0	5.6-6.5	0	0	0
	22-60	1.0-3.0	5.6-7.3	0	0	0
Cryaquolls, poorly drained, till substratum-----	0-2	40-90	4.5-6.0	0	0	0
	2-9	6.0-11	6.1-7.3	0	0	0
	9-17	6.0-11	6.1-7.3	0	0	0
	17-21	4.0-10	6.1-7.3	0	0	0
	21-31	1.0-4.0	6.1-7.3	0	0	0
	31-40	1.0-4.0	6.1-7.3	0	0	0
	40-60	1.0-4.0	6.1-7.3	0	0	0
286: Havillah-----	0-12	15-35	6.6-7.3	0	0	0
	12-19	15-35	6.6-7.3	0	0	0
	19-24	10-25	6.6-7.3	0	0	0
	24-27	10-25	7.9-8.4	1-5	0	0
	27-60	10-25	8.5-9.0	2-10	0	0
287: Havillah-----	0-12	15-35	6.6-7.3	0	0	0
	12-19	15-35	6.6-7.3	0	0	0
	19-24	10-25	6.6-7.3	0	0	0
	24-27	10-25	7.9-8.4	1-5	0	0
	27-60	10-25	8.5-9.0	2-10	0	0

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
288:						
Havillah-----	0-12	15-35	6.6-7.3	0	0	0
	12-19	15-35	6.6-7.3	0	0	0
	19-24	10-25	6.6-7.3	0	0	0
	24-27	10-25	7.9-8.4	1-5	0	0
	27-60	10-25	8.5-9.0	2-10	0	0
289:						
Havillah, eroded----	0-5	15-35	6.6-7.3	0	0	0
	5-19	15-35	6.6-7.3	0	0	0
	19-24	10-25	6.6-7.3	0	0	0
	24-27	10-25	7.9-8.4	1-5	0	0
	27-60	10-25	8.5-9.0	2-10	0	0
290:						
Havillah, extremely stony surface-----	0-12	15-35	6.6-7.3	0	0	0
	12-19	15-35	6.6-7.3	0	0	0
	19-24	10-25	6.6-7.3	0	0	0
	24-27	10-25	7.9-8.4	1-5	0	0
	27-60	10-25	8.5-9.0	2-10	0	0
291:						
Histic Cryaquepts----	0-8	20-90	4.5-6.0	0	0	0
	8-10	10-20	6.1-7.3	0	0	0
	10-15	10-20	6.1-7.3	0	0	0
	15-21	1.0-2.0	6.1-7.3	0	0	0
	21-34	1.0-2.0	6.1-7.3	0	0	0
	34-60	1.0-2.0	6.1-7.3	0	0	0
Cryohemists-----	0-14	20-90	4.5-6.0	0	0	0
	14-19	50-120	4.5-6.0	0	0	0
	19-26	1.0-2.0	6.1-7.3	0	0	0
	26-33	1.0-2.0	6.1-7.3	0	0	0
	33-60	1.0-2.0	6.1-7.3	0	0	0
292:						
Histosols, ponded----	0-4	20-90	4.5-6.0	0	0	0
	4-20	50-120	4.5-6.0	0	0	0
	20-32	20-40	6.1-7.3	0	0	0
	32-60	20-30	6.1-7.3	0	0	0
293:						
Hodgson-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	15-35	6.1-6.5	0	0	0
	7-10	15-35	6.1-6.5	0	0	0
	10-16	8.0-12	6.1-6.5	0	0	0
	16-26	8.0-12	7.9-8.4	0	0	0
	26-41	10-14	8.5-9.0	3-8	1.0-4.0	1-5
	41-60	10-14	8.5-9.0	3-8	1.0-4.0	1-5
294:						
Humic Vitricryands, nonforested-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	20-40	5.6-6.5	0	0	0
	5-16	20-40	5.6-6.5	0	0	0
	16-27	1.0-5.0	5.6-6.5	0	0	0
	27-33	1.0-5.0	5.6-6.5	0	0	0
	33-41	---	---	---	---	---
	41-45	---	---	---	---	---

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
294: Typic Humicryepts, nonforested-----	0-7	20-40	5.6-6.5	0	0	0
	7-12	20-40	5.6-6.5	0	0	0
	12-24	1.0-5.0	5.6-6.5	0	0	0
	24-30	1.0-5.0	5.6-6.5	0	0	0
	30-34	---	---	---	---	---
295: Hunters-----	0-3	15-35	6.1-6.5	0	0	0
	3-15	15-35	6.1-6.5	0	0	0
	15-24	8.0-12	6.1-6.5	0	0	0
	24-30	8.0-12	7.9-8.4	0	0	0
	30-60	10-14	8.5-9.0	1-5	0	0
296: Hunters-----	0-3	15-35	6.1-6.5	0	0	0
	3-15	15-35	6.1-6.5	0	0	0
	15-24	8.0-12	6.1-6.5	0	0	0
	24-30	8.0-12	7.9-8.4	0	0	0
	30-60	10-14	8.5-9.0	1-5	0	0
297: Hunters, eroded-----	0-1	15-35	6.1-6.5	0	0	0
	1-15	15-35	6.1-6.5	0	0	0
	15-24	8.0-12	6.1-6.5	0	0	0
	24-30	8.0-12	7.9-8.4	0	0	0
	30-60	10-14	8.5-9.0	1-5	0	0
298: Jimbluff-----	0-2	---	---	---	---	---
	2-6	10-20	6.6-7.3	0	0	0
	6-11	10-20	6.1-6.5	0	0	0
	11-19	10-20	6.1-6.5	0	0	0
	19-26	1.0-2.0	6.1-6.5	0	0	0
	26-37	1.0-2.0	6.1-6.5	0	0	0
	37-60	0.0-1.0	6.1-6.5	0	0	0
299: Jimbluff-----	0-2	---	---	---	---	---
	2-6	10-20	6.6-7.3	0	0	0
	6-11	10-20	6.1-6.5	0	0	0
	11-19	10-20	6.1-6.5	0	0	0
	19-26	1.0-2.0	6.1-6.5	0	0	0
	26-37	1.0-2.0	6.1-6.5	0	0	0
	37-60	0.0-1.0	6.1-6.5	0	0	0
300: Johntom-----	0-3	10-20	6.6-7.3	0	0	0
	3-12	5.0-7.0	6.6-7.3	0	0	0
	12-16	---	---	---	---	---
Borgeau-----	0-5	10-20	6.6-7.3	0	0	0
	5-14	10-20	6.6-7.3	0	0	0
	14-27	10-20	6.6-7.3	0	0	0
	27-41	2.0-3.0	7.4-7.8	0	0	0
	41-60	2.0-3.0	7.4-7.8	0	0	0
Rock outcrop-----	0-60	---	---	---	---	---

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
301: Johntom-----	0-3	10-20	6.6-7.3	0	0	0
	3-12	5.0-7.0	6.6-7.3	0	0	0
	12-16	---	---	---	---	---
Foggydew-----	0-7	10-20	6.1-7.3	0	0	0
	7-12	10-20	6.1-7.3	0	0	0
	12-20	10-20	6.1-7.3	0	0	0
	20-27	1.0-5.0	6.1-7.3	0	0	0
	27-42	1.0-5.0	6.1-7.3	0	0	0
	42-53	1.0-5.0	6.1-7.3	0	0	0
	53-57	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
302: Johntom-----	0-3	10-20	6.6-7.3	0	0	0
	3-12	5.0-7.0	6.6-7.3	0	0	0
	12-16	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
303: Johntom-----	0-3	10-20	6.6-7.3	0	0	0
	3-12	5.0-7.0	6.6-7.3	0	0	0
	12-16	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
304: Karamin-----	0-1	40-90	4.5-6.0	0	0	0
	1-6	2.0-4.0	6.1-7.3	0	0	0
	6-18	1.0-3.0	6.1-7.3	0	0	0
	18-28	1.0-3.0	6.1-7.3	0	0	0
	28-43	1.0-3.0	6.1-7.3	0	0	0
	43-60	1.0-3.0	6.1-7.3	0	0	0
305: Kartar-----	0-6	5.0-15	6.6-7.3	0	0	0
	6-16	5.0-15	6.6-7.3	0	0	0
	16-28	5.0-15	6.6-7.3	0	0	0
	28-50	1.0-3.0	6.6-7.3	0	0	0
	50-60	0.0-2.0	6.6-7.3	0	0	0
306: Kartar-----	0-6	5.0-15	6.6-7.3	0	0	0
	6-16	5.0-15	6.6-7.3	0	0	0
	16-28	5.0-15	6.6-7.3	0	0	0
	28-50	1.0-3.0	6.6-7.3	0	0	0
	50-60	0.0-2.0	6.6-7.3	0	0	0
307: Kartar, cool-----	0-8	5.0-15	6.6-7.3	0	0	0
	8-16	5.0-15	6.6-7.3	0	0	0
	16-28	5.0-15	6.6-7.3	0	0	0
	28-50	1.0-3.0	6.6-7.3	0	0	0
	50-60	0.0-2.0	6.6-7.3	0	0	0

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
308: Kartar-----	0-6	5.0-15	6.6-7.3	0	0	0
	6-16	5.0-15	6.6-7.3	0	0	0
	16-28	5.0-15	6.6-7.3	0	0	0
	28-50	1.0-3.0	6.6-7.3	0	0	0
	50-60	0.0-2.0	6.6-7.3	0	0	0
309: Kartar-----	0-6	5.0-15	6.6-7.3	0	0	0
	6-16	5.0-15	6.6-7.3	0	0	0
	16-28	5.0-15	6.6-7.3	0	0	0
	28-50	1.0-3.0	6.6-7.3	0	0	0
	50-60	0.0-2.0	6.6-7.3	0	0	0
310: Kartar-----	0-6	5.0-15	6.6-7.3	0	0	0
	6-16	5.0-15	6.6-7.3	0	0	0
	16-28	5.0-15	6.6-7.3	0	0	0
	28-50	1.0-3.0	6.6-7.3	0	0	0
	50-60	0.0-2.0	6.6-7.3	0	0	0
311: Kartar, extremely stony surface-----	0-6	5.0-15	6.6-7.3	0	0	0
	6-16	5.0-15	6.6-7.3	0	0	0
	16-28	5.0-15	6.6-7.3	0	0	0
	28-50	1.0-3.0	6.6-7.3	0	0	0
	50-60	0.0-2.0	6.6-7.3	0	0	0
312: Kartar, extremely stony surface-----	0-6	5.0-15	6.6-7.3	0	0	0
	6-16	5.0-15	6.6-7.3	0	0	0
	16-28	5.0-15	6.6-7.3	0	0	0
	28-50	1.0-3.0	6.6-7.3	0	0	0
	50-60	0.0-2.0	6.6-7.3	0	0	0
313: Karu-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-20	6.1-6.5	0	0	0
	5-17	10-20	6.1-6.5	0	0	0
	17-23	2.0-5.0	6.1-6.5	0	0	0
	23-34	2.0-5.0	6.1-6.5	0	0	0
	34-60	1.0-5.0	6.1-6.5	0	0	0
314: Karu-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-20	6.1-6.5	0	0	0
	5-17	10-20	6.1-6.5	0	0	0
	17-23	2.0-5.0	6.1-6.5	0	0	0
	23-34	2.0-5.0	6.1-6.5	0	0	0
	34-60	1.0-5.0	6.1-6.5	0	0	0
315: Koepke-----	0-1	40-90	4.5-6.0	0	0	0
	1-9	10-20	6.1-7.3	0	0	0
	9-22	10-20	6.1-7.3	0	0	0
	22-24	10-20	6.1-7.3	0	0	0
	24-34	1.0-5.0	6.1-7.3	0	0	0
	34-42	1.0-5.0	6.1-7.3	0	0	0
	42-60	1.0-4.0	6.1-7.3	0	0	0

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Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
316: Koepke-----	0-1	40-90	4.5-6.0	0	0	0
	1-9	10-20	6.1-7.3	0	0	0
	9-22	10-20	6.1-7.3	0	0	0
	22-24	10-20	6.1-7.3	0	0	0
	24-34	1.0-5.0	6.1-7.3	0	0	0
	34-42	1.0-5.0	6.1-7.3	0	0	0
	42-60	1.0-4.0	6.1-7.3	0	0	0
317: Koepke-----	0-1	40-90	4.5-6.0	0	0	0
	1-9	10-20	6.1-7.3	0	0	0
	9-22	10-20	6.1-7.3	0	0	0
	22-24	10-20	6.1-7.3	0	0	0
	24-34	1.0-5.0	6.1-7.3	0	0	0
	34-42	1.0-5.0	6.1-7.3	0	0	0
	42-60	1.0-4.0	6.1-7.3	0	0	0
318: Koepke-----	0-1	40-90	4.5-6.0	0	0	0
	1-9	10-20	6.1-7.3	0	0	0
	9-22	10-20	6.1-7.3	0	0	0
	22-24	10-20	6.1-7.3	0	0	0
	24-34	1.0-5.0	6.1-7.3	0	0	0
	34-42	1.0-5.0	6.1-7.3	0	0	0
	42-60	1.0-4.0	6.1-7.3	0	0	0
319: Koepke, well drained	0-1	40-90	4.5-6.0	0	0	0
	1-9	10-20	6.1-7.3	0	0	0
	9-22	10-20	6.1-7.3	0	0	0
	22-24	10-20	6.1-7.3	0	0	0
	24-34	1.0-5.0	6.1-7.3	0	0	0
	34-42	1.0-5.0	6.1-7.3	0	0	0
	42-60	1.0-4.0	6.1-7.3	0	0	0
Koepke, moderately well drained-----	0-1	40-90	4.5-6.0	0	0	0
	1-9	10-20	6.1-7.3	0	0	0
	9-22	10-20	6.1-7.3	0	0	0
	22-24	10-20	6.1-7.3	0	0	0
	24-34	1.0-5.0	6.1-7.3	0	0	0
	34-42	1.0-5.0	6.1-7.3	0	0	0
	42-60	1.0-4.0	6.1-7.3	0	0	0
320: Koepke, well drained	0-1	40-90	4.5-6.0	0	0	0
	1-9	10-20	6.1-7.3	0	0	0
	9-22	10-20	6.1-7.3	0	0	0
	22-24	10-20	6.1-7.3	0	0	0
	24-34	1.0-5.0	6.1-7.3	0	0	0
	34-42	1.0-5.0	6.1-7.3	0	0	0
	42-60	1.0-4.0	6.1-7.3	0	0	0
Koepke, moderately well drained-----	0-1	40-90	4.5-6.0	0	0	0
	1-9	10-20	6.1-7.3	0	0	0
	9-22	10-20	6.1-7.3	0	0	0
	22-24	10-20	6.1-7.3	0	0	0
	24-34	1.0-5.0	6.1-7.3	0	0	0
	34-42	1.0-5.0	6.1-7.3	0	0	0
	42-60	1.0-4.0	6.1-7.3	0	0	0

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Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	mmhos/cm	
321:						
Koepke, well drained	0-1	40-90	4.5-6.0	0	0	0
	1-9	10-20	6.1-7.3	0	0	0
	9-22	10-20	6.1-7.3	0	0	0
	22-24	10-20	6.1-7.3	0	0	0
	24-34	1.0-5.0	6.1-7.3	0	0	0
	34-42	1.0-5.0	6.1-7.3	0	0	0
	42-60	1.0-4.0	6.1-7.3	0	0	0
Koepke, moderately well drained-----	0-1	40-90	4.5-6.0	0	0	0
	1-9	10-20	6.1-7.3	0	0	0
	9-22	10-20	6.1-7.3	0	0	0
	22-24	10-20	6.1-7.3	0	0	0
	24-34	1.0-5.0	6.1-7.3	0	0	0
	34-42	1.0-5.0	6.1-7.3	0	0	0
	42-60	1.0-4.0	6.1-7.3	0	0	0
322:						
Lani-----	0-1	40-90	4.5-6.0	0	0	0
	1-9	5.0-10	6.1-7.3	0	0	0
	9-15	5.0-10	6.1-7.3	0	0	0
	15-29	2.0-5.0	6.6-7.3	0	0	0
	29-60	0.0-2.0	6.6-7.3	0	0	0
323:						
Lani-----	0-1	40-90	4.5-6.0	0	0	0
	1-9	5.0-10	6.1-7.3	0	0	0
	9-15	5.0-10	6.1-7.3	0	0	0
	15-29	2.0-5.0	6.6-7.3	0	0	0
	29-60	0.0-2.0	6.6-7.3	0	0	0
324:						
Lani, extremely stony surface-----	0-1	40-90	4.5-6.0	0	0	0
	1-9	5.0-10	6.1-7.3	0	0	0
	9-15	5.0-10	6.1-7.3	0	0	0
	15-29	2.0-5.0	6.6-7.3	0	0	0
	29-60	0.0-2.0	6.6-7.3	0	0	0
325:						
Lani, extremely stony surface-----	0-1	40-90	4.5-6.0	0	0	0
	1-9	5.0-10	6.1-7.3	0	0	0
	9-15	5.0-10	6.1-7.3	0	0	0
	15-29	2.0-5.0	6.6-7.3	0	0	0
	29-60	0.0-2.0	6.6-7.3	0	0	0
326:						
Leavenworth-----	0-3	5.0-15	6.6-7.3	0	0	0
	3-21	5.0-15	6.6-7.3	0	0	0
	21-60	4.0-8.0	6.6-7.3	0	0	0
327:						
Leftcreek-----	0-5	10-20	6.1-7.3	0	0	0
	5-14	10-20	6.1-7.3	0	0	0
	14-18	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	mmhos/cm	
328: Leiko-----	0-1	40-90	4.5-6.0	0	0	0
	1-2	8.0-15	6.1-7.3	0	0	0
	2-9	6.0-10	6.1-7.3	0	0	0
	9-30	1.0-4.0	6.1-7.3	0	0	0
	30-60	1.0-3.0	6.1-7.3	0	0	0
329: Leiko-----	0-1	40-90	4.5-6.0	0	0	0
	1-2	8.0-15	6.1-7.3	0	0	0
	2-9	6.0-10	6.1-7.3	0	0	0
	9-30	1.0-4.0	6.1-7.3	0	0	0
	30-60	1.0-3.0	6.1-7.3	0	0	0
330: Leiko-----	0-1	40-90	4.5-6.0	0	0	0
	1-2	8.0-15	6.1-7.3	0	0	0
	2-9	6.0-10	6.1-7.3	0	0	0
	9-30	1.0-4.0	6.1-7.3	0	0	0
	30-60	1.0-3.0	6.1-7.3	0	0	0
331: Leiko, extremely stony surface-----	0-1	40-90	4.5-6.0	0	0	0
	1-2	8.0-15	6.1-7.3	0	0	0
	2-9	6.0-10	6.1-7.3	0	0	0
	9-30	1.0-4.0	6.1-7.3	0	0	0
	30-60	1.0-3.0	6.1-7.3	0	0	0
332: Leiko, extremely stony surface-----	0-1	40-90	4.5-6.0	0	0	0
	1-2	8.0-15	6.1-7.3	0	0	0
	2-9	6.0-10	6.1-7.3	0	0	0
	9-30	1.0-4.0	6.1-7.3	0	0	0
	30-60	1.0-3.0	6.1-7.3	0	0	0
333: Leiko-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-20	6.1-7.3	0	0	0
	4-12	10-20	6.1-7.3	0	0	0
	12-25	1.0-4.0	6.1-7.3	0	0	0
	25-60	1.0-4.0	6.1-7.3	0	0	0
334: Leiko, extremely stony surface-----	0-1	40-90	4.5-6.0	0	0	0
	1-2	8.0-15	6.1-7.3	0	0	0
	2-9	6.0-10	6.1-7.3	0	0	0
	9-30	1.0-4.0	6.1-7.3	0	0	0
	30-60	1.0-3.0	6.1-7.3	0	0	0
335: Leiko-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-20	6.1-7.3	0	0	0
	4-12	10-20	6.1-7.3	0	0	0
	12-25	1.0-4.0	6.1-7.3	0	0	0
	25-60	1.0-4.0	6.1-7.3	0	0	0
Rock outcrop-----	0-60	---	---	---	---	---

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	mmhos/cm	
336: Lekrem, extremely stony surface-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-20	6.1-7.3	0	0	0
	5-17	10-20	6.1-7.3	0	0	0
	17-30	1.0-5.0	6.1-7.3	0	0	0
	30-41	1.0-5.0	6.1-7.3	0	0	0
	41-60	0.0-2.0	6.1-7.3	0	0	0
Chumstick, moist-----	0-5	10-20	6.6-7.3	0	0	0
	5-15	10-20	6.6-7.3	0	0	0
	15-19	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
337: Lithic Humicryepts, forested, udic-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-20	5.1-6.0	0	0	0
	5-11	10-20	5.1-6.0	0	0	0
	11-20	1.0-5.0	5.1-6.0	0	0	0
	20-30	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
338: Lithic Haploxerepts, range-----	0-3	10-20	6.1-7.8	0	0	0
	3-12	10-20	6.1-7.8	0	0	0
	12-18	5.0-8.0	6.1-7.8	0	0	0
	18-22	---	---	---	---	---
Cashmont, extremely stony surface-----	0-3	8.0-12	6.6-7.3	0	0	0
	3-8	6.0-10	6.6-7.3	0	0	0
	8-23	2.0-6.0	6.6-7.3	0	0	0
	23-60	2.0-6.0	6.6-7.3	0	0	0
339: Lithic Haploxerepts, range-----	0-3	10-20	6.1-7.8	0	0	0
	3-12	10-20	6.1-7.8	0	0	0
	12-18	5.0-8.0	6.1-7.8	0	0	0
	18-22	---	---	---	---	---
Conconully, extremely stony surface-----	0-2	8.0-15	6.6-7.3	0	0	0
	2-13	7.3-14	6.6-7.3	0	0	0
	13-21	4.6-13	6.6-7.3	0	0	0
	21-33	4.6-13	6.6-7.3	0	0	0
	33-60	4.5-13	6.6-7.3	0	0	0
340: Lithic Haploxerepts, range-----	0-3	10-20	6.1-7.8	0	0	0
	3-12	10-20	6.1-7.8	0	0	0
	12-18	5.0-8.0	6.1-7.8	0	0	0
	18-22	---	---	---	---	---

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	mmhos/cm	
340: Donavan, extremely stony surface-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.1-7.3	0	0	0
	7-11	10-20	6.1-7.3	0	0	0
	11-16	10-20	6.1-7.3	0	0	0
	16-27	2.0-4.0	6.1-7.3	0	0	0
	27-34	2.0-4.0	6.1-7.3	0	0	0
	34-60	2.0-4.0	6.1-7.3	0	0	0
Rock outcrop-----	0-60	---	---	---	---	---
341: Lithic Haploxerepts, range-----	0-3	10-20	6.1-7.8	0	0	0
	3-12	10-20	6.1-7.8	0	0	0
	12-18	5.0-8.0	6.1-7.8	0	0	0
	18-22	---	---	---	---	---
Kartar, extremely stony surface-----	0-6	5.0-15	6.6-7.3	0	0	0
	6-16	5.0-15	6.6-7.3	0	0	0
	16-28	5.0-15	6.6-7.3	0	0	0
	28-50	1.0-3.0	6.6-7.3	0	0	0
	50-60	0.0-2.0	6.6-7.3	0	0	0
342: Lithic Haploxerepts, range-----	0-3	10-20	6.1-7.8	0	0	0
	3-12	10-20	6.1-7.8	0	0	0
	12-18	5.0-8.0	6.1-7.8	0	0	0
	18-22	---	---	---	---	---
Molson, extremely stony surface-----	0-8	10-20	6.1-7.3	0	0	0
	8-18	10-20	6.1-7.3	0	0	0
	18-42	5.0-15	6.6-8.4	0	0	0
	42-50	5.0-15	6.6-8.4	0	0	0
	50-60	5.0-15	6.6-8.4	0	0	0
343: Lithic Haploxerepts, range-----	0-3	10-20	6.1-7.8	0	0	0
	3-12	10-20	6.1-7.8	0	0	0
	12-18	5.0-8.0	6.1-7.8	0	0	0
	18-22	---	---	---	---	---
Newbon, extremely stony surface-----	0-2	10-15	6.6-7.3	0	0	0
	2-13	10-13	6.6-7.3	0	0	0
	13-25	5.0-10	6.6-7.3	0	0	0
	25-60	5.0-10	6.6-7.3	0	0	0
344: Lithic Haploxerepts, range-----	0-3	10-20	6.1-7.8	0	0	0
	3-12	10-20	6.1-7.8	0	0	0
	12-18	5.0-8.0	6.1-7.8	0	0	0
	18-22	---	---	---	---	---

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
344: Nighthawk, extremely stony surface-----	0-4	10-20	6.6-7.3	0	0	0
	4-8	10-20	6.6-7.3	0	0	0
	8-13	5.0-15	7.4-7.8	0	0	0
	13-22	5.0-15	7.4-7.8	0	0	0
	22-32	0.0-10	7.9-8.4	5-10	0	0
	32-60	0.0-10	7.9-8.4	5-15	0	0
345: Lithic Haploxerepts, range-----	0-3	10-20	6.1-7.8	0	0	0
	3-12	10-20	6.1-7.8	0	0	0
	12-18	5.0-8.0	6.1-7.8	0	0	0
	18-22	---	---	---	---	---
Republic, extremely stony surface-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.1-6.5	0	0	0
	7-16	10-20	6.1-6.5	0	0	0
	16-29	2.0-6.0	6.6-7.8	0	0	0
	29-36	2.0-6.0	6.6-7.8	0	0	0
	36-60	2.0-6.0	7.4-7.8	0	0	0
346: Lithic Haploxerepts, range, moist-----	0-3	10-20	6.1-7.8	0	0	0
	3-12	10-20	6.1-7.8	0	0	0
	12-18	5.0-8.0	6.1-7.8	0	0	0
	18-22	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
347: Lithic Haploxerepts, range-----	0-3	10-20	6.1-7.8	0	0	0
	3-12	10-20	6.1-7.8	0	0	0
	12-18	5.0-8.0	6.1-7.8	0	0	0
	18-22	---	---	---	---	---
Vallan-----	0-2	15-25	6.1-7.3	0	0	0
	2-10	10-20	6.1-7.3	0	0	0
	10-16	10-20	6.1-7.3	0	0	0
	16-20	---	---	---	---	---
348: Lithic Haploxerepts, forested-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-20	6.1-7.8	0	0	0
	4-13	10-20	6.1-7.8	0	0	0
	13-19	5.0-8.0	6.1-7.8	0	0	0
	19-23	---	---	---	---	---
Wilma, dry-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-29	6.1-7.3	0	0	0
	7-13	10-20	6.1-7.3	0	0	0
	13-18	1.0-5.0	6.1-7.3	0	0	0
	18-29	1.0-3.0	6.1-7.3	0	0	0
	29-33	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation	Soil	Calcium	Salinity	Sodium
	<i>In</i>	exchange capacity	reaction	carbon- ate		
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
349:						
Longort-----	0-1	40-90	4.5-6.0	0	0	0
	1-6	10-20	6.1-7.3	0	0	0
	6-18	10-20	6.1-7.3	0	0	0
	18-38	2.0-5.0	6.1-7.3	0	0	0
	38-48	2.0-5.0	6.1-7.3	0	0	0
	48-60	2.0-5.0	6.1-7.3	0	0	0
350:						
Longort-----	0-1	40-90	4.5-6.0	0	0	0
	1-6	10-20	6.1-7.3	0	0	0
	6-18	10-20	6.1-7.3	0	0	0
	18-38	2.0-5.0	6.1-7.3	0	0	0
	38-48	2.0-5.0	6.1-7.3	0	0	0
	48-60	2.0-5.0	6.1-7.3	0	0	0
Santop-----	0-2	40-90	4.5-6.0	0	0	0
	2-7	10-20	6.1-7.3	0	0	0
	7-17	10-20	6.1-7.3	0	0	0
	17-36	2.0-5.0	6.1-7.3	0	0	0
	36-40	---	---	---	---	---
351:						
Longswamp, warm-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.6-7.3	0	0	0
	7-13	10-20	6.6-7.3	0	0	0
	13-16	10-20	6.6-7.3	0	0	0
	16-26	1.0-3.0	6.6-7.3	0	0	0
	26-37	1.0-3.0	6.6-7.3	0	0	0
	37-60	1.0-3.0	6.6-7.3	0	0	0
352:						
Louploup-----	0-2	40-90	4.5-6.0	0	0	0
	2-8	10-20	6.1-7.3	0	0	0
	8-23	10-20	6.1-7.3	0	0	0
	23-43	1.0-3.0	6.1-7.3	0	0	0
	43-60	1.0-3.0	6.1-7.3	0	0	0
Stepstone-----	0-1	40-90	4.5-6.0	0	0	0
	1-2	5.0-15	6.1-7.3	0	0	0
	2-6	5.0-15	6.1-7.3	0	0	0
	6-19	5.0-15	6.1-7.3	0	0	0
	19-23	1.0-10	5.6-6.5	0	0	0
	23-39	1.0-5.0	5.6-6.5	0	0	0
	39-60	1.0-5.0	5.6-6.5	0	0	0
353:						
Louploup, dry-----	0-2	40-90	4.5-6.0	0	0	0
	2-8	10-20	6.1-7.3	0	0	0
	8-23	10-20	6.1-7.3	0	0	0
	23-43	1.0-3.0	6.1-7.3	0	0	0
	43-60	1.0-3.0	6.1-7.3	0	0	0
Stepstone, dry-----	0-1	40-90	4.5-6.0	0	0	0
	1-2	5.0-15	6.1-7.3	0	0	0
	2-6	5.0-15	6.1-7.3	0	0	0
	6-19	5.0-15	6.1-7.3	0	0	0
	19-23	1.0-10	5.6-6.5	0	0	0
	23-39	1.0-5.0	5.6-6.5	0	0	0
	39-60	1.0-5.0	5.6-6.5	0	0	0

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
354: Manley-----	0-2	40-90	4.5-6.0	0	0	0
	2-3	40-90	4.5-6.0	0	0	0
	3-5	10-25	6.1-6.5	0	0	0
	5-16	10-25	6.1-6.5	0	0	0
	16-24	10-25	6.1-6.5	0	0	0
	24-37	1.0-3.0	6.1-7.3	0	0	0
	37-60	1.0-3.0	6.1-7.3	0	0	0
355: Manley-----	0-2	40-90	4.5-6.0	0	0	0
	2-3	40-90	4.5-6.0	0	0	0
	3-5	10-25	6.1-6.5	0	0	0
	5-16	10-25	6.1-6.5	0	0	0
	16-24	10-25	6.1-6.5	0	0	0
	24-37	1.0-3.0	6.1-7.3	0	0	0
	37-60	1.0-3.0	6.1-7.3	0	0	0
356: Manley, warm-----	0-2	40-90	4.5-6.0	0	0	0
	2-3	40-90	4.5-6.0	0	0	0
	3-5	10-25	6.1-6.5	0	0	0
	5-16	10-25	6.1-6.5	0	0	0
	16-24	10-25	6.1-6.5	0	0	0
	24-37	1.0-3.0	6.1-7.3	0	0	0
	37-60	1.0-3.0	6.1-7.3	0	0	0
Devore, warm-----	0-3	40-90	4.5-6.0	0	0	0
	3-4	10-20	5.6-6.5	0	0	0
	4-7	10-20	5.6-6.5	0	0	0
	7-14	10-20	5.6-6.5	0	0	0
	14-26	1.0-5.0	5.6-6.5	0	0	0
	26-35	1.0-5.0	5.6-6.5	0	0	0
	35-39	---	---	---	---	---
357: Manley, warm-----	0-2	40-90	4.5-6.0	0	0	0
	2-3	40-90	4.5-6.0	0	0	0
	3-5	10-25	6.1-6.5	0	0	0
	5-16	10-25	6.1-6.5	0	0	0
	16-24	10-25	6.1-6.5	0	0	0
	24-37	1.0-3.0	6.1-7.3	0	0	0
	37-60	1.0-3.0	6.1-7.3	0	0	0
Devore, warm-----	0-3	40-90	4.5-6.0	0	0	0
	3-4	10-20	5.6-6.5	0	0	0
	4-7	10-20	5.6-6.5	0	0	0
	7-14	10-20	5.6-6.5	0	0	0
	14-26	1.0-5.0	5.6-6.5	0	0	0
	26-35	1.0-5.0	5.6-6.5	0	0	0
	35-39	---	---	---	---	---
358: Mansonia-----	0-4	15-35	6.6-7.3	0	0	0
	4-10	15-35	6.6-7.3	0	0	0
	10-20	15-35	6.6-7.3	0	0	0
	20-50	15-35	6.6-7.3	0	0	0
	50-60	---	---	---	---	---

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
358:						
Swakane-----	0-4	4.0-8.0	6.1-7.8	0	0	0
	4-11	2.0-6.0	6.1-7.8	0	0	0
	11-17	1.0-3.0	6.1-7.8	0	0	0
	17-21	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
359:						
Merkel-----	0-1	40-90	4.5-6.0	0	0	0
	1-6	33-55	5.6-7.3	0	0	0
	6-12	22-44	5.6-7.3	0	0	0
	12-29	22-44	5.6-7.3	0	0	0
	29-35	1.0-3.0	5.6-7.3	0	0	0
	35-60	1.0-3.0	5.6-7.3	0	0	0
360:						
Merkel-----	0-1	40-90	4.5-6.0	0	0	0
	1-6	33-55	5.6-7.3	0	0	0
	6-12	22-44	5.6-7.3	0	0	0
	12-29	22-44	5.6-7.3	0	0	0
	29-35	1.0-3.0	5.6-7.3	0	0	0
	35-60	1.0-3.0	5.6-7.3	0	0	0
361:						
Merkel-----	0-1	40-90	4.5-6.0	0	0	0
	1-6	33-55	5.6-7.3	0	0	0
	6-12	22-44	5.6-7.3	0	0	0
	12-29	22-44	5.6-7.3	0	0	0
	29-35	1.0-3.0	5.6-7.3	0	0	0
	35-60	1.0-3.0	5.6-7.3	0	0	0
362:						
Merkel-----	0-2	40-90	4.5-6.0	0	0	0
	2-3	40-90	4.5-6.0	0	0	0
	3-4	10-25	6.1-6.5	0	0	0
	4-7	10-25	6.1-6.5	0	0	0
	7-14	5.0-15	6.1-6.5	0	0	0
	14-26	0.0-10	6.1-6.5	0	0	0
	26-35	0.0-10	6.1-6.5	0	0	0
	35-39	---	---	---	---	---
Lithic Haploxerepts, forested-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-20	6.1-7.8	0	0	0
	4-13	10-20	6.1-7.8	0	0	0
	13-19	5.0-8.0	6.1-7.8	0	0	0
	19-23	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
363:						
Merkel-----	0-1	40-90	4.5-6.0	0	0	0
	1-6	33-55	5.6-7.3	0	0	0
	6-12	22-44	5.6-7.3	0	0	0
	12-29	22-44	5.6-7.3	0	0	0
	29-35	1.0-3.0	5.6-7.3	0	0	0
	35-60	1.0-3.0	5.6-7.3	0	0	0

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
363:						
Wilma-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-29	6.1-7.3	0	0	0
	7-13	10-20	6.1-7.3	0	0	0
	13-18	1.0-5.0	6.1-7.3	0	0	0
	18-29	1.0-3.0	6.1-7.3	0	0	0
	29-33	---	---	---	---	---
364:						
Midpeak-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.6-7.3	0	0	0
	7-16	10-20	6.6-7.3	0	0	0
	16-24	5.0-9.0	6.6-7.3	0	0	0
	24-37	2.0-8.0	6.1-6.5	0	0	0
	37-41	---	---	---	---	---
Johntom-----	0-3	10-20	6.6-7.3	0	0	0
	3-12	5.0-7.0	6.6-7.3	0	0	0
	12-16	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
365:						
Mineral, dry-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.1-7.3	0	0	0
	7-13	10-20	6.1-7.3	0	0	0
	13-24	1.0-2.0	6.1-7.3	0	0	0
	24-28	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
366:						
Mineral, dry-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.1-7.3	0	0	0
	7-13	10-20	6.1-7.3	0	0	0
	13-24	1.0-2.0	6.1-7.3	0	0	0
	24-28	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
367:						
Mires-----	0-9	15-35	6.6-7.3	0	0	0
	9-13	15-35	6.6-7.3	0	0	0
	13-21	15-35	7.4-7.8	0	0	0
	21-29	1.0-5.0	7.4-7.8	0	0	0
	29-60	1.0-5.0	7.4-7.8	0	0	0
368:						
Mires-----	0-9	15-35	6.6-7.3	0	0	0
	9-13	15-35	6.6-7.3	0	0	0
	13-21	15-35	7.4-7.8	0	0	0
	21-29	1.0-5.0	7.4-7.8	0	0	0
	29-60	1.0-5.0	7.4-7.8	0	0	0
369:						
Mires-----	0-9	15-35	6.6-7.3	0	0	0
	9-13	15-35	6.6-7.3	0	0	0
	13-21	15-35	7.4-7.8	0	0	0
	21-29	1.0-5.0	7.4-7.8	0	0	0
	29-60	1.0-5.0	7.4-7.8	0	0	0

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	mmhos/cm	
370: Mires, stony surface	0-9	15-35	6.6-7.3	0	0	0
	9-13	15-35	6.6-7.3	0	0	0
	13-21	15-35	7.4-7.8	0	0	0
	21-29	1.0-5.0	7.4-7.8	0	0	0
	29-60	1.0-5.0	7.4-7.8	0	0	0
371: Mires, extremely stony surface-----	0-9	15-35	6.6-7.3	0	0	0
	9-13	15-35	6.6-7.3	0	0	0
	13-21	15-35	7.4-7.8	0	0	0
	21-29	1.0-5.0	7.4-7.8	0	0	0
	29-60	1.0-5.0	7.4-7.8	0	0	0
372: Mires-----	0-9	15-35	6.6-7.3	0	0	0
	9-13	15-35	6.6-7.3	0	0	0
	13-21	15-35	6.6-7.3	0	0	0
	21-29	1.0-5.0	7.9-8.4	0	0	0
	29-60	1.0-5.0	7.9-8.4	0	0	0
Leiko-----	0-1	40-90	4.5-6.0	0	0	0
	1-2	8.0-15	6.1-7.3	0	0	0
	2-9	6.0-10	6.1-7.3	0	0	0
	9-30	1.0-4.0	6.1-7.3	0	0	0
	30-60	1.0-3.0	6.1-7.3	0	0	0
373: Mobu-----	0-2	5.0-15	6.1-6.5	0	0	0
	2-11	5.0-15	6.6-7.3	0	0	0
	11-15	0.0-10	6.6-7.3	0	0	0
	15-30	0.0-10	7.4-7.8	0	0	0
	30-36	5.0-15	7.9-8.4	1-5	0	0
	36-60	5.0-15	7.9-8.4	5-10	0	0
374: Mobu-----	0-2	5.0-15	6.1-6.5	0	0	0
	2-11	5.0-15	6.6-7.3	0	0	0
	11-15	0.0-10	6.6-7.3	0	0	0
	15-30	0.0-10	7.4-7.8	0	0	0
	30-36	5.0-15	7.9-8.4	1-5	0	0
	36-60	5.0-15	7.9-8.4	5-10	0	0
375: Mobu-----	0-2	5.0-15	6.1-6.5	0	0	0
	2-11	5.0-15	6.6-7.3	0	0	0
	11-15	0.0-10	6.6-7.3	0	0	0
	15-30	0.0-10	7.4-7.8	0	0	0
	30-36	5.0-15	7.9-8.4	1-5	0	0
	36-60	5.0-15	7.9-8.4	5-10	0	0
376: Mobu, eroded-----	0-1	5.0-15	6.1-6.5	0	0	0
	1-11	5.0-15	6.6-7.3	0	0	0
	11-15	0.0-10	6.6-7.3	0	0	0
	15-30	0.0-10	7.4-7.8	0	0	0
	30-36	5.0-15	7.9-8.4	1-5	0	0
	36-60	5.0-15	7.9-8.4	5-10	0	0

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
377: Molson-----	0-8	10-20	6.1-7.3	0	0	0
	8-18	10-20	6.1-7.3	0	0	0
	18-42	5.0-15	6.6-8.4	0	0	0
	42-50	5.0-15	6.6-8.4	0	0	0
	50-60	5.0-15	6.6-8.4	0	0	0
378: Molson-----	0-8	10-20	6.1-7.3	0	0	0
	8-18	10-20	6.1-7.3	0	0	0
	18-42	5.0-15	6.6-8.4	0	0	0
	42-50	5.0-15	6.6-8.4	0	0	0
	50-60	5.0-15	6.6-8.4	0	0	0
379: Molson-----	0-8	10-20	6.1-7.3	0	0	0
	8-18	10-20	6.1-7.3	0	0	0
	18-42	5.0-15	6.6-8.4	0	0	0
	42-50	5.0-15	6.6-8.4	0	0	0
	50-60	5.0-15	6.6-8.4	0	0	0
380: Molson-----	0-8	10-20	6.1-7.3	0	0	0
	8-18	10-20	6.1-7.3	0	0	0
	18-42	5.0-15	6.6-8.4	0	0	0
	42-50	5.0-15	6.6-8.4	0	0	0
	50-60	5.0-15	6.6-8.4	0	0	0
381: Molson, extremely stony surface-----	0-8	10-20	6.1-7.3	0	0	0
	8-18	10-20	6.1-7.3	0	0	0
	18-42	5.0-15	6.6-8.4	0	0	0
	42-50	5.0-15	6.6-8.4	0	0	0
	50-60	5.0-15	6.6-8.4	0	0	0
382: Molson, extremely stony surface-----	0-8	10-20	6.1-7.3	0	0	0
	8-18	10-20	6.1-7.3	0	0	0
	18-42	5.0-15	6.6-8.4	0	0	0
	42-50	5.0-15	6.6-8.4	0	0	0
	50-60	5.0-15	6.6-8.4	0	0	0
383: Molson-----	0-8	10-20	6.1-7.3	0	0	0
	8-18	10-20	6.1-7.3	0	0	0
	18-42	5.0-15	6.6-8.4	0	0	0
	42-50	5.0-15	6.6-8.4	0	0	0
	50-60	5.0-15	6.6-8.4	0	0	0
384: Muckamuck-----	0-7	15-25	6.1-7.3	0	0	0
	7-18	15-20	6.6-7.3	0	0	0
	18-28	15-25	6.1-6.5	0	0	0
	28-60	15-25	6.1-6.5	0	0	0

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
385: Myerscreek, cool-----	0-1	40-90	4.5-6.0	0	0	0
	1-2	10-20	5.6-6.5	0	0	0
	2-5	10-20	5.6-6.5	0	0	0
	5-13	10-20	5.6-6.5	0	0	0
	13-32	1.0-3.0	6.1-7.3	0	0	0
	32-47	1.0-3.0	6.1-7.3	0	0	0
	47-60	1.0-3.0	6.1-7.3	0	0	0
386: Myerscreek, moist----	0-1	40-90	4.5-6.0	0	0	0
	1-2	10-20	5.6-6.5	0	0	0
	2-5	10-20	5.6-6.5	0	0	0
	5-13	10-20	5.6-6.5	0	0	0
	13-32	1.0-3.0	6.1-7.3	0	0	0
	32-47	1.0-3.0	6.1-7.3	0	0	0
	47-60	1.0-3.0	6.1-7.3	0	0	0
387: Myerscreek, warm-----	0-1	40-90	4.5-6.0	0	0	0
	1-2	10-20	5.6-6.5	0	0	0
	2-5	10-20	5.6-6.5	0	0	0
	5-13	10-20	5.6-6.5	0	0	0
	13-32	1.0-3.0	6.1-7.3	0	0	0
	32-47	1.0-3.0	6.1-7.3	0	0	0
	47-60	1.0-3.0	6.1-7.3	0	0	0
388: Myerscreek, warm-----	0-1	40-90	4.5-6.0	0	0	0
	1-2	10-20	5.6-6.5	0	0	0
	2-5	10-20	5.6-6.5	0	0	0
	5-13	10-20	5.6-6.5	0	0	0
	13-32	1.0-3.0	6.1-7.3	0	0	0
	32-47	1.0-3.0	6.1-7.3	0	0	0
	47-60	1.0-3.0	6.1-7.3	0	0	0
389: Myerscreek, cool-----	0-1	40-90	4.5-6.0	0	0	0
	1-2	10-20	5.6-6.5	0	0	0
	2-5	10-20	5.6-6.5	0	0	0
	5-13	10-20	5.6-6.5	0	0	0
	13-32	1.0-3.0	6.1-7.3	0	0	0
	32-47	1.0-3.0	6.1-7.3	0	0	0
	47-60	1.0-3.0	6.1-7.3	0	0	0
Aquandic Dystrocryepts, udic, forested-----	0-3	40-90	4.5-6.0	0	0	0
	3-9	5.0-15	6.1-7.3	0	0	0
	9-14	5.0-15	6.1-7.3	0	0	0
	14-31	1.0-4.0	6.1-7.3	0	0	0
	31-37	1.0-4.0	6.1-7.3	0	0	0
	37-60	1.0-4.0	6.1-7.3	0	0	0
390: Myerscreek, cool-----	0-1	40-90	4.5-6.0	0	0	0
	1-2	10-20	5.6-6.5	0	0	0
	2-5	10-20	5.6-6.5	0	0	0
	5-13	10-20	5.6-6.5	0	0	0
	13-32	1.0-3.0	6.1-7.3	0	0	0
	32-47	1.0-3.0	6.1-7.3	0	0	0
	47-60	1.0-3.0	6.1-7.3	0	0	0

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Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
390:						
Devore-----	0-3	40-90	4.5-6.0	0	0	0
	3-4	10-20	5.6-6.5	0	0	0
	4-7	10-20	5.6-6.5	0	0	0
	7-14	10-20	5.6-6.5	0	0	0
	14-26	1.0-5.0	5.6-6.5	0	0	0
	26-35	1.0-5.0	5.6-6.5	0	0	0
	35-39	---	---	---	---	---
391:						
Myerscreek, cool----	0-1	40-90	4.5-6.0	0	0	0
	1-2	10-20	5.6-6.5	0	0	0
	2-5	10-20	5.6-6.5	0	0	0
	5-13	10-20	5.6-6.5	0	0	0
	13-32	1.0-3.0	6.1-7.3	0	0	0
	32-47	1.0-3.0	6.1-7.3	0	0	0
	47-60	1.0-3.0	6.1-7.3	0	0	0
Devore-----	0-3	40-90	4.5-6.0	0	0	0
	3-4	10-20	5.6-6.5	0	0	0
	4-7	10-20	5.6-6.5	0	0	0
	7-14	10-20	5.6-6.5	0	0	0
	14-26	1.0-5.0	5.6-6.5	0	0	0
	26-35	1.0-5.0	5.6-6.5	0	0	0
	35-39	---	---	---	---	---
392:						
Myerscreek, moist----	0-1	40-90	4.5-6.0	0	0	0
	1-2	10-20	5.6-6.5	0	0	0
	2-5	10-20	5.6-6.5	0	0	0
	5-13	10-20	5.6-6.5	0	0	0
	13-32	1.0-3.0	6.1-7.3	0	0	0
	32-47	1.0-3.0	6.1-7.3	0	0	0
	47-60	1.0-3.0	6.1-7.3	0	0	0
Finney-----	0-1	40-90	4.5-6.0	0	0	0
	1-3	10-20	5.6-7.3	0	0	0
	3-11	10-20	5.6-7.3	0	0	0
	11-21	3.0-5.0	6.1-7.3	0	0	0
	21-33	3.0-5.0	6.1-7.3	0	0	0
	33-44	3.0-5.0	6.1-7.3	0	0	0
	44-48	---	---	---	---	---
393:						
Myerscreek, cool----	0-1	40-90	4.5-6.0	0	0	0
	1-2	10-20	5.6-6.5	0	0	0
	2-5	10-20	5.6-6.5	0	0	0
	5-13	10-20	5.6-6.5	0	0	0
	13-32	1.0-3.0	6.1-7.3	0	0	0
	32-47	1.0-3.0	6.1-7.3	0	0	0
	47-60	1.0-3.0	6.1-7.3	0	0	0
Histic Cryaquepts----	0-8	20-90	4.5-6.0	0	0	0
	8-10	10-20	6.1-7.3	0	0	0
	10-15	10-20	6.1-7.3	0	0	0
	15-21	1.0-2.0	6.1-7.3	0	0	0
	21-34	1.0-2.0	6.1-7.3	0	0	0
	34-60	1.0-2.0	6.1-7.3	0	0	0

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
393: Cryohemists-----	0-14	20-90	4.5-6.0	0	0	0
	14-19	50-120	4.5-6.0	0	0	0
	19-26	1.0-2.0	6.1-7.3	0	0	0
	26-33	1.0-2.0	6.1-7.3	0	0	0
	33-60	1.0-2.0	6.1-7.3	0	0	0
394: Myerscreek, moist----	0-1	40-90	4.5-6.0	0	0	0
	1-2	10-20	5.6-6.5	0	0	0
	2-5	10-20	5.6-6.5	0	0	0
	5-13	10-20	5.6-6.5	0	0	0
	13-32	1.0-3.0	6.1-7.3	0	0	0
	32-47	1.0-3.0	6.1-7.3	0	0	0
	47-60	1.0-3.0	6.1-7.3	0	0	0
Manley-----	0-2	40-90	4.5-6.0	0	0	0
	2-3	40-90	4.5-6.0	0	0	0
	3-5	10-25	6.1-6.5	0	0	0
	5-16	10-25	6.1-6.5	0	0	0
	16-24	10-25	6.1-6.5	0	0	0
	24-37	1.0-3.0	6.1-7.3	0	0	0
	37-60	1.0-3.0	6.1-7.3	0	0	0
395: Myerscreek-----	0-1	40-90	4.5-6.0	0	0	0
	1-2	10-20	5.6-6.5	0	0	0
	2-5	10-20	5.6-6.5	0	0	0
	5-13	10-20	5.6-6.5	0	0	0
	13-32	1.0-3.0	6.1-7.3	0	0	0
	32-47	1.0-3.0	6.1-7.3	0	0	0
	47-60	1.0-3.0	6.1-7.3	0	0	0
Twentymile-----	0-1	40-90	4.5-6.0	0	0	0
	1-2	10-20	5.6-6.5	0	0	0
	2-5	10-20	5.6-6.5	0	0	0
	5-14	10-20	5.6-6.5	0	0	0
	14-32	1.0-3.0	6.1-7.3	0	0	0
	32-45	1.0-3.0	6.1-7.3	0	0	0
	45-60	1.0-3.0	6.1-7.3	0	0	0
396: Nahahum, moist-----	0-2	40-90	4.5-6.0	0	0	0
	2-5	10-20	6.1-7.3	0	0	0
	5-14	10-20	6.1-7.3	0	0	0
	14-22	5.0-10	6.1-7.3	0	0	0
	22-36	5.0-10	6.1-7.3	0	0	0
	36-46	5.0-10	6.1-7.3	0	0	0
	46-60	5.0-10	6.1-7.3	0	0	0
397: Nahahum, cool-----	0-2	40-90	4.5-6.0	0	0	0
	2-5	10-20	6.1-7.3	0	0	0
	5-14	10-20	6.1-7.3	0	0	0
	14-22	5.0-10	6.1-7.3	0	0	0
	22-36	5.0-10	6.1-7.3	0	0	0
	36-46	5.0-10	6.1-7.3	0	0	0
	46-60	5.0-10	6.1-7.3	0	0	0

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
398:						
Nahahum-----	0-2	40-90	4.5-6.0	0	0	0
	2-5	10-20	6.1-7.3	0	0	0
	5-14	10-20	6.1-7.3	0	0	0
	14-22	5.0-10	6.1-7.3	0	0	0
	22-36	5.0-10	6.1-7.3	0	0	0
	36-46	5.0-10	6.1-7.3	0	0	0
	46-60	5.0-10	6.1-7.3	0	0	0
Coxit-----	0-1	40-90	4.5-6.0	0	0	0
	1-2	10-20	6.1-7.3	0	0	0
	2-8	10-20	6.1-7.3	0	0	0
	8-24	10-20	5.6-7.3	0	0	0
	24-35	10-20	5.6-7.3	0	0	0
	35-49	2.0-5.0	5.6-7.3	0	0	0
	49-60	2.0-5.0	5.6-7.3	0	0	0
399:						
Nahahum-----	0-2	40-90	4.5-6.0	0	0	0
	2-5	10-20	6.1-7.3	0	0	0
	5-14	10-20	6.1-7.3	0	0	0
	14-22	5.0-10	6.1-7.3	0	0	0
	22-36	5.0-10	6.1-7.3	0	0	0
	36-46	5.0-10	6.1-7.3	0	0	0
	46-60	5.0-10	6.1-7.3	0	0	0
Coxit-----	0-1	40-90	4.5-6.0	0	0	0
	1-2	10-20	6.1-7.3	0	0	0
	2-8	10-20	6.1-7.3	0	0	0
	8-24	10-20	5.6-7.3	0	0	0
	24-35	10-20	5.6-7.3	0	0	0
	35-49	2.0-5.0	5.6-7.3	0	0	0
	49-60	2.0-5.0	5.6-7.3	0	0	0
400:						
Nevine-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-25	5.6-7.3	0	0	0
	4-9	10-25	5.6-7.3	0	0	0
	9-21	10-25	5.6-7.3	0	0	0
	21-38	1.0-4.0	6.1-7.3	0	0	0
	38-51	1.0-4.0	6.1-7.3	0	0	0
	51-60	1.0-4.0	6.1-7.3	0	0	0
Nevine, warm-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-25	5.6-7.3	0	0	0
	4-9	10-25	5.6-7.3	0	0	0
	9-21	10-25	5.6-7.3	0	0	0
	21-38	1.0-4.0	6.1-7.3	0	0	0
	38-51	1.0-4.0	6.1-7.3	0	0	0
	51-60	1.0-4.0	6.1-7.3	0	0	0
401:						
Nevine-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-25	5.6-7.3	0	0	0
	4-9	10-25	5.6-7.3	0	0	0
	9-21	10-25	5.6-7.3	0	0	0
	21-38	1.0-4.0	6.1-7.3	0	0	0
	38-51	1.0-4.0	6.1-7.3	0	0	0
	51-60	1.0-4.0	6.1-7.3	0	0	0

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
401: Nevine, warm-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-25	5.6-7.3	0	0	0
	4-9	10-25	5.6-7.3	0	0	0
	9-21	10-25	5.6-7.3	0	0	0
	21-38	1.0-4.0	6.1-7.3	0	0	0
	38-51	1.0-4.0	6.1-7.3	0	0	0
	51-60	1.0-4.0	6.1-7.3	0	0	0
402: Nevine, cool-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-25	5.6-7.3	0	0	0
	4-9	10-25	5.6-7.3	0	0	0
	9-21	10-25	5.6-7.3	0	0	0
	21-38	1.0-4.0	6.1-7.3	0	0	0
	38-51	1.0-4.0	6.1-7.3	0	0	0
	51-60	1.0-4.0	6.1-7.3	0	0	0
Louploup-----	0-2	40-90	4.5-6.0	0	0	0
	2-8	10-20	6.1-7.3	0	0	0
	8-23	10-20	6.1-7.3	0	0	0
	23-43	1.0-3.0	6.1-7.3	0	0	0
	43-60	1.0-3.0	6.1-7.3	0	0	0
403: Nevine-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-25	5.6-7.3	0	0	0
	4-9	10-25	5.6-7.3	0	0	0
	9-21	10-25	5.6-7.3	0	0	0
	21-38	1.0-4.0	6.1-7.3	0	0	0
	38-51	1.0-4.0	6.1-7.3	0	0	0
	51-60	1.0-4.0	6.1-7.3	0	0	0
Louploup, dry-----	0-2	40-90	4.5-6.0	0	0	0
	2-8	10-20	6.1-7.3	0	0	0
	8-23	10-20	6.1-7.3	0	0	0
	23-43	1.0-3.0	6.1-7.3	0	0	0
	43-60	1.0-3.0	6.1-7.3	0	0	0
404: Nevine, moist-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-25	5.6-7.3	0	0	0
	4-9	10-25	5.6-7.3	0	0	0
	9-21	10-25	5.6-7.3	0	0	0
	21-38	1.0-4.0	6.1-7.3	0	0	0
	38-51	1.0-4.0	6.1-7.3	0	0	0
	51-60	1.0-4.0	6.1-7.3	0	0	0
Louploup, moist-----	0-2	40-90	4.5-6.0	0	0	0
	2-8	10-20	6.1-7.3	0	0	0
	8-23	10-20	6.1-7.3	0	0	0
	23-43	1.0-3.0	6.1-7.3	0	0	0
	43-60	1.0-3.0	6.1-7.3	0	0	0
405: Nevine-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-25	5.6-7.3	0	0	0
	4-9	10-25	5.6-7.3	0	0	0
	9-21	10-25	5.6-7.3	0	0	0
	21-38	1.0-4.0	6.1-7.3	0	0	0
	38-51	1.0-4.0	6.1-7.3	0	0	0
	51-60	1.0-4.0	6.1-7.3	0	0	0

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
405:						
Merkel-----	0-1	40-90	4.5-6.0	0	0	0
	1-6	33-55	5.6-7.3	0	0	0
	6-12	22-44	5.6-7.3	0	0	0
	12-29	22-44	5.6-7.3	0	0	0
	29-35	1.0-3.0	5.6-7.3	0	0	0
	35-60	1.0-3.0	5.6-7.3	0	0	0
406:						
Nevine-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-25	5.6-7.3	0	0	0
	4-9	10-25	5.6-7.3	0	0	0
	9-21	10-25	5.6-7.3	0	0	0
	21-38	1.0-4.0	6.1-7.3	0	0	0
	38-51	1.0-4.0	6.1-7.3	0	0	0
	51-60	1.0-4.0	6.1-7.3	0	0	0
Merkel-----	0-1	40-90	4.5-6.0	0	0	0
	1-6	33-55	5.6-7.3	0	0	0
	6-12	22-44	5.6-7.3	0	0	0
	12-29	22-44	5.6-7.3	0	0	0
	29-35	1.0-3.0	5.6-7.3	0	0	0
	35-60	1.0-3.0	5.6-7.3	0	0	0
407:						
Nevine-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-25	5.6-7.3	0	0	0
	4-9	10-25	5.6-7.3	0	0	0
	9-21	10-25	5.6-7.3	0	0	0
	21-38	1.0-4.0	6.1-7.3	0	0	0
	38-51	1.0-4.0	6.1-7.3	0	0	0
	51-60	1.0-4.0	6.1-7.3	0	0	0
Oxerine-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-25	5.6-7.3	0	0	0
	5-11	10-25	5.6-7.3	0	0	0
	11-20	1.0-5.0	6.1-7.3	0	0	0
	20-32	1.0-3.0	6.1-7.3	0	0	0
	32-36	---	---	---	---	---
408:						
Nevine-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-25	5.6-7.3	0	0	0
	4-9	10-25	5.6-7.3	0	0	0
	9-21	10-25	5.6-7.3	0	0	0
	21-38	1.0-4.0	6.1-7.3	0	0	0
	38-51	1.0-4.0	6.1-7.3	0	0	0
	51-60	1.0-4.0	6.1-7.3	0	0	0
Nevine, warm-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-25	5.6-7.3	0	0	0
	4-9	10-25	5.6-7.3	0	0	0
	9-21	10-25	5.6-7.3	0	0	0
	21-38	1.0-4.0	6.1-7.3	0	0	0
	38-51	1.0-4.0	6.1-7.3	0	0	0
	51-60	1.0-4.0	6.1-7.3	0	0	0
Rock outcrop-----	0-60	---	---	---	---	---

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
409:						
Nevine-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-25	5.6-7.3	0	0	0
	4-9	10-25	5.6-7.3	0	0	0
	9-21	10-25	5.6-7.3	0	0	0
	21-38	1.0-4.0	6.1-7.3	0	0	0
	38-51	1.0-4.0	6.1-7.3	0	0	0
	51-60	1.0-4.0	6.1-7.3	0	0	0
Nevine, warm-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-25	5.6-7.3	0	0	0
	4-9	10-25	5.6-7.3	0	0	0
	9-21	10-25	5.6-7.3	0	0	0
	21-38	1.0-4.0	6.1-7.3	0	0	0
	38-51	1.0-4.0	6.1-7.3	0	0	0
	51-60	1.0-4.0	6.1-7.3	0	0	0
Rock outcrop-----	0-60	---	---	---	---	---
410:						
Nevine-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-25	5.6-7.3	0	0	0
	4-9	10-25	5.6-7.3	0	0	0
	9-21	10-25	5.6-7.3	0	0	0
	21-38	1.0-4.0	6.1-7.3	0	0	0
	38-51	1.0-4.0	6.1-7.3	0	0	0
	51-60	1.0-4.0	6.1-7.3	0	0	0
Wilma-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-29	6.1-7.3	0	0	0
	7-13	10-20	6.1-7.3	0	0	0
	13-18	1.0-5.0	6.1-7.3	0	0	0
	18-29	1.0-3.0	6.1-7.3	0	0	0
	29-33	---	---	---	---	---
411:						
Nevine-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-25	5.6-7.3	0	0	0
	4-9	10-25	5.6-7.3	0	0	0
	9-21	10-25	5.6-7.3	0	0	0
	21-38	1.0-4.0	6.1-7.3	0	0	0
	38-51	1.0-4.0	6.1-7.3	0	0	0
	51-60	1.0-4.0	6.1-7.3	0	0	0
Wilma, dry-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-29	6.1-7.3	0	0	0
	7-13	10-20	6.1-7.3	0	0	0
	13-18	1.0-5.0	6.1-7.3	0	0	0
	18-29	1.0-3.0	6.1-7.3	0	0	0
	29-33	---	---	---	---	---
412:						
Nevine-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-25	5.6-7.3	0	0	0
	4-9	10-25	5.6-7.3	0	0	0
	9-21	10-25	5.6-7.3	0	0	0
	21-38	1.0-4.0	6.1-7.3	0	0	0
	38-51	1.0-4.0	6.1-7.3	0	0	0
	51-60	1.0-4.0	6.1-7.3	0	0	0

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
412: Wilma-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-29	6.1-7.3	0	0	0
	7-13	10-20	6.1-7.3	0	0	0
	13-18	1.0-5.0	6.1-7.3	0	0	0
	18-29	1.0-3.0	6.1-7.3	0	0	0
	29-33	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
413: Newbon-----	0-2	10-15	6.6-7.3	0	0	0
	2-13	10-13	6.6-7.3	0	0	0
	13-25	5.0-10	6.6-7.3	0	0	0
	25-60	5.0-10	6.6-7.3	0	0	0
414: Newbon-----	0-2	10-15	6.6-7.3	0	0	0
	2-13	10-13	6.6-7.3	0	0	0
	13-25	5.0-10	6.6-7.3	0	0	0
	25-60	5.0-10	6.6-7.3	0	0	0
415: Newbon-----	0-2	10-15	6.6-7.3	0	0	0
	2-13	10-13	6.6-7.3	0	0	0
	13-25	5.0-10	6.6-7.3	0	0	0
	25-60	5.0-10	6.6-7.3	0	0	0
416: Newbon-----	0-5	10-15	6.6-7.3	0	0	0
	5-13	10-13	6.6-7.3	0	0	0
	13-25	5.0-10	6.6-7.3	0	0	0
	25-60	5.0-10	6.6-7.3	0	0	0
417: Newbon-----	0-2	10-15	6.6-7.3	0	0	0
	2-13	10-13	6.6-7.3	0	0	0
	13-25	5.0-10	6.6-7.3	0	0	0
	25-60	5.0-10	6.6-7.3	0	0	0
418: Newbon, extremely stony surface-----	0-2	10-15	6.6-7.3	0	0	0
	2-13	10-13	6.6-7.3	0	0	0
	13-25	5.0-10	6.6-7.3	0	0	0
	25-60	5.0-10	6.6-7.3	0	0	0
419: Newbon, eroded-----	0-1	10-15	6.6-7.3	0	0	0
	1-13	10-13	6.6-7.3	0	0	0
	13-25	5.0-10	6.6-7.3	0	0	0
	25-60	5.0-10	6.6-7.3	0	0	0
420: Newhorn-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-20	6.1-7.3	0	0	0
	5-14	10-20	6.1-7.3	0	0	0
	14-29	2.0-5.0	6.1-7.3	0	0	0
	29-37	2.0-5.0	6.1-7.3	0	0	0
	37-60	2.0-5.0	6.1-7.3	0	0	0

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	mmhos/cm	
421: Newhorn, moist-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-20	6.1-7.3	0	0	0
	5-14	10-20	6.1-7.3	0	0	0
	14-29	2.0-5.0	6.1-7.3	0	0	0
	29-37	2.0-5.0	6.1-7.3	0	0	0
	37-60	2.0-5.0	6.1-7.3	0	0	0
422: Nicmar-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-20	6.6-7.3	0	0	0
	5-17	10-20	6.6-7.3	0	0	0
	17-24	20-30	6.6-7.3	0	0	0
	24-34	20-30	6.6-7.3	0	0	0
	34-60	15-30	6.6-7.3	0	0	0
423: Nicmar-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-20	6.6-7.3	0	0	0
	5-17	10-20	6.6-7.3	0	0	0
	17-24	20-30	6.6-7.3	0	0	0
	24-34	20-30	6.6-7.3	0	0	0
	34-60	15-30	6.6-7.3	0	0	0
424: Nicmar, warm-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-20	6.6-7.3	0	0	0
	5-17	10-20	6.6-7.3	0	0	0
	17-24	20-30	6.6-7.3	0	0	0
	24-34	20-30	6.6-7.3	0	0	0
	34-60	15-30	6.6-7.3	0	0	0
Baldknob-----	0-3	3.0-10	6.1-7.3	0	0	0
	3-12	1.0-5.0	6.1-7.3	0	0	0
	12-16	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
425: Nicmar-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-20	6.6-7.3	0	0	0
	5-17	10-20	6.6-7.3	0	0	0
	17-24	20-30	6.6-7.3	0	0	0
	24-34	20-30	6.6-7.3	0	0	0
	34-60	15-30	6.6-7.3	0	0	0
Santop-----	0-2	40-90	4.5-6.0	0	0	0
	2-7	10-20	6.1-7.3	0	0	0
	7-17	10-20	6.1-7.3	0	0	0
	17-36	2.0-5.0	6.1-7.3	0	0	0
	36-40	---	---	---	---	---
426: Nighthawk-----	0-4	10-20	6.6-7.3	0	0	0
	4-8	10-20	6.6-7.3	0	0	0
	8-13	5.0-15	7.4-7.8	0	0	0
	13-22	5.0-15	7.4-7.8	0	0	0
	22-32	0.0-10	7.9-8.4	5-10	0	0
	32-60	0.0-10	7.9-8.4	5-15	0	0

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
427: Nighthawk-----	0-4	10-20	6.6-7.3	0	0	0
	4-8	10-20	6.6-7.3	0	0	0
	8-13	5.0-15	7.4-7.8	0	0	0
	13-22	5.0-15	7.4-7.8	0	0	0
	22-32	0.0-10	7.9-8.4	5-10	0	0
	32-60	0.0-10	7.9-8.4	5-15	0	0
428: Nighthawk-----	0-4	10-20	6.6-7.3	0	0	0
	4-8	10-20	6.6-7.3	0	0	0
	8-13	5.0-15	7.4-7.8	0	0	0
	13-22	5.0-15	7.4-7.8	0	0	0
	22-32	0.0-10	7.9-8.4	5-10	0	0
	32-60	0.0-10	7.9-8.4	5-15	0	0
429: Nighthawk, extremely stony surface-----	0-4	10-20	6.6-7.3	0	0	0
	4-8	10-20	6.6-7.3	0	0	0
	8-13	5.0-15	7.4-7.8	0	0	0
	13-22	5.0-15	7.4-7.8	0	0	0
	22-32	0.0-10	7.9-8.4	5-10	0	0
	32-60	0.0-10	7.9-8.4	5-15	0	0
430: Nighthawk, extremely stony surface-----	0-4	10-20	6.6-7.3	0	0	0
	4-8	10-20	6.6-7.3	0	0	0
	8-13	5.0-15	7.4-7.8	0	0	0
	13-22	5.0-15	7.4-7.8	0	0	0
	22-32	0.0-10	7.9-8.4	5-10	0	0
	32-60	0.0-10	7.9-8.4	5-15	0	0
431: Okanogan-----	0-3	12-14	6.6-7.3	0	0	0
	3-14	10-12	6.6-7.3	0	0	0
	14-31	10-12	6.6-7.3	0	0	0
	31-45	4.5-5.5	6.6-7.3	0	0	0
	45-48	2.5-3.5	7.4-7.8	0	0	0
	48-60	1.5-2.5	7.9-8.4	1-5	0	0
432: Okanogan-----	0-3	12-14	6.6-7.3	0	0	0
	3-14	10-12	6.6-7.3	0	0	0
	14-31	10-12	6.6-7.3	0	0	0
	31-45	4.5-5.5	6.6-7.3	0	0	0
	45-48	2.5-3.5	7.4-7.8	0	0	0
	48-60	1.5-2.5	7.9-8.4	1-5	0	0
433: Owhi-----	0-5	10-20	5.6-7.8	0	0	0
	5-11	10-20	5.6-7.8	0	0	0
	11-24	10-20	5.6-7.8	0	0	0
	24-31	0.5-1.5	5.6-7.8	0	0	0
	31-60	0.5-1.5	5.6-7.8	0	0	0

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	mmhos/cm	
434: Owhi-----	0-5	10-20	5.6-7.8	0	0	0
	5-11	10-20	5.6-7.8	0	0	0
	11-24	10-20	5.6-7.8	0	0	0
	24-31	0.5-1.5	5.6-7.8	0	0	0
	31-60	0.5-1.5	5.6-7.8	0	0	0
435: Owhi, extremely stony surface-----	0-5	10-20	5.6-7.8	0	0	0
	5-11	10-20	5.6-7.8	0	0	0
	11-24	10-20	5.6-7.8	0	0	0
	24-31	0.5-1.5	5.6-7.8	0	0	0
	31-60	0.5-1.5	5.6-7.8	0	0	0
436: Owhi, extremely stony surface-----	0-5	10-20	5.6-7.8	0	0	0
	5-11	10-20	5.6-7.8	0	0	0
	11-24	10-20	5.6-7.8	0	0	0
	24-31	0.5-1.5	5.6-7.8	0	0	0
	31-60	0.5-1.5	5.6-7.8	0	0	0
437: Owhi-----	0-5	10-20	5.6-7.8	0	0	0
	5-11	10-20	5.6-7.8	0	0	0
	11-24	10-20	5.6-7.8	0	0	0
	24-31	0.5-1.5	5.6-7.8	0	0	0
	31-60	0.5-1.5	5.6-7.8	0	0	0
438: Owhi-----	0-5	10-20	5.6-7.8	0	0	0
	5-11	10-20	5.6-7.8	0	0	0
	11-24	10-20	5.6-7.8	0	0	0
	24-31	0.5-1.5	5.6-7.8	0	0	0
	31-60	0.5-1.5	5.6-7.8	0	0	0
Haley-----	0-8	1.0-4.0	6.6-7.3	0	0	0
	8-12	1.0-4.0	6.6-7.3	0	0	0
	12-25	1.0-3.0	6.6-7.3	0	0	0
	25-60	1.0-2.0	6.6-7.3	0	0	0
439: Owhi-----	0-5	10-20	5.6-7.8	0	0	0
	5-11	10-20	5.6-7.8	0	0	0
	11-24	10-20	5.6-7.8	0	0	0
	24-31	0.5-1.5	5.6-7.8	0	0	0
	31-60	0.5-1.5	5.6-7.8	0	0	0
Haley-----	0-8	1.0-4.0	6.6-7.3	0	0	0
	8-12	1.0-4.0	6.6-7.3	0	0	0
	12-25	1.0-3.0	6.6-7.3	0	0	0
	25-60	1.0-2.0	6.6-7.3	0	0	0
440: Owhi-----	0-5	10-20	5.6-7.8	0	0	0
	5-11	10-20	5.6-7.8	0	0	0
	11-24	10-20	5.6-7.8	0	0	0
	24-31	0.5-1.5	5.6-7.8	0	0	0
	31-60	0.5-1.5	5.6-7.8	0	0	0

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	mmhos/cm	
440: Haley-----	0-8	1.0-4.0	6.6-7.3	0	0	0
	8-12	1.0-4.0	6.6-7.3	0	0	0
	12-25	1.0-3.0	6.6-7.3	0	0	0
	25-60	1.0-2.0	6.6-7.3	0	0	0
441: Oxerine-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-25	5.6-7.3	0	0	0
	5-11	10-25	5.6-7.3	0	0	0
	11-20	1.0-5.0	6.1-7.3	0	0	0
	20-32	1.0-3.0	6.1-7.3	0	0	0
	32-36	---	---	---	---	---
442: Oxerine, warm-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-25	5.6-7.3	0	0	0
	5-11	10-25	5.6-7.3	0	0	0
	11-20	1.0-5.0	6.1-7.3	0	0	0
	20-32	1.0-3.0	6.1-7.3	0	0	0
	32-36	---	---	---	---	---
Lithic Haploxerepts, forested, cool-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-20	6.1-7.8	0	0	0
	4-13	10-20	6.1-7.8	0	0	0
	13-19	5.0-8.0	6.1-7.8	0	0	0
	19-23	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
443: Oxerine, warm-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-25	5.6-7.3	0	0	0
	5-11	10-25	5.6-7.3	0	0	0
	11-20	1.0-5.0	6.1-7.3	0	0	0
	20-32	1.0-3.0	6.1-7.3	0	0	0
	32-36	---	---	---	---	---
Nevine, warm-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-25	5.6-7.3	0	0	0
	4-9	10-25	5.6-7.3	0	0	0
	9-21	10-25	5.6-7.3	0	0	0
	21-38	1.0-4.0	6.1-7.3	0	0	0
	38-51	1.0-4.0	6.1-7.3	0	0	0
	51-60	1.0-4.0	6.1-7.3	0	0	0
444: Oxerine, cool-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-25	5.6-7.3	0	0	0
	5-11	10-25	5.6-7.3	0	0	0
	11-20	1.0-5.0	6.1-7.3	0	0	0
	20-32	1.0-3.0	6.1-7.3	0	0	0
	32-36	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
445:						
Pebcreek-----	0-2	40-90	4.5-6.0	0	0	0
	2-7	10-20	6.1-7.3	0	0	0
	7-13	10-20	6.1-7.3	0	0	0
	13-39	1.0-2.0	6.1-7.3	0	0	0
	39-44	1.0-2.0	6.1-7.3	0	0	0
	44-60	1.0-2.0	6.1-7.3	0	0	0
446:						
Pebcreek-----	0-2	40-90	4.5-6.0	0	0	0
	2-7	10-20	6.1-7.3	0	0	0
	7-13	10-20	6.1-7.3	0	0	0
	13-39	1.0-2.0	6.1-7.3	0	0	0
	39-44	1.0-2.0	6.1-7.3	0	0	0
	44-60	1.0-2.0	6.1-7.3	0	0	0
Brevco, cool-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-20	6.1-7.3	0	0	0
	4-12	10-20	6.1-7.3	0	0	0
	12-26	1.0-4.0	5.6-7.3	0	0	0
	26-39	1.0-4.0	5.6-7.3	0	0	0
	39-43	---	---	---	---	---
447:						
Pebcreek-----	0-2	40-90	4.5-6.0	0	0	0
	2-7	10-20	6.1-7.3	0	0	0
	7-13	10-20	6.1-7.3	0	0	0
	13-39	1.0-2.0	6.1-7.3	0	0	0
	39-44	1.0-2.0	6.1-7.3	0	0	0
	44-60	1.0-2.0	6.1-7.3	0	0	0
Brevco, cool-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-20	6.1-7.3	0	0	0
	4-12	10-20	6.1-7.3	0	0	0
	12-26	1.0-4.0	5.6-7.3	0	0	0
	26-39	1.0-4.0	5.6-7.3	0	0	0
	39-43	---	---	---	---	---
448:						
Pebcreek, dry-----	0-2	40-90	4.5-6.0	0	0	0
	2-7	10-20	6.1-7.3	0	0	0
	7-13	10-20	6.1-7.3	0	0	0
	13-39	1.0-2.0	6.1-7.3	0	0	0
	39-44	1.0-2.0	6.1-7.3	0	0	0
	44-60	1.0-2.0	6.1-7.3	0	0	0
Lithic Haploxerepts, forested, dry-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-20	6.1-7.8	0	0	0
	4-13	10-20	6.1-7.8	0	0	0
	13-19	5.0-8.0	6.1-7.8	0	0	0
	19-23	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
449:						
Peka-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.1-7.3	0	0	0
	7-16	10-20	6.1-7.3	0	0	0
	16-25	10-20	6.1-7.3	0	0	0
	25-50	1.0-3.0	6.1-7.3	0	0	0
	50-60	1.0-3.0	6.1-7.3	0	0	0

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	mmhos/cm	
450:						
Peka, moist-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.1-7.3	0	0	0
	7-16	10-20	6.1-7.3	0	0	0
	16-25	10-20	6.1-7.3	0	0	0
	25-50	1.0-3.0	6.1-7.3	0	0	0
	50-60	1.0-3.0	6.1-7.3	0	0	0
Donavan-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.1-7.3	0	0	0
	7-11	10-20	6.1-7.3	0	0	0
	11-16	10-20	6.1-7.3	0	0	0
	16-27	2.0-4.0	6.1-7.3	0	0	0
	27-34	2.0-4.0	6.1-7.3	0	0	0
	34-60	2.0-4.0	6.1-7.3	0	0	0
451:						
Peka-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.1-7.3	0	0	0
	7-16	10-20	6.1-7.3	0	0	0
	16-25	10-20	6.1-7.3	0	0	0
	25-50	1.0-3.0	6.1-7.3	0	0	0
	50-60	1.0-3.0	6.1-7.3	0	0	0
Swakane-----	0-4	4.0-8.0	6.1-7.8	0	0	0
	4-11	2.0-6.0	6.1-7.8	0	0	0
	11-17	1.0-3.0	6.1-7.8	0	0	0
	17-21	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
452:						
Pelican-----	0-11	10-20	6.1-7.3	0	0	0
	11-18	10-20	6.1-7.3	0	0	0
	18-28	10-20	6.1-7.3	0	0	0
	28-37	3.0-5.0	5.6-7.3	0	0	0
	37-46	3.0-5.0	5.6-7.3	0	0	0
	46-60	3.0-5.0	5.6-7.3	0	0	0
453:						
Pettijohn-----	0-2	40-90	4.5-6.0	0	0	0
	2-6	10-20	6.1-7.3	0	0	0
	6-26	10-20	6.1-7.3	0	0	0
	26-44	10-20	6.1-7.3	0	0	0
	44-60	1.0-2.0	6.1-7.3	0	0	0
Mineral-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.1-7.3	0	0	0
	7-13	10-20	6.1-7.3	0	0	0
	13-24	1.0-2.0	6.1-7.3	0	0	0
	24-28	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
454:						
Pettijohn-----	0-2	40-90	4.5-6.0	0	0	0
	2-6	10-20	6.1-7.3	0	0	0
	6-26	10-20	6.1-7.3	0	0	0
	26-44	10-20	6.1-7.3	0	0	0
	44-60	1.0-2.0	6.1-7.3	0	0	0

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	mmhos/cm	
454: Wilma-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-29	6.1-7.3	0	0	0
	7-13	10-20	6.1-7.3	0	0	0
	13-18	1.0-5.0	6.1-7.3	0	0	0
	18-29	1.0-3.0	6.1-7.3	0	0	0
	29-33	---	---	---	---	---
455: Pogue-----	0-6	10-12	6.6-7.3	0	0	0
	6-12	8.5-9.5	6.6-7.3	0	0	0
	12-29	1.5-2.5	6.6-7.3	0	0	0
	29-60	0.0-1.5	6.6-7.3	0	0	0
456: Pogue-----	0-6	10-12	6.6-7.3	0	0	0
	6-12	8.5-9.5	6.6-7.3	0	0	0
	12-29	1.5-2.5	6.6-7.3	0	0	0
	29-60	0.0-1.5	6.6-7.3	0	0	0
457: Pogue-----	0-6	10-12	6.6-7.3	0	0	0
	6-12	8.5-9.5	6.6-7.3	0	0	0
	12-29	1.5-2.5	6.6-7.3	0	0	0
	29-60	0.0-1.5	6.6-7.3	0	0	0
458: Pogue-----	0-6	10-12	6.6-7.3	0	0	0
	6-12	8.5-9.5	6.6-7.3	0	0	0
	12-29	1.5-2.5	6.6-7.3	0	0	0
	29-60	0.0-1.5	6.6-7.3	0	0	0
459: Pogue, extremely stony surface-----	0-6	10-12	6.6-7.3	0	0	0
	6-12	8.5-9.5	6.6-7.3	0	0	0
	12-29	1.5-2.5	6.6-7.3	0	0	0
	29-60	0.0-1.5	6.6-7.3	0	0	0
460: Pogue, extremely stony surface-----	0-6	10-12	6.6-7.3	0	0	0
	6-12	8.5-9.5	6.6-7.3	0	0	0
	12-29	1.5-2.5	6.6-7.3	0	0	0
	29-60	0.0-1.5	6.6-7.3	0	0	0
461: Pogue-----	0-6	10-12	6.6-7.3	0	0	0
	6-12	8.5-9.5	6.6-7.3	0	0	0
	12-29	1.5-2.5	6.6-7.3	0	0	0
	29-60	0.0-1.5	6.6-7.3	0	0	0
462: Pogue-----	0-6	10-12	6.6-7.3	0	0	0
	6-12	8.5-9.5	6.6-7.3	0	0	0
	12-29	1.5-2.5	6.6-7.3	0	0	0
	29-60	0.0-1.5	6.6-7.3	0	0	0

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
463:						
Radercreek-----	0-1	40-90	4.5-6.0	0	0	0
	1-6	10-20	6.6-7.3	0	0	0
	6-13	10-20	6.6-7.3	0	0	0
	13-18	10-20	6.6-7.3	0	0	0
	18-25	1.0-4.0	6.1-6.5	0	0	0
	25-44	1.0-4.0	6.1-6.5	0	0	0
	44-48	---	---	---	---	---
Santop-----	0-2	40-90	4.5-6.0	0	0	0
	2-7	10-20	6.1-7.3	0	0	0
	7-17	10-20	6.1-7.3	0	0	0
	17-36	2.0-5.0	6.1-7.3	0	0	0
	36-40	---	---	---	---	---
464:						
Redpeak-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-20	6.1-6.5	0	0	0
	5-10	10-20	6.1-7.3	0	0	0
	10-17	10-20	6.1-7.3	0	0	0
	17-29	3.0-6.0	6.1-7.3	0	0	0
	29-36	3.0-6.0	6.1-7.3	0	0	0
	36-40	---	---	---	---	---
Ontrail-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-20	6.1-7.3	0	0	0
	5-17	10-20	6.1-7.3	0	0	0
	17-33	1.0-4.0	6.1-7.3	0	0	0
	33-60	1.0-4.0	6.1-7.3	0	0	0
465:						
Rommel-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-20	5.6-6.5	0	0	0
	5-9	10-20	5.6-6.5	0	0	0
	9-14	10-20	5.6-6.5	0	0	0
	14-30	1.0-2.0	5.6-6.5	0	0	0
	30-42	1.0-2.0	5.6-6.5	0	0	0
	42-60	1.0-2.0	5.6-6.5	0	0	0
Devore, cold-----	0-3	40-90	4.5-6.0	0	0	0
	3-4	10-20	5.6-6.5	0	0	0
	4-7	10-20	5.6-6.5	0	0	0
	7-14	10-20	5.6-6.5	0	0	0
	14-26	1.0-5.0	5.6-6.5	0	0	0
	26-35	1.0-5.0	5.6-6.5	0	0	0
	35-39	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
466:						
Rendovy-----	0-2	40-90	4.5-6.0	0	0	0
	2-7	10-20	6.1-7.3	0	0	0
	7-14	10-20	6.1-7.3	0	0	0
	14-26	5.0-7.0	6.1-7.3	0	0	0
	26-37	5.0-8.0	6.1-7.3	0	0	0
	37-48	5.0-8.0	6.1-7.3	0	0	0
	48-60	5.0-8.0	6.1-7.3	0	0	0

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
466: Goshawk-----	0-1	40-90	4.5-6.0	0	0	0
	1-10	10-20	6.1-6.5	0	0	0
	10-15	10-20	5.6-6.0	0	0	0
	15-21	2.0-5.0	5.6-6.0	0	0	0
	21-28	2.0-5.0	5.6-6.0	0	0	0
	28-36	---	---	---	---	---
467: Republic-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.1-6.5	0	0	0
	7-16	10-20	6.1-6.5	0	0	0
	16-29	2.0-6.0	6.6-7.8	0	0	0
	29-36	2.0-6.0	6.6-7.8	0	0	0
	36-60	2.0-6.0	7.4-7.8	0	0	0
468: Republic-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.1-6.5	0	0	0
	7-16	10-20	6.1-6.5	0	0	0
	16-29	2.0-6.0	6.6-7.8	0	0	0
	29-36	2.0-6.0	6.6-7.8	0	0	0
	36-60	2.0-6.0	7.4-7.8	0	0	0
469: Republic-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.1-6.5	0	0	0
	7-16	10-20	6.1-6.5	0	0	0
	16-29	2.0-6.0	6.6-7.8	0	0	0
	29-36	2.0-6.0	6.6-7.8	0	0	0
	36-60	2.0-6.0	7.4-7.8	0	0	0
470: Republic-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.1-6.5	0	0	0
	7-16	10-20	6.1-6.5	0	0	0
	16-29	2.0-6.0	6.6-7.8	0	0	0
	29-36	2.0-6.0	6.6-7.8	0	0	0
	36-60	2.0-6.0	7.4-7.8	0	0	0
471: Republic, extremely stony surface-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.1-6.5	0	0	0
	7-16	10-20	6.1-6.5	0	0	0
	16-29	2.0-6.0	6.6-7.8	0	0	0
	29-36	2.0-6.0	6.6-7.8	0	0	0
	36-60	2.0-6.0	7.4-7.8	0	0	0
472: Resner-----	0-1	40-90	4.5-6.0	0	0	0
	1-2	10-20	5.1-5.5	0	0	0
	2-6	10-20	5.6-6.5	0	0	0
	6-19	10-20	5.6-6.5	0	0	0
	19-60	1.0-2.0	6.1-7.3	0	0	0
473: Resner, cool-----	0-1	40-90	4.5-6.0	0	0	0
	1-2	10-20	5.1-5.5	0	0	0
	2-6	10-20	5.6-6.5	0	0	0
	6-19	10-20	5.6-6.5	0	0	0
	19-60	1.0-2.0	6.1-7.3	0	0	0

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	mmhos/cm	
473:						
Sitdown, cold-----	0-2	40-90	4.5-6.0	0	0	0
	2-5	10-20	5.6-6.5	0	0	0
	5-13	10-20	5.6-6.5	0	0	0
	13-26	1.0-2.0	6.1-7.3	0	0	0
	26-60	1.0-2.0	6.1-7.3	0	0	0
474:						
Resner-----	0-1	40-90	4.5-6.0	0	0	0
	1-2	10-20	5.1-5.5	0	0	0
	2-6	10-20	5.6-6.5	0	0	0
	6-19	10-20	5.6-6.5	0	0	0
	19-60	1.0-2.0	6.1-7.3	0	0	0
Sitdown-----	0-2	40-90	4.5-6.0	0	0	0
	2-5	10-20	5.6-6.5	0	0	0
	5-13	10-20	5.6-6.5	0	0	0
	13-26	1.0-2.0	6.1-7.3	0	0	0
	26-60	1.0-2.0	6.1-7.3	0	0	0
475:						
Riverwash-----	0-60	---	---	---	---	---
476:						
Rock outcrop-----	0-60	---	---	---	---	---
477:						
Rock outcrop-----	0-60	---	---	---	---	---
Donavan-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.1-7.3	0	0	0
	7-11	10-20	6.1-7.3	0	0	0
	11-16	10-20	6.1-7.3	0	0	0
	16-27	2.0-4.0	6.1-7.3	0	0	0
	27-34	2.0-4.0	6.1-7.3	0	0	0
	34-60	2.0-4.0	6.1-7.3	0	0	0
Peka-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.1-7.3	0	0	0
	7-16	10-20	6.1-7.3	0	0	0
	16-25	10-20	6.1-7.3	0	0	0
	25-50	1.0-3.0	6.1-7.3	0	0	0
	50-60	1.0-3.0	6.1-7.3	0	0	0
478:						
Rock outcrop-----	0-60	---	---	---	---	---
Lithic Haplocryepts, xeric, forested-----	0-4	10-20	5.1-6.0	0	0	0
	4-16	10-20	5.1-6.0	0	0	0
	16-20	---	---	---	---	---
Rubble land-----	0-60	---	---	---	---	---
479:						
Rock outcrop-----	0-60	---	---	---	---	---
Rubble land-----	0-60	---	---	---	---	---

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
480:						
Rufus-----	0-6	10-20	6.1-7.3	0	0	0
	6-14	2.0-5.0	6.1-7.3	0	0	0
	14-18	2.0-5.0	6.1-7.3	0	0	0
	18-28	---	---	---	---	---
Wynhoff-----	0-5	10-20	6.6-7.8	0	0	0
	5-9	10-20	6.6-7.8	0	0	0
	9-18	2.0-6.0	6.6-7.8	0	0	0
	18-24	2.0-6.0	6.6-7.8	0	0	0
	24-34	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
481:						
Rufus-----	0-6	10-20	6.1-7.3	0	0	0
	6-14	2.0-5.0	6.1-7.3	0	0	0
	14-18	2.0-5.0	6.1-7.3	0	0	0
	18-28	---	---	---	---	---
Wynhoff-----	0-5	10-20	6.6-7.8	0	0	0
	5-9	10-20	6.6-7.8	0	0	0
	9-18	2.0-6.0	6.6-7.8	0	0	0
	18-24	2.0-6.0	6.6-7.8	0	0	0
	24-34	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
482:						
Sacheen-----	0-1	40-90	4.5-6.0	0	0	0
	1-6	2.0-4.0	6.1-6.5	0	0	0
	6-16	1.0-3.0	6.6-7.3	0	0	0
	16-60	1.0-3.0	6.6-7.3	0	0	0
483:						
Salcreek-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.6-7.3	0	0	0
	7-14	10-20	6.6-7.3	0	0	0
	14-21	10-20	6.6-7.3	0	0	0
	21-29	5.0-10	6.1-7.3	0	0	0
	29-36	5.0-10	6.1-7.3	0	0	0
	36-45	5.0-10	6.1-7.3	0	0	0
	45-60	5.0-10	6.1-7.3	0	0	0
484:						
Salcreek-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.6-7.3	0	0	0
	7-14	10-20	6.6-7.3	0	0	0
	14-21	10-20	6.6-7.3	0	0	0
	21-29	5.0-10	6.1-7.3	0	0	0
	29-37	5.0-10	6.1-7.3	0	0	0
	37-45	5.0-10	6.1-7.3	0	0	0
	45-60	5.0-10	6.1-7.3	0	0	0
485:						
Scheiner-----	0-1	40-90	4.5-6.0	0	0	0
	1-3	10-20	5.6-6.0	0	0	0
	3-8	10-20	6.1-6.5	0	0	0
	8-13	10-20	6.1-7.3	0	0	0
	13-17	1.0-3.0	6.6-7.3	0	0	0
	17-49	1.0-3.0	6.6-7.3	0	0	0
	49-60	1.0-3.0	6.6-7.3	0	0	0

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
485: Myerscreek-----	0-1	40-90	4.5-6.0	0	0	0
	1-2	10-20	5.6-6.5	0	0	0
	2-5	10-20	5.6-6.5	0	0	0
	5-13	10-20	5.6-6.5	0	0	0
	13-32	1.0-3.0	6.1-7.3	0	0	0
	32-47	1.0-3.0	6.1-7.3	0	0	0
	47-60	1.0-3.0	6.1-7.3	0	0	0
486: Scoap-----	0-2	40-90	4.5-6.0	0	0	0
	2-9	10-20	6.1-7.3	0	0	0
	9-22	10-20	6.1-7.3	0	0	0
	22-34	10-20	6.1-7.3	0	0	0
	34-44	2.0-4.0	6.1-7.3	0	0	0
	44-60	2.0-4.0	6.1-7.3	0	0	0
487: Setill-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.6-7.3	0	0	0
	7-11	10-20	6.6-7.3	0	0	0
	11-20	10-20	6.1-7.3	0	0	0
	20-27	5.0-10	6.1-7.3	0	0	0
	27-39	5.0-10	6.1-7.3	0	0	0
	39-60	5.0-10	6.1-7.3	0	0	0
Johntom-----	0-3	10-20	6.6-7.3	0	0	0
	3-12	5.0-7.0	6.6-7.3	0	0	0
	12-16	---	---	---	---	---
488: Shalrock, cool-----	0-1	40-90	4.5-6.0	0	0	0
	1-8	10-20	6.6-7.3	0	0	0
	8-11	10-20	6.6-7.3	0	0	0
	11-16	10-20	6.1-7.3	0	0	0
	16-25	2.0-5.0	6.1-7.3	0	0	0
	25-29	---	---	---	---	---
Johntom-----	0-3	10-20	6.6-7.3	0	0	0
	3-12	5.0-7.0	6.6-7.3	0	0	0
	12-16	---	---	---	---	---
489: Shalrock-----	0-1	40-90	4.5-6.0	0	0	0
	1-8	10-20	6.6-7.3	0	0	0
	8-11	10-20	6.6-7.3	0	0	0
	11-16	10-20	6.1-7.3	0	0	0
	16-25	2.0-5.0	6.1-7.3	0	0	0
	25-29	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
490: Shalrock-----	0-1	40-90	4.5-6.0	0	0	0
	1-8	10-20	6.6-7.3	0	0	0
	8-11	10-20	6.6-7.3	0	0	0
	11-16	10-20	6.1-7.3	0	0	0
	16-25	2.0-5.0	6.1-7.3	0	0	0
	25-29	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	mmhos/cm	
491:						
Sinlahekin-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	5.0-15	6.6-7.3	0	0	0
	7-14	5.0-15	6.6-7.3	0	0	0
	14-23	2.0-10	6.6-7.3	0	0	0
	23-35	1.0-5.0	7.4-7.8	0	0	0
	35-60	1.0-5.0	7.4-7.8	1-5	0	0
Peka-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.1-7.3	0	0	0
	7-16	10-20	6.1-7.3	0	0	0
	16-25	10-20	6.1-7.3	0	0	0
	25-50	1.0-3.0	6.1-7.3	0	0	0
	50-60	1.0-3.0	6.1-7.3	0	0	0
Hodgson-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	15-35	6.1-6.5	0	0	0
	7-10	15-35	6.1-6.5	0	0	0
	10-16	8.0-12	6.1-6.5	0	0	0
	16-26	8.0-12	7.9-8.4	0	0	0
	26-41	10-14	8.5-9.0	3-8	1.0-4.0	1-5
	41-60	10-14	8.5-9.0	3-8	1.0-4.0	1-5
492:						
Sitdown, cool-----	0-2	40-90	4.5-6.0	0	0	0
	2-5	10-20	5.6-6.5	0	0	0
	5-13	10-20	5.6-6.5	0	0	0
	13-26	1.0-2.0	6.1-7.3	0	0	0
	26-60	1.0-2.0	6.1-7.3	0	0	0
493:						
Sitdown, cool-----	0-2	40-90	4.5-6.0	0	0	0
	2-5	10-20	5.6-6.5	0	0	0
	5-13	10-20	5.6-6.5	0	0	0
	13-26	1.0-2.0	6.1-7.3	0	0	0
	26-60	1.0-2.0	6.1-7.3	0	0	0
494:						
Sitdown-----	0-2	40-90	4.5-6.0	0	0	0
	2-5	10-20	5.6-6.5	0	0	0
	5-13	10-20	5.6-6.5	0	0	0
	13-26	1.0-2.0	6.1-7.3	0	0	0
	26-60	1.0-2.0	6.1-7.3	0	0	0
Rock outcrop-----	0-60	---	---	---	---	---
495:						
Sitdown, cool-----	0-2	40-90	4.5-6.0	0	0	0
	2-5	10-20	5.6-6.5	0	0	0
	5-13	10-20	5.6-6.5	0	0	0
	13-26	1.0-2.0	6.1-7.3	0	0	0
	26-60	1.0-2.0	6.1-7.3	0	0	0
Wellsfar-----	0-2	40-90	4.5-6.0	0	0	0
	2-5	10-20	6.1-6.5	0	0	0
	5-10	10-20	6.1-6.5	0	0	0
	10-18	1.0-2.0	5.6-6.0	0	0	0
	18-27	1.0-2.0	5.1-5.5	0	0	0
	27-37	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	mmhos/cm	
496: Skaha-----	0-7	1.0-3.0	6.6-7.3	0	0	0
	7-13	1.0-3.0	6.6-7.3	0	0	0
	13-23	0.0-0.0	6.6-7.3	0	0	0
	23-60	0.0-0.0	6.6-7.3	0	0	0
497: Skaha-----	0-7	1.0-3.0	6.6-7.3	0	0	0
	7-13	1.0-3.0	6.6-7.3	0	0	0
	13-23	0.0-0.0	6.6-7.3	0	0	0
	23-60	0.0-0.0	6.6-7.3	0	0	0
498: Skaha-----	0-7	1.0-3.0	6.6-7.3	0	0	0
	7-13	1.0-3.0	6.6-7.3	0	0	0
	13-23	0.0-0.0	6.6-7.3	0	0	0
	23-60	0.0-0.0	6.6-7.3	0	0	0
499: Smokejump-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-20	5.6-6.5	0	0	0
	5-14	10-20	5.6-6.5	0	0	0
	14-29	1.0-3.0	5.6-6.5	0	0	0
	29-33	1.0-3.0	5.6-6.5	0	0	0
	33-37	---	---	---	---	---
Jantill-----	0-2	40-90	4.5-6.0	0	0	0
	2-4	10-20	5.6-6.5	0	0	0
	4-6	10-20	5.6-6.5	0	0	0
	6-13	10-20	5.6-6.5	0	0	0
	13-29	1.0-2.0	6.1-7.3	0	0	0
	29-60	1.0-2.0	6.1-7.3	0	0	0
500: Smokejump-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-20	5.6-6.5	0	0	0
	5-14	10-20	5.6-6.5	0	0	0
	14-29	1.0-3.0	5.6-6.5	0	0	0
	29-33	1.0-3.0	5.6-6.5	0	0	0
	33-37	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
501: Smokejump-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-20	5.6-6.5	0	0	0
	5-14	10-20	5.6-6.5	0	0	0
	14-29	1.0-3.0	5.6-6.5	0	0	0
	29-33	1.0-3.0	5.6-6.5	0	0	0
	33-37	---	---	---	---	---
Twentymile-----	0-1	40-90	4.5-6.0	0	0	0
	1-2	10-20	5.6-6.5	0	0	0
	2-5	10-20	5.6-6.5	0	0	0
	5-14	10-20	5.6-6.5	0	0	0
	14-32	1.0-3.0	6.1-7.3	0	0	0
	32-45	1.0-3.0	6.1-7.3	0	0	0
	45-60	1.0-3.0	6.1-7.3	0	0	0

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
502: Stapaloop-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	5.0-15	6.1-7.3	0	0	0
	4-14	5.0-15	6.1-7.3	0	0	0
	14-22	2.0-8.0	6.1-7.3	0	0	0
	22-35	1.0-2.0	6.1-7.3	0	0	0
	35-51	1.0-2.0	6.1-7.3	0	0	0
	51-60	1.0-2.0	6.1-7.3	0	0	0
503: Stemilt-----	0-1	40-90	4.5-6.0	0	0	0
	1-8	10-20	6.1-7.3	0	0	0
	8-13	10-20	6.1-7.3	0	0	0
	13-22	10-20	6.1-7.3	0	0	0
	22-33	5.0-10	6.1-7.3	0	0	0
	33-47	5.0-10	6.1-7.3	0	0	0
	47-60	5.0-10	6.1-7.3	0	0	0
Midpeak-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.6-7.3	0	0	0
	7-16	10-20	6.6-7.3	0	0	0
	16-24	5.0-9.0	6.6-7.3	0	0	0
	24-37	2.0-8.0	6.1-6.5	0	0	0
	37-41	---	---	---	---	---
504: Stepstone-----	0-1	40-90	4.5-6.0	0	0	0
	1-2	5.0-15	6.1-7.3	0	0	0
	2-6	5.0-15	6.1-7.3	0	0	0
	6-19	5.0-15	6.1-7.3	0	0	0
	19-23	1.0-10	5.6-6.5	0	0	0
	23-39	1.0-5.0	5.6-6.5	0	0	0
	39-60	1.0-5.0	5.6-6.5	0	0	0
505: Stepstone, dry-----	0-1	40-90	4.5-6.0	0	0	0
	1-2	5.0-15	6.1-7.3	0	0	0
	2-6	5.0-15	6.1-7.3	0	0	0
	6-19	5.0-15	6.1-7.3	0	0	0
	19-23	1.0-10	5.6-6.5	0	0	0
	23-39	1.0-5.0	5.6-6.5	0	0	0
	39-60	1.0-5.0	5.6-6.5	0	0	0
506: Stepstone-----	0-1	40-90	4.5-6.0	0	0	0
	1-2	5.0-15	6.1-7.3	0	0	0
	2-6	5.0-15	6.1-7.3	0	0	0
	6-19	5.0-15	6.1-7.3	0	0	0
	19-23	1.0-10	5.6-6.5	0	0	0
	23-39	1.0-5.0	5.6-6.5	0	0	0
	39-60	1.0-5.0	5.6-6.5	0	0	0
Torboy-----	0-1	40-90	4.5-6.0	0	0	0
	1-6	10-20	6.1-7.3	0	0	0
	6-11	10-20	6.1-7.3	0	0	0
	11-19	10-20	6.1-7.3	0	0	0
	19-28	1.0-2.0	6.1-7.3	0	0	0
	28-38	1.0-2.0	6.1-7.3	0	0	0
	38-60	1.0-2.0	6.1-7.3	0	0	0

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
507:						
Storer-----	0-5	2.0-15	6.1-7.3	0	0	0
	5-12	2.0-10	6.1-7.3	0	0	0
	12-19	2.0-5.0	6.1-7.3	0	0	0
	19-31	1.0-5.0	6.1-7.3	0	0	0
	31-42	1.0-5.0	6.1-7.3	0	0	0
	42-46	---	---	---	---	---
Swakane-----	0-4	4.0-8.0	6.1-7.8	0	0	0
	4-11	2.0-6.0	6.1-7.8	0	0	0
	11-17	1.0-3.0	6.1-7.8	0	0	0
	17-21	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
508:						
Strat-----	0-10	10-12	7.4-7.8	0	0	0
	10-18	5.0-7.0	7.4-7.8	0	0	0
	18-22	5.0-7.0	7.4-7.8	0	0	0
	22-60	1.0-5.0	7.4-7.8	1-5	0	0
509:						
Swakane-----	0-4	4.0-8.0	6.1-7.8	0	0	0
	4-11	2.0-6.0	6.1-7.8	0	0	0
	11-17	1.0-3.0	6.1-7.8	0	0	0
	17-21	---	---	---	---	---
Peka, moist-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.1-7.3	0	0	0
	7-16	10-20	6.1-7.3	0	0	0
	16-25	10-20	6.1-7.3	0	0	0
	25-50	1.0-3.0	6.1-7.3	0	0	0
	50-60	1.0-3.0	6.1-7.3	0	0	0
Rock outcrop-----	0-60	---	---	---	---	---
510:						
Swakane-----	0-4	4.0-8.0	6.1-7.8	0	0	0
	4-11	2.0-6.0	6.1-7.8	0	0	0
	11-17	1.0-3.0	6.1-7.8	0	0	0
	17-21	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
511:						
Swakane-----	0-4	4.0-8.0	6.1-7.8	0	0	0
	4-11	2.0-6.0	6.1-7.8	0	0	0
	11-17	1.0-3.0	6.1-7.8	0	0	0
	17-21	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
Peka, moist-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.1-7.3	0	0	0
	7-16	10-20	6.1-7.3	0	0	0
	16-25	10-20	6.1-7.3	0	0	0
	25-50	1.0-3.0	6.1-7.3	0	0	0
	50-60	1.0-3.0	6.1-7.3	0	0	0

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
512: Sycreek-----	0-2	40-90	4.5-6.0	0	0	0
	2-8	10-20	6.1-7.3	0	0	0
	8-16	10-20	6.1-7.3	0	0	0
	16-27	5.0-10	6.1-7.3	0	0	0
	27-44	5.0-10	6.1-7.3	0	0	0
	44-60	5.0-10	6.1-7.3	0	0	0
513: Synarep-----	0-8	44-66	7.9-8.4	5-15	0	0-2
	8-33	44-66	7.9-8.4	5-15	0	0-2
	33-46	44-66	7.9-8.4	5-15	0	0-2
	46-60	0.0-3.0	7.4-7.8	0	0	0
Colville, poorly drained-----	0-4	15-30	7.9-8.4	1-5	0.0-2.0	0
	4-9	15-30	7.9-8.4	1-5	0.0-2.0	0
	9-17	15-30	7.9-8.4	1-5	0.0-2.0	0
	17-21	14-20	8.5-9.0	3-10	1.0-4.0	1-5
	21-33	10-20	8.5-9.0	3-10	1.0-4.0	1-5
	33-43	10-20	8.5-9.0	3-10	1.0-4.0	1-5
	43-60	10-20	8.5-9.0	3-10	1.0-4.0	1-5
Xerofluvents-----	0-8	2.0-7.0	6.1-7.3	0	0	0
	8-30	2.0-7.0	6.1-7.3	0	0	0
	30-60	0.0-2.0	6.1-7.3	0	0	0
514: Thout-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	5.0-12	6.1-6.5	0	0	0
	5-12	5.0-12	5.6-6.0	0	0	0
	12-25	1.0-4.0	5.6-6.0	0	0	0
	25-29	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
515: Thow-----	0-1	40-90	4.5-6.0	0	0	0
	1-6	10-20	6.1-7.3	0	0	0
	6-12	10-20	6.1-7.3	0	0	0
	12-38	10-20	6.1-7.3	0	0	0
	38-51	10-20	6.1-7.3	0	0	0
	51-60	10-20	6.1-7.3	0	0	0
Vingulch-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-20	6.1-7.3	0	0	0
	4-12	10-20	6.1-7.3	0	0	0
	12-22	10-20	6.6-7.3	0	0	0
	22-28	10-20	6.6-7.3	0	0	0
	28-34	10-20	6.6-7.3	0	0	0
	34-39	10-20	6.6-7.3	0	0	0
	39-43	---	---	---	---	---
516: Thrapp-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-20	6.1-7.3	0	0	0
	5-13	10-20	6.1-7.3	0	0	0
	13-23	2.0-5.0	6.1-7.3	0	0	0
	23-30	2.0-5.0	6.1-7.3	0	0	0
	30-37	2.0-5.0	6.1-7.3	0	0	0
	37-60	1.0-4.0	6.1-7.3	0	0	0

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
516: Aquandic Xerofluvents	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-20	6.6-7.3	0	0	0
	5-9	10-20	6.6-7.3	0	0	0
	9-14	10-20	6.6-7.3	0	0	0
	14-25	2.0-6.0	6.6-7.3	0	0	0
	25-45	1.0-5.0	6.6-7.3	0	0	0
	45-51	1.0-5.0	6.6-7.3	0	0	0
	51-60	1.0-5.0	6.6-7.3	0	0	0
517: Thuso-----	0-12	20-30	6.6-7.3	0	0	0
	12-25	20-30	6.6-7.3	0	0	0
	25-37	1.0-5.0	6.6-7.3	0	0	0
	37-61	1.0-5.0	6.6-7.3	0	0	0
518: Thuso-----	0-12	20-30	6.6-7.3	0	0	0
	12-25	20-30	6.6-7.3	0	0	0
	25-37	1.0-5.0	6.6-7.3	0	0	0
	37-61	1.0-5.0	6.6-7.3	0	0	0
519: Thuso, cool-----	0-12	20-30	6.6-7.3	0	0	0
	12-25	20-30	6.6-7.3	0	0	0
	25-37	1.0-5.0	6.6-7.3	0	0	0
	37-61	1.0-5.0	6.6-7.3	0	0	0
520: Thuso-----	0-12	20-30	6.6-7.3	0	0	0
	12-25	20-30	6.6-7.3	0	0	0
	25-37	1.0-5.0	6.6-7.3	0	0	0
	37-61	1.0-5.0	6.6-7.3	0	0	0
Lithic Haploxerepts, range, moist-----	0-3	10-20	6.1-7.8	0	0	0
	3-12	10-20	6.1-7.8	0	0	0
	12-18	5.0-8.0	6.1-7.8	0	0	0
	18-22	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
521: Toats-----	0-5	10-20	6.6-7.3	0	0	0
	5-14	10-20	6.6-7.3	0	0	0
	14-23	5.0-15	6.6-7.3	0	0	0
	23-40	2.0-5.0	6.6-7.3	0	0	0
	40-52	2.0-5.0	6.6-7.3	0	0	0
	52-60	2.0-5.0	6.6-7.3	0	0	0
Longswamp-----	0-7	10-20	6.6-7.3	0	0	0
	7-20	10-20	6.6-7.3	0	0	0
	20-25	6.0-11	6.6-7.3	0	0	0
	25-39	6.0-8.0	6.6-7.3	0	0	0
	39-60	6.0-8.0	6.6-7.3	0	0	0
522: Tonasket-----	0-8	10-12	6.6-7.3	0	0	0
	8-15	6.0-8.0	7.3-7.8	0	0	0
	15-28	5.0-7.0	7.4-7.8	0	0	0
	28-41	4.0-6.0	8.5-9.0	5-15	0	0
	41-65	4.0-6.0	8.5-9.0	5-15	0	0

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
523: Tonasket-----	0-8	10-12	6.6-7.3	0	0	0
	8-15	6.0-8.0	7.3-7.8	0	0	0
	15-28	5.0-7.0	7.4-7.8	0	0	0
	28-41	4.0-6.0	8.5-9.0	5-15	0	0
	41-65	4.0-6.0	8.5-9.0	5-15	0	0
524: Tonasket-----	0-8	10-12	6.6-7.3	0	0	0
	8-15	6.0-8.0	7.3-7.8	0	0	0
	15-28	5.0-7.0	7.4-7.8	0	0	0
	28-41	4.0-6.0	8.5-9.0	5-15	0	0
	41-65	4.0-6.0	8.5-9.0	5-15	0	0
525: Tonasket-----	0-8	10-12	6.6-7.3	0	0	0
	8-15	6.0-8.0	7.3-7.8	0	0	0
	15-28	5.0-7.0	7.4-7.8	0	0	0
	28-41	4.0-6.0	8.5-9.0	5-15	0	0
	41-65	4.0-6.0	8.5-9.0	5-15	0	0
526: Tonasket-----	0-8	10-12	6.6-7.3	0	0	0
	8-15	6.0-8.0	7.3-7.8	0	0	0
	15-28	5.0-7.0	7.4-7.8	0	0	0
	28-41	4.0-6.0	8.5-9.0	5-15	0	0
	41-65	4.0-6.0	8.5-9.0	5-15	0	0
527: Tonasket, extremely stony surface-----	0-8	10-12	6.6-7.3	0	0	0
	8-15	6.0-8.0	7.3-7.8	0	0	0
	15-28	5.0-7.0	7.4-7.8	0	0	0
	28-41	4.0-6.0	8.5-9.0	5-15	0	0
	41-65	4.0-6.0	8.5-9.0	5-15	0	0
528: Twentymile-----	0-1	40-90	4.5-6.0	0	0	0
	1-2	10-20	5.6-6.5	0	0	0
	2-5	10-20	5.6-6.5	0	0	0
	5-14	10-20	5.6-6.5	0	0	0
	14-32	1.0-3.0	6.1-7.3	0	0	0
	32-45	1.0-3.0	6.1-7.3	0	0	0
	45-60	1.0-3.0	6.1-7.3	0	0	0
529: Twentymile-----	0-1	40-90	4.5-6.0	0	0	0
	1-2	10-20	5.6-6.5	0	0	0
	2-5	10-20	5.6-6.5	0	0	0
	5-14	10-20	5.6-6.5	0	0	0
	14-32	1.0-3.0	6.1-7.3	0	0	0
	32-45	1.0-3.0	6.1-7.3	0	0	0
	45-60	1.0-3.0	6.1-7.3	0	0	0
Smokejump-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-20	5.6-6.5	0	0	0
	5-14	10-20	5.6-6.5	0	0	0
	14-29	1.0-3.0	5.6-6.5	0	0	0
	29-33	1.0-3.0	5.6-6.5	0	0	0
	33-37	---	---	---	---	---

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
530:						
Vallan-----	0-2	15-25	6.1-7.3	0	0	0
	2-10	10-20	6.1-7.3	0	0	0
	10-16	10-20	6.1-7.3	0	0	0
	16-20	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
531:						
Vanbrunt-----	0-1	40-90	4.5-6.0	0	0	0
	1-8	10-20	6.1-7.3	0	0	0
	8-13	10-20	6.1-7.3	0	0	0
	13-20	5.0-10	6.1-7.3	0	0	0
	20-26	1.0-3.0	6.1-7.3	0	0	0
	26-30	---	---	---	---	---
Swakane-----	0-4	4.0-8.0	6.1-7.8	0	0	0
	4-11	2.0-6.0	6.1-7.8	0	0	0
	11-17	1.0-3.0	6.1-7.8	0	0	0
	17-21	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
532:						
Verhart, cold-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-20	6.1-7.3	0	0	0
	5-12	10-20	6.1-6.5	0	0	0
	12-25	1.0-2.0	6.1-6.5	0	0	0
	25-29	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
533:						
Veridge-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-20	6.1-7.3	0	0	0
	5-13	10-20	6.1-7.3	0	0	0
	13-22	1.0-3.0	6.1-7.3	0	0	0
	22-31	1.0-3.0	6.1-7.3	0	0	0
	31-35	---	---	---	---	---
Farway-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-20	6.1-7.3	0	0	0
	5-10	10-20	6.1-7.3	0	0	0
	10-21	10-20	6.1-7.3	0	0	0
	21-60	1.0-3.0	6.1-7.3	0	0	0
534:						
Veridge, moist-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-20	6.1-7.3	0	0	0
	5-13	10-20	6.1-7.3	0	0	0
	13-22	1.0-3.0	6.1-7.3	0	0	0
	22-31	1.0-3.0	6.1-7.3	0	0	0
	31-35	---	---	---	---	---
Farway, moist-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-20	6.1-7.3	0	0	0
	5-10	10-20	6.1-7.3	0	0	0
	10-21	10-20	6.1-7.3	0	0	0
	21-60	1.0-3.0	6.1-7.3	0	0	0

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
535:						
Veridge-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-20	6.1-7.3	0	0	0
	5-13	10-20	6.1-7.3	0	0	0
	13-22	1.0-3.0	6.1-7.3	0	0	0
	22-31	1.0-3.0	6.1-7.3	0	0	0
	31-35	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
536:						
Vinegar-----	0-1	40-90	4.5-6.0	0	0	0
	1-6	10-20	6.1-7.3	0	0	0
	6-16	10-20	6.1-7.3	0	0	0
	16-34	10-20	6.1-7.3	0	0	0
	34-60	10-20	6.1-7.3	0	0	0
537:						
Vinegar-----	0-1	40-90	4.5-6.0	0	0	0
	1-6	10-20	6.1-7.3	0	0	0
	6-16	10-20	6.1-7.3	0	0	0
	16-34	10-20	6.1-7.3	0	0	0
	34-60	10-20	6.1-7.3	0	0	0
Thow-----	0-1	40-90	4.5-6.0	0	0	0
	1-6	10-20	6.1-7.3	0	0	0
	6-12	10-20	6.1-7.3	0	0	0
	12-38	10-20	6.1-7.3	0	0	0
	38-51	10-20	6.1-7.3	0	0	0
	51-60	10-20	6.1-7.3	0	0	0
538:						
Vingulch-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-20	6.1-7.3	0	0	0
	4-12	10-20	6.1-7.3	0	0	0
	12-22	10-20	6.6-7.3	0	0	0
	22-28	10-20	6.6-7.3	0	0	0
	28-34	10-20	6.6-7.3	0	0	0
	34-39	10-20	6.6-7.3	0	0	0
	39-43	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
539:						
Vitrandic Humicryepts, nonforested-----	0-4	15-30	6.1-7.3	0	0	0
	4-12	15-30	6.1-7.3	0	0	0
	12-20	1.0-5.0	6.1-7.3	0	0	0
	20-31	1.0-5.0	6.1-7.3	0	0	0
	31-35	---	---	---	---	---
Lithic Humicryepts, nonforested, udic---	0-5	10-20	5.1-6.0	0	0	0
	5-11	10-20	5.1-6.0	0	0	0
	11-20	1.0-5.0	5.1-6.0	0	0	0
	20-30	---	---	---	---	---

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
540:						
Vitrandic Haploxerepts-----	0-2	40-90	4.5-6.0	0	0	0
	2-6	10-20	6.1-7.3	0	0	0
	6-11	10-20	6.1-7.3	0	0	0
	11-17	10-20	6.1-7.3	0	0	0
	17-24	10-20	6.1-7.3	0	0	0
	24-37	1.0-4.0	6.1-7.3	0	0	0
	37-47	1.0-4.0	6.1-7.3	0	0	0
	47-49	---	---	---	---	---
Lithic Haploxerepts, forested, dry-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-20	6.1-7.8	0	0	0
	4-13	10-20	6.1-7.8	0	0	0
	13-19	5.0-8.0	6.1-7.8	0	0	0
	19-23	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
541:						
Vitrixerandic Haplocryepts, forested-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-20	5.6-6.5	0	0	0
	4-12	10-20	5.6-6.5	0	0	0
	12-21	3.0-7.0	5.6-6.5	0	0	0
	21-28	1.0-3.0	5.6-6.5	0	0	0
	28-42	1.0-3.0	5.6-6.5	0	0	0
	42-60	1.0-3.0	5.6-7.3	0	0	0
Cryaquolls, somewhat poorly drained, till substratum-----	0-2	40-90	4.5-6.0	0	0	0
	2-9	6.0-11	6.1-7.3	0	0	0
	9-17	6.0-11	6.1-7.3	0	0	0
	17-21	4.0-10	6.1-7.3	0	0	0
	21-31	1.0-4.0	6.1-7.3	0	0	0
	31-40	1.0-4.0	6.1-7.3	0	0	0
	40-60	1.0-4.0	6.1-7.3	0	0	0
542:						
Wadams-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	15-35	6.6-7.3	0	0	0
	5-24	15-35	6.6-7.3	0	0	0
	24-32	15-35	6.6-7.3	0	0	0
	32-45	1.0-5.0	6.6-7.3	0	0	0
	45-60	1.0-5.0	6.6-7.3	0	0	0
543:						
Wadams, extremely stony surface-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	15-35	6.6-7.3	0	0	0
	5-24	15-35	6.6-7.3	0	0	0
	24-32	15-35	6.6-7.3	0	0	0
	32-45	1.0-5.0	6.6-7.3	0	0	0
	45-60	1.0-5.0	6.6-7.3	0	0	0

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	mmhos/cm	
544: Wagberg-----	0-10	10-20	6.1-7.3	0	0	0
	10-14	10-20	6.1-7.3	0	0	0
	14-24	1.0-2.0	6.1-7.3	0	0	0
	24-35	1.0-2.0	6.1-7.3	0	0	0
	35-60	1.0-2.0	6.1-7.3	0	0	0
545: Wagberg-----	0-10	10-20	6.1-7.3	0	0	0
	10-14	10-20	6.1-7.3	0	0	0
	14-24	1.0-2.0	6.1-7.3	0	0	0
	24-35	1.0-2.0	6.1-7.3	0	0	0
	35-60	1.0-2.0	6.1-7.3	0	0	0
546: Wagberg, cool-----	0-10	10-20	6.1-7.3	0	0	0
	10-14	10-20	6.1-7.3	0	0	0
	14-24	1.0-2.0	6.1-7.3	0	0	0
	24-35	1.0-2.0	6.1-7.3	0	0	0
	35-60	1.0-2.0	6.1-7.3	0	0	0
Lithic Ultic Haploxerolls-----	0-10	5.0-10	6.6-7.3	0	0	0
	10-15	2.0-10	6.6-7.3	0	0	0
	15-25	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
547: Wagberg-----	0-10	10-20	6.1-7.3	0	0	0
	10-14	10-20	6.1-7.3	0	0	0
	14-24	1.0-2.0	6.1-7.3	0	0	0
	24-35	1.0-2.0	6.1-7.3	0	0	0
	35-60	1.0-2.0	6.1-7.3	0	0	0
Swakane-----	0-4	4.0-8.0	6.1-7.8	0	0	0
	4-11	2.0-6.0	6.1-7.8	0	0	0
	11-17	1.0-3.0	6.1-7.8	0	0	0
	17-21	---	---	---	---	---
548: Wagberg-----	0-10	10-20	6.1-7.3	0	0	0
	10-14	10-20	6.1-7.3	0	0	0
	14-24	1.0-2.0	6.1-7.3	0	0	0
	24-35	1.0-2.0	6.1-7.3	0	0	0
	35-60	1.0-2.0	6.1-7.3	0	0	0
Swakane-----	0-4	4.0-8.0	6.1-7.8	0	0	0
	4-11	2.0-6.0	6.1-7.8	0	0	0
	11-17	1.0-3.0	6.1-7.8	0	0	0
	17-21	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
549: Wagberg, extremely stony surface-----	0-10	10-20	6.1-7.3	0	0	0
	10-14	10-20	6.1-7.3	0	0	0
	14-24	1.0-2.0	6.1-7.3	0	0	0
	24-35	1.0-2.0	6.1-7.3	0	0	0
	35-60	1.0-2.0	6.1-7.3	0	0	0

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Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
549: Swakane-----	0-4	4.0-8.0	6.1-7.8	0	0	0
	4-11	2.0-6.0	6.1-7.8	0	0	0
	11-17	1.0-3.0	6.1-7.8	0	0	0
	17-21	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
550: Wapal, cool-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-20	6.1-7.3	0	0	0
	5-12	10-20	6.1-7.3	0	0	0
	12-33	1.0-2.0	6.1-7.3	0	0	0
	33-60	1.0-2.0	6.1-7.3	0	0	0
551: Wapal, cool-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-20	6.1-7.3	0	0	0
	5-12	10-20	6.1-7.3	0	0	0
	12-33	1.0-2.0	6.1-7.3	0	0	0
	33-60	1.0-2.0	6.1-7.3	0	0	0
552: Wapal, dry-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-20	6.1-7.3	0	0	0
	5-12	10-20	6.1-7.3	0	0	0
	12-33	1.0-2.0	6.1-7.3	0	0	0
	33-60	1.0-2.0	6.1-7.3	0	0	0
553: Wapal-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-20	6.1-7.3	0	0	0
	5-12	10-20	6.1-7.3	0	0	0
	12-33	1.0-2.0	6.1-7.3	0	0	0
	33-60	1.0-2.0	6.1-7.3	0	0	0
554: Wapal-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-20	6.1-7.3	0	0	0
	5-12	10-20	6.1-7.3	0	0	0
	12-33	1.0-2.0	6.1-7.3	0	0	0
	33-60	1.0-2.0	6.1-7.3	0	0	0
Brevco-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-20	6.1-7.3	0	0	0
	4-12	10-20	6.1-7.3	0	0	0
	12-26	1.0-4.0	5.6-7.3	0	0	0
	26-39	1.0-4.0	5.6-7.3	0	0	0
	39-43	---	---	---	---	---
555: Wapal-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-20	6.1-7.3	0	0	0
	5-12	10-20	6.1-7.3	0	0	0
	12-33	1.0-2.0	6.1-7.3	0	0	0
	33-60	1.0-2.0	6.1-7.3	0	0	0

Soil Survey of Okanogan County Area, Washington

Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
555:						
Brevco-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-20	6.1-7.3	0	0	0
	4-12	10-20	6.1-7.3	0	0	0
	12-26	1.0-4.0	5.6-7.3	0	0	0
	26-39	1.0-4.0	5.6-7.3	0	0	0
	39-43	---	---	---	---	---
556:						
Wapal, dry-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-20	6.1-7.3	0	0	0
	5-12	10-20	6.1-7.3	0	0	0
	12-33	1.0-2.0	6.1-7.3	0	0	0
	33-60	1.0-2.0	6.1-7.3	0	0	0
Rock outcrop-----	0-60	---	---	---	---	---
557:						
Wapal, dry, warm----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-20	6.1-7.3	0	0	0
	5-12	10-20	6.1-7.3	0	0	0
	12-33	1.0-2.0	6.1-7.3	0	0	0
	33-60	1.0-2.0	6.1-7.3	0	0	0
Sacheen-----	0-1	40-90	4.5-6.0	0	0	0
	1-6	2.0-4.0	6.1-6.5	0	0	0
	6-16	1.0-3.0	6.6-7.3	0	0	0
	16-60	1.0-3.0	6.6-7.3	0	0	0
558:						
Water-----	---	---	---	---	---	---
559:						
Wenner-----	0-5	10-20	6.6-7.3	0	0	0
	5-12	10-20	6.6-7.3	0	0	0
	12-18	10-20	6.6-7.3	0	0	0
	18-25	5.0-10	6.6-7.3	0	0	0
	25-33	5.0-10	6.6-7.3	0	0	0
	33-60	5.0-10	6.6-7.3	0	0	0
560:						
Wilder-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.6-7.3	0	0	0
	7-11	10-20	6.6-7.3	0	0	0
	11-16	2.0-4.0	6.6-7.3	0	0	0
	16-22	1.0-3.0	6.6-7.3	0	0	0
	22-40	1.0-3.0	6.6-7.3	0	0	0
	40-60	1.0-3.0	6.6-7.3	0	0	0
Republic-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.1-6.5	0	0	0
	7-16	10-20	6.1-6.5	0	0	0
	16-29	2.0-6.0	6.6-7.8	0	0	0
	29-36	2.0-6.0	6.6-7.8	0	0	0
	36-60	2.0-6.0	7.4-7.8	0	0	0

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Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
561:						
Wilma-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-29	6.1-7.3	0	0	0
	7-13	10-20	6.1-7.3	0	0	0
	13-18	1.0-5.0	6.1-7.3	0	0	0
	18-29	1.0-3.0	6.1-7.3	0	0	0
	29-33	---	---	---	---	---
Lithic Haploxerepts, forested-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-20	6.1-7.8	0	0	0
	4-13	10-20	6.1-7.8	0	0	0
	13-19	5.0-8.0	6.1-7.8	0	0	0
	19-23	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
562:						
Wilma, moist-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-29	6.1-7.3	0	0	0
	7-13	10-20	6.1-7.3	0	0	0
	13-18	1.0-5.0	6.1-7.3	0	0	0
	18-29	1.0-3.0	6.1-7.3	0	0	0
	29-33	---	---	---	---	---
Lithic Haploxerepts, forested-----	0-1	40-90	4.5-6.0	0	0	0
	1-4	10-20	6.1-7.8	0	0	0
	4-13	10-20	6.1-7.8	0	0	0
	13-19	5.0-8.0	6.1-7.8	0	0	0
	19-23	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
563:						
Wilma, cool-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-29	6.1-7.3	0	0	0
	7-13	10-20	6.1-7.3	0	0	0
	13-18	1.0-5.0	6.1-7.3	0	0	0
	18-29	1.0-3.0	6.1-7.3	0	0	0
	29-33	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
564:						
Winsand-----	0-1	40-90	4.5-6.0	0	0	0
	1-6	10-20	6.1-7.3	0	0	0
	6-13	10-20	6.1-6.5	0	0	0
	13-25	1.0-5.0	6.1-6.5	0	0	0
	25-44	1.0-5.0	6.1-6.5	0	0	0
	44-48	---	---	---	---	---
Verhart-----	0-1	40-90	4.5-6.0	0	0	0
	1-5	10-20	6.1-7.3	0	0	0
	5-12	10-20	6.1-6.5	0	0	0
	12-25	1.0-2.0	6.1-6.5	0	0	0
	25-29	---	---	---	---	---

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Table 9.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
565: Winthrop-----	0-5	1.0-3.0	6.6-7.3	0	0	0
	5-13	1.0-3.0	6.6-7.3	0	0	0
	13-25	0.0-2.0	6.6-7.3	0	0	0
	25-60	0.0-2.0	6.6-7.3	0	0	0
566: Winthrop, extremely stony surface-----	0-5	1.0-3.0	6.6-7.3	0	0	0
	5-13	1.0-3.0	6.6-7.3	0	0	0
	13-25	0.0-2.0	6.6-7.3	0	0	0
	25-60	0.0-2.0	6.6-7.3	0	0	0
567: Wynhoff-----	0-5	10-20	6.6-7.8	0	0	0
	5-9	10-20	6.6-7.8	0	0	0
	9-18	2.0-6.0	6.6-7.8	0	0	0
	18-24	2.0-6.0	6.6-7.8	0	0	0
	24-34	---	---	---	---	---
568: Wynhoff-----	0-5	10-20	6.6-7.8	0	0	0
	5-9	10-20	6.6-7.8	0	0	0
	9-18	2.0-6.0	6.6-7.8	0	0	0
	18-24	2.0-6.0	6.6-7.8	0	0	0
	24-34	---	---	---	---	---
Lithic Haploxerepts, range, moist-----	0-3	10-20	6.1-7.8	0	0	0
	3-12	10-20	6.1-7.8	0	0	0
	12-18	5.0-8.0	6.1-7.8	0	0	0
	18-22	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
569: Xerofluvents, wet----	0-8	2.0-7.0	6.1-7.3	0	0	0
	8-30	2.0-7.0	6.1-7.3	0	0	0
	30-60	0.0-2.0	6.1-7.3	0	0	0
570: Yellcreek-----	0-1	40-90	4.5-6.0	0	0	0
	1-6	10-20	6.1-7.3	0	0	0
	6-13	10-20	6.1-7.3	0	0	0
	13-26	10-20	6.1-7.3	0	0	0
	26-36	1.0-4.0	6.1-7.3	0	0	0
	36-60	1.0-4.0	6.1-7.3	0	0	0
Midpeak-----	0-1	40-90	4.5-6.0	0	0	0
	1-7	10-20	6.6-7.3	0	0	0
	7-16	10-20	6.6-7.3	0	0	0
	16-24	5.0-9.0	6.6-7.3	0	0	0
	24-37	2.0-8.0	6.1-6.5	0	0	0
	37-41	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---

Table 10.--Water Features

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro- logic group	Month	Water table			Ponding		Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
200: Aeneas-----	B	Jan-Dec	---	---	---	---	None	---	None
201: Aeneas-----	B	Jan-Dec	---	---	---	---	None	---	None
202: Aits-----	B	Jan-Dec	---	---	---	---	None	---	None
203: Andic Dystrocryepts, forested-----	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
Rubble land-----	A	Jan-Dec	---	---	---	---	None	---	None
204: Andic Dystrocryepts, forested-----	B	Jan-Dec	---	---	---	---	None	---	None
Vitrandic Humicryepts, nonforested-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding		Flooding		
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
205: Aquandic Endoaquolls-----	D	January	1.0-2.0	>6.0	---	---	None	---	None
		February	1.0-2.0	>6.0	---	---	None	---	None
		March	1.0-2.0	>6.0	---	---	None	---	None
		April	0.0-0.5	>6.0	0.3-1.0	Brief	Occasional	Brief	Occasional
		May	0.0-0.5	>6.0	0.3-1.0	Brief	Occasional	Brief	Occasional
		June	0.0-0.5	>6.0	0.3-1.0	Brief	Occasional	Brief	Occasional
		July	0.0-0.5	>6.0	0.3-1.0	Brief	Occasional	Brief	Occasional
		August	0.0-0.5	>6.0	0.3-1.0	Brief	Occasional	Brief	Occasional
		September	1.0-2.0	>6.0	---	---	None	---	None
		October	1.0-2.0	>6.0	---	---	None	---	None
		November	1.0-2.0	>6.0	---	---	None	---	None
		December	1.0-2.0	>6.0	---	---	None	---	None
206: Aquandic Endoaquolls-----	D	January	1.0-2.0	>6.0	---	---	None	---	None
		February	1.0-2.0	>6.0	---	---	None	---	None
		March	1.0-2.0	>6.0	---	---	None	---	None
		April	0.0-0.5	>6.0	0.3-1.0	Brief	Occasional	Brief	Occasional
		May	0.0-0.5	>6.0	0.3-1.0	Brief	Occasional	Brief	Occasional
		June	0.0-0.5	>6.0	0.3-1.0	Brief	Occasional	Brief	Occasional
		July	0.0-0.5	>6.0	0.3-1.0	Brief	Occasional	Brief	Occasional
		August	0.0-0.5	>6.0	0.3-1.0	Brief	Occasional	Brief	Occasional
		September	1.0-2.0	>6.0	---	---	None	---	None
		October	1.0-2.0	>6.0	---	---	None	---	None
		November	1.0-2.0	>6.0	---	---	None	---	None
		December	1.0-2.0	>6.0	---	---	None	---	None
Haplosaprists-----	D	January	0.0	>6.0	0.0-0.3	Long	Frequent	---	None
		February	0.0	>6.0	0.0-0.3	Long	Frequent	---	None
		March	0.0	>6.0	0.0-0.3	Long	Frequent	Brief	Occasional
		April	0.0	>6.0	0.0-1.0	Long	Frequent	Brief	Occasional
		May	0.0	>6.0	0.0-1.0	Long	Frequent	Brief	Occasional
		June	0.0	>6.0	0.0-1.0	Long	Frequent	Brief	Occasional
		July	0.0	>6.0	0.0-1.0	Long	Frequent	---	None
		August	0.0	>6.0	0.0-0.3	Long	Frequent	---	None
		September	0.0	>6.0	0.0-0.3	Long	Frequent	---	None
		October	0.0	>6.0	0.0-0.3	Long	Frequent	---	None
		November	0.0	>6.0	0.0-0.3	Long	Frequent	---	None
		December	0.0	>6.0	0.0-0.3	Long	Frequent	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding		Flooding		
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
207: Aquadnic Xerofluvents-----	C	January	4.0-5.0	>6.0	---	---	None	---	None
		February	4.0-5.0	>6.0	---	---	None	Brief	Occasional
		March	2.0-4.0	>6.0	---	---	None	Brief	Occasional
		April	2.0-4.0	>6.0	---	---	None	Brief	Occasional
		May	2.0-4.0	>6.0	---	---	None	Brief	Occasional
		June	4.0-5.0	>6.0	---	---	None	---	None
		July	4.0-5.0	>6.0	---	---	None	---	None
		August	4.0-5.0	>6.0	---	---	None	---	None
		September	4.0-5.0	>6.0	---	---	None	---	None
		October	4.0-5.0	>6.0	---	---	None	---	None
		November	4.0-5.0	>6.0	---	---	None	---	None
		December	4.0-5.0	>6.0	---	---	None	---	None
208: Badland-----	D	Jan-Dec	---	---	---	---	None	---	None
209: Baldknob-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
210: Baldknob-----	D	Jan-Dec	---	---	---	---	None	---	None
Rubble land-----	A	Jan-Dec	---	---	---	---	None	---	None
Thout-----	B	Jan-Dec	---	---	---	---	None	---	None
211: Baldknob-----	D	Jan-Dec	---	---	---	---	None	---	None
Thout-----	B	Jan-Dec	---	---	---	---	None	---	None
Nicmar-----	C	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding		Flooding		
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
212: Bearspring-----	B	Jan-Dec	---	---	---	---	None	---	None
213: Bluebuck-----	A	Jan-Dec	---	---	---	---	None	---	None
214: Boesel-----	B	January	4.0-6.0	>6.0	---	---	None	---	None
		February	3.0-4.0	>6.0	---	---	None	Brief	Occasional
		March	3.0-4.0	>6.0	---	---	None	Brief	Occasional
		April	3.0-4.0	>6.0	---	---	None	Brief	Occasional
		May	3.0-4.0	>6.0	---	---	None	Brief	Occasional
		June	4.0-6.0	>6.0	---	---	None	---	None
215: Boesel-----	B	January	4.0-6.0	>6.0	---	---	None	---	None
		February	3.0-4.0	>6.0	---	---	None	Brief	Occasional
		March	3.0-4.0	>6.0	---	---	None	Brief	Occasional
		April	3.0-4.0	>6.0	---	---	None	Brief	Occasional
		May	3.0-4.0	>6.0	---	---	None	Brief	Occasional
		June	4.0-6.0	>6.0	---	---	None	---	None
Muckamuck-----	C	February	---	---	---	---	None	Brief	Occasional
		March	---	---	---	---	None	Brief	Occasional
		April	---	---	---	---	None	Brief	Occasional
		May	---	---	---	---	None	Brief	Occasional
216: Borgeau-----	B	Jan-Dec	---	---	---	---	None	---	None
Johntom-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table			Ponding		Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
217: Borgeau-----	B	Jan-Dec	---	---	---	---	None	---	None
Nicmar-----	C	Jan-Dec	---	---	---	---	None	---	None
Johntom-----	D	Jan-Dec	---	---	---	---	None	---	None
218: Borgeau-----	B	Jan-Dec	---	---	---	---	None	---	None
Peka, moist-----	B	Jan-Dec	---	---	---	---	None	---	None
219: Brevco-----	B	Jan-Dec	---	---	---	---	None	---	None
Lithic Haploxerepts, forested-----	D	Jan-Dec	---	---	---	---	None	---	None
Pebcreek, dry-----	A	Jan-Dec	---	---	---	---	None	---	None
220: Brevco, cool-----	B	Jan-Dec	---	---	---	---	None	---	None
Lithic Haploxerepts, forested-----	D								
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
221: Brevco-----	B	Jan-Dec	---	---	---	---	None	---	None
Lithic Haploxerepts, forested, moist-----	D	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding		Flooding		
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
221: Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
222: Brevco, dry-----	B	Jan-Dec	---	---	---	---	None	---	None
Lithic Haploxerepts, forested, dry-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
223: Burnscreek-----	B	Jan-Dec	---	---	---	---	None	---	None
224: Cashmere-----	B	Jan-Dec	---	---	---	---	None	---	None
225: Cashmere-----	B	Jan-Dec	---	---	---	---	None	---	None
226: Cashmere-----	B	Jan-Dec	---	---	---	---	None	---	None
227: Cashmere-----	B	Jan-Dec	---	---	---	---	None	---	None
228: Cashmont-----	B	Jan-Dec	---	---	---	---	None	---	None
229: Cashmont-----	B	Jan-Dec	---	---	---	---	None	---	None
230: Cashmont-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Surface water depth	Ponding		Flooding	
			Upper limit	Lower limit		Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
231: Cashmont-----	B	Jan-Dec	---	---	---	---	None	---	None
232: Cashmont-----	B	Jan-Dec	---	---	---	---	None	---	None
233: Cashmont, extremely stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None
234: Cashmont, extremely stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None
235: Cassal-----	B	March	3.0-3.5	3.3-5.0	---	---	None	---	None
		April	3.0-3.5	3.3-5.0	---	---	None	---	None
		May	3.0-3.5	3.3-5.0	---	---	None	---	None
		June	3.0-3.5	3.3-5.0	---	---	None	---	None
236: Chesaw-----	A	Jan-Dec	---	---	---	---	None	---	None
237: Chesaw, extremely stony surface-----	A	Jan-Dec	---	---	---	---	None	---	None
238: Chesaw-----	A	Jan-Dec	---	---	---	---	None	---	None
Bong-----	A	Jan-Dec	---	---	---	---	None	---	None
239: Chesaw-----	A	Jan-Dec	---	---	---	---	None	---	None
Bong-----	A	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Surface water depth	Ponding		Flooding	
			Upper limit	Lower limit		Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
240: Chesaw-----	A	Jan-Dec	---	---	---	---	None	---	None
Bong-----	A	Jan-Dec	---	---	---	---	None	---	None
241: Chewack-----	B	Jan-Dec	---	---	---	---	None	---	None
Sitdown, cool-----	A	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
242: Chumstick-----	D	Jan-Dec	---	---	---	---	None	---	None
Mineral-----	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
243: Chumstick-----	D	Jan-Dec	---	---	---	---	None	---	None
Mineral-----	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
244: Chumstick-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
245: Colville, poorly drained-----	D	January	4.5-5.5	>6.0	---	---	None	---	None
		February	3.0-4.0	>6.0	---	---	None	Brief	Occasional
		March	2.0-3.0	>6.0	---	---	None	Brief	Occasional
		April	1.0-2.5	>6.0	---	---	None	Brief	Occasional
		May	1.0-2.5	>6.0	---	---	None	Brief	Occasional
		June	2.5-3.0	>6.0	---	---	None	---	None
		July	3.0-4.0	>6.0	---	---	None	---	None
		August	4.0-5.0	>6.0	---	---	None	---	None
		September	5.0-6.0	>6.0	---	---	None	---	None
		October	5.0-6.0	>6.0	---	---	None	---	None
		November	4.5-5.5	>6.0	---	---	None	---	None
		December	4.5-5.5	>6.0	---	---	None	---	None
246: Colville, somewhat poorly drained-----	D	January	4.5-5.5	>6.0	---	---	None	---	None
		February	4.0-5.0	>6.0	---	---	None	Brief	Occasional
		March	3.0-4.0	>6.0	---	---	None	Brief	Occasional
		April	3.0-4.0	>6.0	---	---	None	Brief	Occasional
		May	3.0-4.0	>6.0	---	---	None	Brief	Occasional
		June	3.5-4.5	>6.0	---	---	None	---	None
		July	4.0-5.0	>6.0	---	---	None	---	None
		August	4.5-5.5	>6.0	---	---	None	---	None
		September	5.0-6.0	>6.0	---	---	None	---	None
		October	5.0-6.0	>6.0	---	---	None	---	None
		November	4.5-5.5	>6.0	---	---	None	---	None
		December	4.5-5.5	>6.0	---	---	None	---	None
247: Conconully-----	B	Jan-Dec	---	---	---	---	None	---	None
248: Conconully-----	B	Jan-Dec	---	---	---	---	None	---	None
249: Conconully-----	B	Jan-Dec	---	---	---	---	None	---	None
250: Conconully, extremely stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None

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Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Surface water depth	Ponding		Flooding	
			Upper limit	Lower limit		Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
251: Conconully, extremely stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None
252: Conconully-----	B	Jan-Dec	---	---	---	---	None	---	None
Donavan-----	B	Jan-Dec	---	---	---	---	None	---	None
253: Coxit-----	B	Jan-Dec	---	---	---	---	None	---	None
Pelican-----	B	Jan-Dec	---	---	---	---	None	---	None
254: Crocamp-----	B	Jan-Dec	---	---	---	---	None	---	None
Burget-----	D	Jan-Dec	---	---	---	---	None	---	None
255: Crocamp-----	B	Jan-Dec	---	---	---	---	None	---	None
Burget-----	D	Jan-Dec	---	---	---	---	None	---	None
256: Crocamp-----	B	Jan-Dec	---	---	---	---	None	---	None
Lithic Humicryepts, nonforested, xeric---	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding		Flooding		
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
257: Cubhill-----	C	Jan-Dec	---	---	---	---	None	---	None
Johntom-----	D	Jan-Dec	---	---	---	---	None	---	None
258: Dams-----	---	Jan-Dec	---	---	---	---	None	---	None
259: Devore, warm-----	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
260: Devore-----	B	Jan-Dec	---	---	---	---	None	---	None
Treebutte-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
261: Devore-----	B	Jan-Dec	---	---	---	---	None	---	None
Treebutte-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
262: Disautel-----	B	Jan-Dec	---	---	---	---	None	---	None
263: Disautel-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Surface water depth	Ponding		Flooding	
			Upper limit	Lower limit		Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
264: Disautel, extremely stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None
265: Disautel, extremely stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None
266: Disautel, eroded-----	B	Jan-Dec	---	---	---	---	None	---	None
267: Donavan-----	B	Jan-Dec	---	---	---	---	None	---	None
268: Donavan-----	B	Jan-Dec	---	---	---	---	None	---	None
269: Donavan-----	B	Jan-Dec	---	---	---	---	None	---	None
270: Donavan, extremely stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None
271: Donavan, extremely stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None
272: Donavan, extremely stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
273: Entiat-----	D	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Surface water depth	Ponding		Flooding	
			Upper limit	Lower limit		Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
274: Ewall-----	A	Jan-Dec	---	---	---	---	None	---	None
275: Ewall-----	A	Jan-Dec	---	---	---	---	None	---	None
276: Ewall-----	A	Jan-Dec	---	---	---	---	None	---	None
277: Farway, moist-----	B	Jan-Dec	---	---	---	---	None	---	None
278: Finney-----	B	Jan-Dec	---	---	---	---	None	---	None
Myerscreek, moist-----	B	Jan-Dec	---	---	---	---	None	---	None
279: Goddard-----	A	Jan-Dec	---	---	---	---	None	---	None
Lithic Haploxerepts, forested-----	D	Jan-Dec	---	---	---	---	None	---	None
280: Goddard-----	A	Jan-Dec	---	---	---	---	None	---	None
Parmenter-----	B	Jan-Dec	---	---	---	---	None	---	None
281: Goddard, warm-----	A	Jan-Dec	---	---	---	---	None	---	None
Parmenter, dry-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Surface water depth	Ponding		Flooding	
			Upper limit	Lower limit		Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
282: Granflat-----	A	Jan-Dec	---	---	---	---	None	---	None
283: Haley-----	B	Jan-Dec	---	---	---	---	None	---	None
284: Haley-----	B	Jan-Dec	---	---	---	---	None	---	None
285: Haploxerandic Haplocryepts, forested, till substratum-----	B	Jan-Dec	---	---	---	---	None	---	None
Cryaquolls, poorly drained, till substratum-----	D	February	4.0-6.0	>6.0	---	---	None	---	None
		March	1.5-3.0	>6.0	---	---	None	---	None
		April	1.0-1.5	>6.0	---	---	Rare	Brief	Occasional
		May	1.0-1.5	>6.0	---	---	Rare	Brief	Occasional
		June	1.0-1.5	>6.0	---	---	Rare	---	None
		July	1.0-1.5	>6.0	---	---	Rare	---	None
		August	1.5-3.0	>6.0	---	---	None	---	None
		September	3.0-6.0	>6.0	---	---	None	---	None
286: Havillah-----	B	Jan-Dec	---	---	---	---	None	---	None
287: Havillah-----	B	Jan-Dec	---	---	---	---	None	---	None
288: Havillah-----	B	Jan-Dec	---	---	---	---	None	---	None
289: Havillah, eroded-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding		Flooding		
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
290: Havillah, extremely stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None
291: Histic Cryaquepts-----	D	January	0.5-0.8	>6.0	---	---	None	---	None
		February	0.5-0.8	>6.0	---	---	None	---	None
		March	0.0	>6.0	0.0-1.0	Long	Frequent	---	None
		April	0.0	>6.0	0.0-1.0	Long	Frequent	---	None
		May	0.0	>6.0	0.0-1.0	Long	Frequent	---	None
		June	0.0	>6.0	0.0-1.0	Long	Frequent	---	None
		July	0.0	>6.0	0.0-1.0	Long	Frequent	---	None
		August	0.0	>6.0	0.0-1.0	Long	Frequent	---	None
		September	0.5-0.8	>6.0	---	---	None	---	None
		October	0.5-0.8	>6.0	---	---	None	---	None
		November	0.5-0.8	>6.0	---	---	None	---	None
		December	0.5-0.8	>6.0	---	---	None	---	None
Cryohemists-----	D	January	0.0	>6.0	0.0-1.0	Long	Frequent	---	None
		February	0.0	>6.0	0.0-1.0	Long	Frequent	---	None
		March	0.0	>6.0	0.0-1.0	Long	Frequent	Brief	Occasional
		April	0.0	>6.0	0.0-1.0	Long	Frequent	Brief	Occasional
		May	0.0	>6.0	0.0-1.0	Long	Frequent	Brief	Occasional
		June	0.0	>6.0	0.0-1.0	Long	Frequent	Brief	Occasional
		July	0.0	>6.0	0.0-1.0	Long	Frequent	Brief	Occasional
		August	0.0	>6.0	0.0-1.0	Long	Frequent	---	None
		September	0.0	>6.0	0.0-1.0	Long	Frequent	---	None
		October	0.0	>6.0	0.0-1.0	Long	Frequent	---	None
		November	0.0	>6.0	0.0-1.0	Long	Frequent	---	None
		December	0.0	>6.0	0.0-1.0	Long	Frequent	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
292: Histosols, ponded-----	D	January	0.0-0.3	>6.0	0.0-1.0	Very long	Frequent	---	None
		February	0.0-0.3	>6.0	0.0-1.0	Very long	Frequent	---	None
		March	0.0-0.3	>6.0	0.0-1.0	Very long	Frequent	---	None
		April	0.0-0.3	>6.0	0.0-1.0	Very long	Frequent	---	None
		May	0.0-0.3	>6.0	0.0-1.0	Very long	Frequent	---	None
		June	0.0-0.3	>6.0	0.0-1.0	Very long	Frequent	---	None
		July	0.0-0.3	>6.0	0.0-1.0	Very long	Frequent	---	None
		August	0.0-0.3	>6.0	0.0-1.0	Very long	Frequent	---	None
		September	0.0-0.3	>6.0	---	---	None	---	None
		October	0.0-0.3	>6.0	---	---	None	---	None
		November	0.0-0.3	>6.0	0.0-1.0	Very long	Frequent	---	None
		December	0.0-0.3	>6.0	0.0-1.0	Very long	Frequent	---	None
293: Hodgson-----	B	January	4.0-6.0	>6.0	---	---	None	---	None
		February	2.5-4.0	>6.0	---	---	None	---	None
		March	2.5-3.5	>6.0	---	---	None	---	None
		April	2.5-3.5	>6.0	---	---	None	---	None
		May	3.5-5.0	>6.0	---	---	None	---	None
		June	5.0-6.0	>6.0	---	---	None	---	None
294: Humic Vitricryands, nonforested-----	B	Jan-Dec	---	---	---	---	None	---	None
Typic Humicryepts, nonforested-----	B	Jan-Dec	---	---	---	---	None	---	None
295: Hunters-----	B	Jan-Dec	---	---	---	---	None	---	None
296: Hunters-----	B	Jan-Dec	---	---	---	---	None	---	None
297: Hunters, eroded-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding		Flooding		
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
298: Jimbluff-----	A	Jan-Dec	---	---	---	---	None	---	None
299: Jimbluff-----	B	Jan-Dec	---	---	---	---	None	---	None
300: Johntom-----	D	Jan-Dec	---	---	---	---	None	---	None
Borgeau-----	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
301: Johntom-----	D	Jan-Dec	---	---	---	---	None	---	None
Foggydew-----	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
302: Johntom-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
303: Johntom-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
304: Karamin-----	A	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding		Flooding		
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
305: Kartar-----	B	Jan-Dec	---	---	---	---	None	---	None
306: Kartar-----	B	Jan-Dec	---	---	---	---	None	---	None
307: Kartar, cool-----	B	Jan-Dec	---	---	---	---	None	---	None
308: Kartar-----	B	Jan-Dec	---	---	---	---	None	---	None
309: Kartar-----	B	Jan-Dec	---	---	---	---	None	---	None
310: Kartar-----	B	Jan-Dec	---	---	---	---	None	---	None
311: Kartar, extremely stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None
312: Kartar, extremely stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None
313: Karu-----	B	Jan-Dec	---	---	---	---	None	---	None
314: Karu-----	B	Jan-Dec	---	---	---	---	None	---	None
315: Koepke-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Surface water depth	Ponding		Flooding	
			Upper limit	Lower limit		Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
316: Koepke-----	B	Jan-Dec	---	---	---	---	None	---	None
317: Koepke-----	B	Jan-Dec	---	---	---	---	None	---	None
318: Koepke-----	B	Jan-Dec	---	---	---	---	None	---	None
319: Koepke, well drained-----	B	Jan-Dec	---	---	---	---	None	---	None
Koepke, moderately well drained-----	B	March	3.0-4.5	3.3-5.0	---	---	None	---	None
		April	3.0-4.5	3.3-5.0	---	---	None	---	None
		May	3.0-4.5	3.3-5.0	---	---	None	---	None
		June	3.0-4.5	3.3-5.0	---	---	None	---	None
320: Koepke, well drained-----	B	Jan-Dec	---	---	---	---	None	---	None
Koepke, moderately well drained-----	B	March	3.0-4.5	3.3-5.0	---	---	None	---	None
		April	3.0-4.5	3.3-5.0	---	---	None	---	None
		May	3.0-4.5	3.3-5.0	---	---	None	---	None
		June	3.0-4.5	3.3-5.0	---	---	None	---	None
321: Koepke, well drained-----	B	Jan-Dec	---	---	---	---	None	---	None
Koepke, moderately well drained-----	B	March	3.0-4.5	3.3-5.0	---	---	None	---	None
		April	3.0-4.5	3.3-5.0	---	---	None	---	None
		May	3.0-4.5	3.3-5.0	---	---	None	---	None
		June	3.0-4.5	3.3-5.0	---	---	None	---	None
322: Lani-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Surface water depth	Ponding		Flooding	
			Upper limit	Lower limit		Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
323: Lani-----	B	Jan-Dec	---	---	---	---	None	---	None
324: Lani, extremely stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None
325: Lani, extremely stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None
326: Leavenworth-----	B	January	5.0-6.0	>6.0	---	---	None	---	None
		February	4.0-5.0	>6.0	---	---	None	Brief	Occasional
		March	2.0-4.0	>6.0	---	---	None	Brief	Occasional
		April	2.0-4.0	>6.0	---	---	None	Brief	Occasional
		May	2.0-4.0	>6.0	---	---	None	Brief	Occasional
		June	4.0-6.0	>6.0	---	---	None	---	None
		December	5.0-6.0	>6.0	---	---	None	---	None
327: Leftcreek-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
328: Leiko-----	B	Jan-Dec	---	---	---	---	None	---	None
329: Leiko-----	B	Jan-Dec	---	---	---	---	None	---	None
330: Leiko-----	B	Jan-Dec	---	---	---	---	None	---	None
331: Leiko, extremely stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding		Flooding		
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
332: Leiko, extremely stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None
333: Leiko-----	A	Jan-Dec	---	---	---	---	None	---	None
334: Leiko, extremely stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None
335: Leiko-----	A	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
336: Lekrem, extremely stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None
Chumstick, moist-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
337: Lithic Humicryepts, forested, udic-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
338: Lithic Haploxerepts, range-----	D	Jan-Dec	---	---	---	---	None	---	None
Cashmont, extremely stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None

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Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Surface water depth	Ponding		Flooding	
			Upper limit	Lower limit		Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
339: Lithic Haploxerepts, range-----	D	Jan-Dec	---	---	---	---	None	---	None
Conconully, extremely stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None
340: Lithic Haploxerepts, range-----	D	Jan-Dec	---	---	---	---	None	---	None
Donavan, extremely stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
341: Lithic Haploxerepts, range-----	D	Jan-Dec	---	---	---	---	None	---	None
Kartar, extremely stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None
342: Lithic Haploxerepts, range-----	D	Jan-Dec	---	---	---	---	None	---	None
Molson, extremely stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None
343: Lithic Haploxerepts, range-----	D	Jan-Dec	---	---	---	---	None	---	None
Newbon, extremely stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None
344: Lithic Haploxerepts, range-----	D	Jan-Dec	---	---	---	---	None	---	None
Nighthawk, extremely stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table			Ponding		Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
345: Lithic Haploxerepts, range-----	D	Jan-Dec	---	---	---	---	None	---	None
Republic, extremely stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None
346: Lithic Haploxerepts, range, moist-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
347: Lithic Haploxerepts, range-----	D	Jan-Dec	---	---	---	---	None	---	None
Vallan-----	D	Jan-Dec	---	---	---	---	None	---	None
348: Lithic Haploxerepts, forested-----	D	Jan-Dec	---	---	---	---	None	---	None
Wilma, dry-----	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
349: Longort-----	B	Jan-Dec	---	---	---	---	None	---	None
350: Longort-----	B	Jan-Dec	---	---	---	---	None	---	None
Santop-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Surface water depth	Ponding		Flooding	
			Upper limit	Lower limit		Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
351: Longswamp, warm-----	B	March	2.0-3.3	2.1-3.3	---	---	None	---	None
		April	2.0-3.3	2.1-3.3	---	---	None	---	None
		May	2.0-3.3	2.1-3.3	---	---	None	---	None
352: Louploup-----	B	Jan-Dec	---	---	---	---	None	---	None
Stepstone-----	B	Jan-Dec	---	---	---	---	None	---	None
353: Louploup, dry-----	B	Jan-Dec	---	---	---	---	None	---	None
Stepstone, dry-----	B	Jan-Dec	---	---	---	---	None	---	None
354: Manley-----	B	Jan-Dec	---	---	---	---	None	---	None
355: Manley-----	B	Jan-Dec	---	---	---	---	None	---	None
356: Manley, warm-----	B	Jan-Dec	---	---	---	---	None	---	None
Devore, warm-----	B	Jan-Dec	---	---	---	---	None	---	None
357: Manley, warm-----	B	Jan-Dec	---	---	---	---	None	---	None
Devore, warm-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Surface water depth	Ponding		Flooding	
			Upper limit	Lower limit		Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
358: Mansonia-----	B	Jan-Dec	---	---	---	---	None	---	None
Swakane-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
359: Merkel-----	B	Jan-Dec	---	---	---	---	None	---	None
360: Merkel-----	B	Jan-Dec	---	---	---	---	None	---	None
361: Merkel-----	B	Jan-Dec	---	---	---	---	None	---	None
362: Merkel-----	B	Jan-Dec	---	---	---	---	None	---	None
Lithic Haploxerepts, forested-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
363: Merkel-----	B	Jan-Dec	---	---	---	---	None	---	None
Wilma-----	B	Jan-Dec	---	---	---	---	None	---	None
364: Midpeak-----	B	Jan-Dec	---	---	---	---	None	---	None
Johntom-----	D	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Surface water depth	Ponding		Flooding	
			Upper limit	Lower limit		Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
364: Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
365: Mineral, dry-----	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
366: Mineral, dry-----	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
367: Mires-----	B	Jan-Dec	---	---	---	---	None	---	None
368: Mires-----	B	Jan-Dec	---	---	---	---	None	---	None
369: Mires-----	B	Jan-Dec	---	---	---	---	None	---	None
370: Mires, stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None
371: Mires, extremely stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None
372: Mires-----	B	Jan-Dec	---	---	---	---	None	---	None
Leiko-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding		Flooding		
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
373: Mobu-----	B	Jan-Dec	---	---	---	---	None	---	None
374: Mobu-----	B	Jan-Dec	---	---	---	---	None	---	None
375: Mobu-----	B	Jan-Dec	---	---	---	---	None	---	None
376: Mobu, eroded-----	B	Jan-Dec	---	---	---	---	None	---	None
377: Molson-----	B	Jan-Dec	---	---	---	---	None	---	None
378: Molson-----	B	Jan-Dec	---	---	---	---	None	---	None
379: Molson-----	B	Jan-Dec	---	---	---	---	None	---	None
380: Molson-----	B	Jan-Dec	---	---	---	---	None	---	None
381: Molson, extremely stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None
382: Molson, extremely stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None
383: Molson-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding		Flooding		
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
384: Muckamuck-----	C	February	---	---	---	---	None	Brief	Occasional
		March	---	---	---	---	None	Brief	Occasional
		April	---	---	---	---	None	Brief	Occasional
		May	---	---	---	---	None	Brief	Occasional
385: Myerscreek, cool-----	B	Jan-Dec	---	---	---	---	None	---	None
386: Myerscreek, moist-----	B	Jan-Dec	---	---	---	---	None	---	None
387: Myerscreek, warm-----	B	Jan-Dec	---	---	---	---	None	---	None
388: Myerscreek, warm-----	B	Jan-Dec	---	---	---	---	None	---	None
389: Myerscreek, cool-----	B	Jan-Dec	---	---	---	---	None	---	None
Aquandic Dystricryepts, udic, forested---	C	March	1.5-2.8	1.7-5.0	---	---	None	---	None
		April	1.5-2.8	1.7-5.0	---	---	None	---	None
		May	1.5-2.8	1.7-5.0	---	---	None	---	None
		June	1.5-2.8	1.7-5.0	---	---	None	---	None
390: Myerscreek, cool-----	B	Jan-Dec	---	---	---	---	None	---	None
Devore-----	B	Jan-Dec	---	---	---	---	None	---	None
391: Myerscreek, cool-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding		Flooding		
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
391: Devore-----	B	Jan-Dec	---	---	---	---	None	---	None
392: Myerscreek, moist-----	B	Jan-Dec	---	---	---	---	None	---	None
Finney-----	B	Jan-Dec	---	---	---	---	None	---	None
393: Myerscreek, cool-----	B	Jan-Dec	---	---	---	---	None	---	None
Histic Cryaquepts-----	D	January	0.5-0.8	>6.0	---	---	None	---	None
		February	0.5-0.8	>6.0	---	---	None	---	None
		March	0.0	>6.0	0.0-1.0	Long	Frequent	---	None
		April	0.0	>6.0	0.0-1.0	Long	Frequent	---	None
		May	0.0	>6.0	0.0-1.0	Long	Frequent	---	None
		June	0.0	>6.0	0.0-1.0	Long	Frequent	---	None
		July	0.0	>6.0	0.0-1.0	Long	Frequent	---	None
		August	0.0	>6.0	0.0-1.0	Long	Frequent	---	None
		September	0.5-0.8	>6.0	---	---	None	---	None
		October	0.5-0.8	>6.0	---	---	None	---	None
		November	0.5-0.8	>6.0	---	---	None	---	None
		December	0.5-0.8	>6.0	---	---	None	---	None
Cryohemists-----	D	January	0.0	>6.0	0.0-1.0	Long	Frequent	---	None
		February	0.0	>6.0	0.0-1.0	Long	Frequent	---	None
		March	0.0	>6.0	0.0-1.0	Long	Frequent	Brief	Occasional
		April	0.0	>6.0	0.0-1.0	Long	Frequent	Brief	Occasional
		May	0.0	>6.0	0.0-1.0	Long	Frequent	Brief	Occasional
		June	0.0	>6.0	0.0-1.0	Long	Frequent	Brief	Occasional
		July	0.0	>6.0	0.0-1.0	Long	Frequent	Brief	Occasional
		August	0.0	>6.0	0.0-1.0	Long	Frequent	---	None
		September	0.0	>6.0	0.0-1.0	Long	Frequent	---	None
		October	0.0	>6.0	0.0-1.0	Long	Frequent	---	None
		November	0.0	>6.0	0.0-1.0	Long	Frequent	---	None
		December	0.0	>6.0	0.0-1.0	Long	Frequent	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding		Flooding		
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
394: Myerscreek, moist-----	B	Jan-Dec	---	---	---	---	None	---	None
Manley-----	B	Jan-Dec	---	---	---	---	None	---	None
395: Myerscreek-----	B	Jan-Dec	---	---	---	---	None	---	None
Twentymile-----	B	Jan-Dec	---	---	---	---	None	---	None
396: Nahahum, moist-----	B	Jan-Dec	---	---	---	---	None	---	None
397: Nahahum, cool-----	B	Jan-Dec	---	---	---	---	None	---	None
398: Nahahum-----	B	Jan-Dec	---	---	---	---	None	---	None
Coxit-----	B	Jan-Dec	---	---	---	---	None	---	None
399: Nahahum-----	B	Jan-Dec	---	---	---	---	None	---	None
Coxit-----	B	Jan-Dec	---	---	---	---	None	---	None
400: Nevine-----	B	Jan-Dec	---	---	---	---	None	---	None
Nevine, warm-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Surface water depth	Ponding		Flooding	
			Upper limit	Lower limit		Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
401: Nevine-----	B	Jan-Dec	---	---	---	---	None	---	None
Nevine, warm-----	B	Jan-Dec	---	---	---	---	None	---	None
402: Nevine, cool-----	B	Jan-Dec	---	---	---	---	None	---	None
Louploup-----	B	Jan-Dec	---	---	---	---	None	---	None
403: Nevine-----	B	Jan-Dec	---	---	---	---	None	---	None
Louploup, dry-----	B	Jan-Dec	---	---	---	---	None	---	None
404: Nevine, moist-----	B	Jan-Dec	---	---	---	---	None	---	None
Louploup, moist-----	B	Jan-Dec	---	---	---	---	None	---	None
405: Nevine-----	B	Jan-Dec	---	---	---	---	None	---	None
Merkel-----	B	Jan-Dec	---	---	---	---	None	---	None
406: Nevine-----	B	Jan-Dec	---	---	---	---	None	---	None
Merkel-----	B	Jan-Dec	---	---	---	---	None	---	None
407: Nevine-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Surface water depth	Ponding		Flooding	
			Upper limit	Lower limit		Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
407: Oxerine-----	B	Jan-Dec	---	---	---	---	None	---	None
408: Nevine-----	B	Jan-Dec	---	---	---	---	None	---	None
Nevine, warm-----	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
409: Nevine-----	B	Jan-Dec	---	---	---	---	None	---	None
Nevine, warm-----	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
410: Nevine-----	B	Jan-Dec	---	---	---	---	None	---	None
Wilma-----	B	Jan-Dec	---	---	---	---	None	---	None
411: Nevine-----	B	Jan-Dec	---	---	---	---	None	---	None
Wilma, dry-----	B	Jan-Dec	---	---	---	---	None	---	None
412: Nevine-----	B	Jan-Dec	---	---	---	---	None	---	None
Wilma-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table			Ponding		Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
412: Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
413: Newbon-----	B	Jan-Dec	---	---	---	---	None	---	None
414: Newbon-----	B	Jan-Dec	---	---	---	---	None	---	None
415: Newbon-----	B	Jan-Dec	---	---	---	---	None	---	None
416: Newbon-----	B	Jan-Dec	---	---	---	---	None	---	None
417: Newbon-----	B	Jan-Dec	---	---	---	---	None	---	None
418: Newbon, extremely stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None
419: Newbon, eroded-----	B	Jan-Dec	---	---	---	---	None	---	None
420: Newhorn-----	B	Jan-Dec	---	---	---	---	None	---	None
421: Newhorn, moist-----	B	Jan-Dec	---	---	---	---	None	---	None
422: Nicmar-----	C	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding		Flooding		
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
423: Nicmar-----	B	Jan-Dec	---	---	---	---	None	---	None
424: Nicmar, warm-----	C	Jan-Dec	---	---	---	---	None	---	None
Baldknob-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
425: Nicmar-----	B	Jan-Dec	---	---	---	---	None	---	None
Santop-----	B	Jan-Dec	---	---	---	---	None	---	None
426: Nighthawk-----	B	Jan-Dec	---	---	---	---	None	---	None
427: Nighthawk-----	B	Jan-Dec	---	---	---	---	None	---	None
428: Nighthawk-----	B	Jan-Dec	---	---	---	---	None	---	None
429: Nighthawk, extremely stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None
430: Nighthawk, extremely stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Surface water depth	Ponding		Flooding	
			Upper limit	Lower limit		Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
431: Okanogan-----	B	February	---	---	---	---	None	Long	Occasional
		March	---	---	---	---	None	Long	Occasional
		April	---	---	---	---	None	Long	Occasional
		May	---	---	---	---	None	Long	Occasional
432: Okanogan-----	B	February	---	---	---	---	None	Long	Occasional
		March	---	---	---	---	None	Long	Occasional
		April	---	---	---	---	None	Long	Occasional
		May	---	---	---	---	None	Long	Occasional
433: Owhi-----	B	Jan-Dec	---	---	---	---	None	---	None
434: Owhi-----	B	Jan-Dec	---	---	---	---	None	---	None
435: Owhi, extremely stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None
436: Owhi, extremely stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None
437: Owhi-----	B	Jan-Dec	---	---	---	---	None	---	None
438: Owhi-----	B	Jan-Dec	---	---	---	---	None	---	None
Haley-----	B	Jan-Dec	---	---	---	---	None	---	None
439: Owhi-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Surface water depth	Ponding		Flooding	
			Upper limit	Lower limit		Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
439: Haley-----	B	Jan-Dec	---	---	---	---	None	---	None
440: Owhi-----	B	Jan-Dec	---	---	---	---	None	---	None
Haley-----	B	Jan-Dec	---	---	---	---	None	---	None
441: Oxerine-----	B	Jan-Dec	---	---	---	---	None	---	None
442: Oxerine, warm-----	B	Jan-Dec	---	---	---	---	None	---	None
Lithic Haploxerepts, forested, cool-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
443: Oxerine, warm-----	B	Jan-Dec	---	---	---	---	None	---	None
Nevine, warm-----	B	Jan-Dec	---	---	---	---	None	---	None
444: Oxerine, cool-----	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
445: Pebcreek-----	A	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding		Flooding		
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
446: Pebcreek-----	A	Jan-Dec	---	---	---	---	None	---	None
Brevco, cool-----	B	Jan-Dec	---	---	---	---	None	---	None
447: Pebcreek-----	A	Jan-Dec	---	---	---	---	None	---	None
Brevco, cool-----	B	Jan-Dec	---	---	---	---	None	---	None
448: Pebcreek, dry-----	A	Jan-Dec	---	---	---	---	None	---	None
Lithic Haploxerepts, forested, dry-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
449: Peka-----	A	Jan-Dec	---	---	---	---	None	---	None
450: Peka, moist-----	B	Jan-Dec	---	---	---	---	None	---	None
Donavan-----	B	Jan-Dec	---	---	---	---	None	---	None
451: Peka-----	B	Jan-Dec	---	---	---	---	None	---	None
Swakane-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Surface water depth	Ponding		Flooding	
			Upper limit	Lower limit		Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
452: Pelican-----	B	Jan-Dec	---	---	---	---	None	---	None
453: Pettijohn-----	B	Jan-Dec	---	---	---	---	None	---	None
Mineral-----	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
454: Pettijohn-----	B	Jan-Dec	---	---	---	---	None	---	None
Wilma-----	B	Jan-Dec	---	---	---	---	None	---	None
455: Pogue-----	B	Jan-Dec	---	---	---	---	None	---	None
456: Pogue-----	B	Jan-Dec	---	---	---	---	None	---	None
457: Pogue-----	B	Jan-Dec	---	---	---	---	None	---	None
458: Pogue-----	B	Jan-Dec	---	---	---	---	None	---	None
459: Pogue, extremely stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None
460: Pogue, extremely stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding		Flooding		
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
461: Pogue-----	B	Jan-Dec	---	---	---	---	None	---	None
462: Pogue-----	B	Jan-Dec	---	---	---	---	None	---	None
463: Radercreek-----	B	Jan-Dec	---	---	---	---	None	---	None
Santop-----	B	Jan-Dec	---	---	---	---	None	---	None
464: Redpeak-----	B	Jan-Dec	---	---	---	---	None	---	None
Ontrail-----	B	Jan-Dec	---	---	---	---	None	---	None
465: Rommel-----	B	Jan-Dec	---	---	---	---	None	---	None
Devore, cold-----	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
466: Rendovy-----	B	Jan-Dec	---	---	---	---	None	---	None
Goshawk-----	B	Jan-Dec	---	---	---	---	None	---	None
467: Republic-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding		Flooding		
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
468: Republic-----	B	Jan-Dec	---	---	---	---	None	---	None
469: Republic-----	B	Jan-Dec	---	---	---	---	None	---	None
470: Republic-----	B	Jan-Dec	---	---	---	---	None	---	None
471: Republic, extremely stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None
472: Resner-----	B	Jan-Dec	---	---	---	---	None	---	None
473: Resner, cool-----	B	Jan-Dec	---	---	---	---	None	---	None
Sitdown, cold-----	A	Jan-Dec	---	---	---	---	None	---	None
474: Resner-----	B	Jan-Dec	---	---	---	---	None	---	None
Sitdown-----	A	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding		Flooding		
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
475: Riverwash-----	D	January	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		February	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		March	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		April	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		May	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		June	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		July	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		August	0.0-2.0	>6.0	---	---	None	---	None
		September	0.0-2.0	>6.0	---	---	None	---	None
		October	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		November	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		December	0.0-2.0	>6.0	---	---	None	Very long	Frequent
476: Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
477: Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
Donavan-----	B	Jan-Dec	---	---	---	---	None	---	None
Peka-----	B	Jan-Dec	---	---	---	---	None	---	None
478: Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
Lithic Haplocryepts, xeric, forested-----	D	Jan-Dec	---	---	---	---	None	---	None
Rubble land-----	A	Jan-Dec	---	---	---	---	None	---	None
479: Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
Rubble land-----	A	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding		Flooding		
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
480: Rufus-----	D	Jan-Dec	---	---	---	---	None	---	None
Wynhoff-----	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
481: Rufus-----	D	Jan-Dec	---	---	---	---	None	---	None
Wynhoff-----	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
482: Sacheen-----	A	Jan-Dec	---	---	---	---	None	---	None
483: Salcreek-----	C	Jan-Dec	---	---	---	---	None	---	None
484: Salcreek-----	C	Jan-Dec	---	---	---	---	None	---	None
485: Scheiner-----	A	Jan-Dec	---	---	---	---	None	---	None
Myerscreek-----	B	Jan-Dec	---	---	---	---	None	---	None
486: Scoap-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding		Flooding		
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
487: Setill-----	C	Jan-Dec	---	---	---	---	None	---	None
Johntom-----	D	Jan-Dec	---	---	---	---	None	---	None
488: Shalrock, cool-----	B	Jan-Dec	---	---	---	---	None	---	None
Johntom-----	D	Jan-Dec	---	---	---	---	None	---	None
489: Shalrock-----	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
490: Shalrock-----	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
491: Sinlahekin-----	A	Jan-Dec	---	---	---	---	None	---	None
Peka-----	B	Jan-Dec	---	---	---	---	None	---	None
Hodgson-----	B	January	4.0-6.0	>6.0	---	---	None	---	None
		February	2.5-4.0	>6.0	---	---	None	---	None
		March	2.5-3.5	>6.0	---	---	None	---	None
		April	2.5-3.5	>6.0	---	---	None	---	None
		May	3.5-5.0	>6.0	---	---	None	---	None
		June	5.0-6.0	>6.0	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding		Flooding		
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
492: Sitdown, cool-----	A	Jan-Dec	---	---	---	---	None	---	None
493: Sitdown, cool-----	A	Jan-Dec	---	---	---	---	None	---	None
494: Sitdown-----	A	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
495: Sitdown, cool-----	A	Jan-Dec	---	---	---	---	None	---	None
Wellsfar-----	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
496: Skaha-----	A	Jan-Dec	---	---	---	---	None	---	None
497: Skaha-----	A	Jan-Dec	---	---	---	---	None	---	None
498: Skaha-----	A	Jan-Dec	---	---	---	---	None	---	None
499: Smokejump-----	B	Jan-Dec	---	---	---	---	None	---	None
Jantill-----	A	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table			Ponding		Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
500: Smokejump-----	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
501: Smokejump-----	B	Jan-Dec	---	---	---	---	None	---	None
Twentymile-----	B	Jan-Dec	---	---	---	---	None	---	None
502: Stapaloop-----	B	Jan-Dec	---	---	---	---	None	---	None
503: Stemilt-----	C	Jan-Dec	---	---	---	---	None	---	None
Midpeak-----	B	Jan-Dec	---	---	---	---	None	---	None
504: Stepstone-----	B	Jan-Dec	---	---	---	---	None	---	None
505: Stepstone, dry-----	B	Jan-Dec	---	---	---	---	None	---	None
506: Stepstone-----	A	Jan-Dec	---	---	---	---	None	---	None
Torboy-----	A	Jan-Dec	---	---	---	---	None	---	None
507: Storer-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Surface water depth	Ponding		Flooding	
			Upper limit	Lower limit		Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
507: Swakane-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
508: Strat-----	B	Jan-Dec	---	---	---	---	None	---	None
509: Swakane-----	D	Jan-Dec	---	---	---	---	None	---	None
Peka, moist-----	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
510: Swakane-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
511: Swakane-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
Peka, moist-----	B	Jan-Dec	---	---	---	---	None	---	None
512: Sycreek-----	C	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
513: Synarep-----	B	January	5.0-6.0	>6.0	---	---	None	---	None
		February	4.0-5.0	>6.0	---	---	None	---	Rare
		March	3.0-4.0	>6.0	---	---	None	---	Rare
		April	3.0-4.0	>6.0	---	---	None	---	Rare
		May	3.0-4.0	>6.0	---	---	None	---	Rare
		June	4.0-6.0	>6.0	---	---	None	---	None
		December	5.0-6.0	>6.0	---	---	None	---	None
Colville, poorly drained-----	D	January	4.5-5.5	>6.0	---	---	None	---	None
		February	3.0-4.0	>6.0	---	---	None	Brief	Occasional
		March	2.0-3.0	>6.0	---	---	None	Brief	Occasional
		April	1.0-2.5	>6.0	---	---	None	Brief	Occasional
		May	1.0-2.5	>6.0	---	---	None	Brief	Occasional
		June	2.5-3.0	>6.0	---	---	None	---	None
		July	3.0-4.0	>6.0	---	---	None	---	None
		August	4.0-5.0	>6.0	---	---	None	---	None
		September	5.0-6.0	>6.0	---	---	None	---	None
		October	5.0-6.0	>6.0	---	---	None	---	None
		November	4.5-5.5	>6.0	---	---	None	---	None
		December	4.5-5.5	>6.0	---	---	None	---	None
Xerofluvents-----	B	January	5.0-6.0	>6.0	---	---	None	---	None
		February	4.0-5.0	>6.0	---	---	None	Brief	Occasional
		March	3.0-4.0	>6.0	---	---	None	Brief	Occasional
		April	3.0-4.0	>6.0	---	---	None	Brief	Occasional
		May	3.0-4.0	>6.0	---	---	None	Brief	Occasional
		June	4.0-6.0	>6.0	---	---	None	---	None
		December	5.0-6.0	>6.0	---	---	None	---	None
514: Thout-----	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
515: Thow-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Surface water depth	Ponding		Flooding	
			Upper limit	Lower limit		Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
515: Vingulch-----	B	Jan-Dec	---	---	---	---	None	---	None
516: Thrapp-----	B	March	2.5-3.5	2.9-3.7	---	---	None	---	None
		April	2.5-3.5	2.9-3.7	---	---	None	---	None
		May	2.5-3.5	2.9-3.7	---	---	None	---	None
		June	2.5-3.5	2.9-3.7	---	---	None	---	None
Aquandic Xerofluvents-----	C	January	4.0-5.0	>6.0	---	---	None	---	None
		February	4.0-5.0	>6.0	---	---	None	Brief	Occasional
		March	2.0-4.0	>6.0	---	---	None	Brief	Occasional
		April	2.0-4.0	>6.0	---	---	None	Brief	Occasional
		May	2.0-4.0	>6.0	---	---	None	Brief	Occasional
		June	4.0-5.0	>6.0	---	---	None	---	None
		July	4.0-5.0	>6.0	---	---	None	---	None
		August	4.0-5.0	>6.0	---	---	None	---	None
		September	4.0-5.0	>6.0	---	---	None	---	None
		October	4.0-5.0	>6.0	---	---	None	---	None
		November	4.0-5.0	>6.0	---	---	None	---	None
		December	4.0-5.0	>6.0	---	---	None	---	None
517: Thuso-----	B	Jan-Dec	---	---	---	---	None	---	None
518: Thuso-----	B	Jan-Dec	---	---	---	---	None	---	None
519: Thuso, cool-----	B	Jan-Dec	---	---	---	---	None	---	None
520: Thuso-----	B	Jan-Dec	---	---	---	---	None	---	None
Lithic Haploxerepts, range, moist-----	D	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Surface water depth	Ponding		Flooding	
			Upper limit	Lower limit		Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
520: Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
521: Toats-----	B	Jan-Dec	---	---	---	---	None	---	None
Longswamp-----	C	January	5.0-6.0	>6.0	---	---	None	---	None
		February	3.5-5.0	>6.0	---	---	None	---	None
		March	2.0-3.5	>6.0	---	---	None	---	None
		April	2.0-3.5	>6.0	---	---	None	---	None
		May	2.0-3.5	>6.0	---	---	None	---	None
		June	2.0-3.5	>6.0	---	---	None	---	None
		July	3.5-5.0	>6.0	---	---	None	---	None
		August	5.0-6.0	>6.0	---	---	None	---	None
522: Tonasket-----	B	Jan-Dec	---	---	---	---	None	---	None
523: Tonasket-----	B	Jan-Dec	---	---	---	---	None	---	None
524: Tonasket-----	B	Jan-Dec	---	---	---	---	None	---	None
525: Tonasket-----	B	Jan-Dec	---	---	---	---	None	---	None
526: Tonasket-----	B	Jan-Dec	---	---	---	---	None	---	None
527: Tonasket, extremely stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None
528: Twentymile-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Surface water depth	Ponding		Flooding	
			Upper limit	Lower limit		Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
529: Twentymile-----	B	Jan-Dec	---	---	---	---	None	---	None
Smokejump-----	B	Jan-Dec	---	---	---	---	None	---	None
530: Vallan-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
531: Vanbrunt-----	B	Jan-Dec	---	---	---	---	None	---	None
Swakane-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
532: Verhart, cold-----	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
533: Veridge-----	B	Jan-Dec	---	---	---	---	None	---	None
Farway-----	B	Jan-Dec	---	---	---	---	None	---	None
534: Veridge, moist-----	B	Jan-Dec	---	---	---	---	None	---	None
Farway, moist-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding		Flooding		
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
535: Veridge-----	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
536: Vinegar-----	B	Jan-Dec	---	---	---	---	None	---	None
537: Vinegar-----	B	Jan-Dec	---	---	---	---	None	---	None
Thow-----	B	Jan-Dec	---	---	---	---	None	---	None
538: Vingulch-----	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
539: Vitrandic Humicryepts, nonforested-----	B	Jan-Dec	---	---	---	---	None	---	None
Lithic Humicryepts, nonforested, udic----	D	Jan-Dec	---	---	---	---	None	---	None
540: Vitrandic Haploxerepts-----	B	Jan-Dec	---	---	---	---	None	---	None
Lithic Haploxerepts, forested, dry-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
541: Vitrixerandic Haplocryepts, forested-----	B	January	5.0-6.0	>6.0	---	---	None	---	None
		February	4.0-5.5	>6.0	---	---	None	---	None
		March	3.0-5.0	>6.0	---	---	None	---	None
		April	2.5-4.0	>6.0	---	---	None	---	Rare
		May	2.5-4.0	>6.0	---	---	None	---	Rare
		June	2.5-4.0	>6.0	---	---	None	---	None
		July	2.5-4.0	>6.0	---	---	None	---	None
		August	3.5-6.0	>6.0	---	---	None	---	None
Cryaquolls, somewhat poorly drained, till substratum-----	D	February	4.0-6.0	>6.0	---	---	None	---	None
		March	2.5-4.0	>6.0	---	---	None	---	None
		April	2.0-3.0	>6.0	---	---	Rare	Brief	Occasional
		May	2.0-3.0	>6.0	---	---	Rare	Brief	Occasional
		June	2.0-3.0	>6.0	---	---	Rare	---	None
		July	2.5-4.5	>6.0	---	---	Rare	---	None
		August	4.0-6.0	>6.0	---	---	None	---	None
542: Wadams-----	B	Jan-Dec	---	---	---	---	None	---	None
543: Wadams, extremely stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None
544: Wagberg-----	B	Jan-Dec	---	---	---	---	None	---	None
545: Wagberg-----	B	Jan-Dec	---	---	---	---	None	---	None
546: Wagberg, cool-----	B	Jan-Dec	---	---	---	---	None	---	None
Lithic Ultic Haploxerolls-----	D	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding		Flooding		
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
546: Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
547: Wagberg-----	B	Jan-Dec	---	---	---	---	None	---	None
Swakane-----	D	Jan-Dec	---	---	---	---	None	---	None
548: Wagberg-----	B	Jan-Dec	---	---	---	---	None	---	None
Swakane-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
549: Wagberg, extremely stony surface-----	B	Jan-Dec	---	---	---	---	None	---	None
Swakane-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
550: Wapal, cool-----	A	Jan-Dec	---	---	---	---	None	---	None
551: Wapal, cool-----	A	Jan-Dec	---	---	---	---	None	---	None
552: Wapal, dry-----	A	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Surface water depth	Ponding		Flooding	
			Upper limit	Lower limit		Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
553: Wapal-----	A	Jan-Dec	---	---	---	---	None	---	None
554: Wapal-----	A	Jan-Dec	---	---	---	---	None	---	None
Brevco-----	B	Jan-Dec	---	---	---	---	None	---	None
555: Wapal-----	A	Jan-Dec	---	---	---	---	None	---	None
Brevco-----	B	Jan-Dec	---	---	---	---	None	---	None
556: Wapal, dry-----	A	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
557: Wapal, dry, warm-----	A	Jan-Dec	---	---	---	---	None	---	None
Sacheen-----	A	Jan-Dec	---	---	---	---	None	---	None
558: Water-----	---	---	---	---	---	---	---	---	---
559: Wenner-----	B	Jan-Dec	---	---	---	---	None	---	None
560: Wilder-----	A	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding		Flooding		
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
560: Republic-----	B	Jan-Dec	---	---	---	---	None	---	None
561: Wilma-----	B	Jan-Dec	---	---	---	---	None	---	None
Lithic Haploxerepts, forested-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
562: Wilma, moist-----	B	Jan-Dec	---	---	---	---	None	---	None
Lithic Haploxerepts, forested-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
563: Wilma, cool-----	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
564: Winsand-----	B	Jan-Dec	---	---	---	---	None	---	None
Verhart-----	B	Jan-Dec	---	---	---	---	None	---	None
565: Winthrop-----	A	Jan-Dec	---	---	---	---	None	---	None
566: Winthrop, extremely stony surface-----	A	Jan-Dec	---	---	---	---	None	---	None

Table 10.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding		Flooding		
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
567: Wynhoff-----	B	Jan-Dec	---	---	---	---	None	---	None
568: Wynhoff-----	B	Jan-Dec	---	---	---	---	None	---	None
Lithic Haploxerepts, range, moist-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
569: Xerofluvents, wet-----	B	January	4.5-5.5	>6.0	---	---	None	Brief	Occasional
		February	3.0-4.0	>6.0	---	---	None	Brief	Occasional
		March	2.0-3.0	>6.0	---	---	None	Brief	Occasional
		April	1.5-2.5	>6.0	---	---	None	Brief	Occasional
		May	1.5-2.5	>6.0	---	---	None	Brief	Occasional
		June	2.0-3.0	>6.0	---	---	None	Brief	Occasional
		July	3.0-4.0	>6.0	---	---	None	---	None
		August	4.0-5.0	>6.0	---	---	None	---	None
		September	5.0-6.0	>6.0	---	---	None	---	None
		October	5.0-6.0	>6.0	---	---	None	---	None
		November	4.5-5.5	>6.0	---	---	None	---	None
		December	4.5-5.5	>6.0	---	---	None	---	None
570: Yellcreek-----	B	Jan-Dec	---	---	---	---	None	---	None
Midpeak-----	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None

Table 11.--Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
200: Aeneas-----	Strongly contrasting textural stratification	21-36	---	Noncemented	0	---	Moderate	Moderate	Low
201: Aeneas-----	Strongly contrasting textural stratification	21-36	---	Noncemented	0	---	Moderate	Moderate	Low
202: Aits-----	---	---	---	---	0	---	High	Moderate	Low
203: Andic Dystrocryepts, forested-----	Lithic bedrock	20-81	---	Indurated	0	---	High	Moderate	Moderate
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
Rubble land-----	---	---	---	---	0	---	---	---	---
204: Andic Dystrocryepts, forested-----	Lithic bedrock	20-81	---	Indurated	0	---	High	Moderate	Moderate
Vitrandic Humicryepts, nonforested-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
205: Aquandic Endoaquolls---	Strongly contrasting textural stratification	20-50	---	Noncemented	0	---	High	High	Moderate
206: Aquandic Endoaquolls---	Strongly contrasting textural stratification	20-50	---	Noncemented	0	---	High	High	Moderate

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
206: Haplosaprists-----	Strongly contrasting textural stratification	16-60	---	Noncemented	8-30	16-60	High	High	High
207: Aquandic Xerofluvents--	Strongly contrasting textural stratification	40-60	---	Noncemented	0	---	High	Moderate	Low
208: Badland-----	Paralithic bedrock	0-0	---	Moderately cemented	0	---	---	---	---
209: Baldknob-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Low	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
210: Baldknob-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Rubble land-----	---	---	---	---	---	---	---	---	---
Thout-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
211: Baldknob-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Low	Low
Thout-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
Nicmar-----	---	---	---	---	0	---	Moderate	Moderate	Low
212: Bearspring-----	---	---	---	---	0	---	Moderate	Low	Low
213: Bluebuck-----	Strongly contrasting textural stratification	7-14	---	Noncemented	0	---	Moderate	Moderate	Moderate
	Dense material	40-60	---	Noncemented					

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
214: Boesel-----	Strongly contrasting textural stratification	20-33	---	Noncemented	0	---	Moderate	Moderate	Low
215: Boesel-----	Strongly contrasting textural stratification	20-33	---	Noncemented	0	---	Moderate	Moderate	Low
Muckamuck-----	---	---	---	---	0	---	High	Moderate	Low
216: Borgeau-----	---	---	---	---	0	---	Moderate	Low	Low
Johntom-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Low	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
217: Borgeau-----	---	---	---	---	0	---	Moderate	Low	Low
Nicmar-----	---	---	---	---	0	---	Moderate	Moderate	Low
Johntom-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Low	Low
218: Borgeau-----	---	---	---	---	0	---	Moderate	Low	Low
Peka, moist-----	Dense material	40-60	---	Noncemented	0	---	Moderate	Moderate	Low
219: Brevco-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Lithic Haploxerepts, forested-----	Lithic bedrock	8-20	---	Indurated	0	---	Moderate	Moderate	Low
Pebcreek, dry-----	Strongly contrasting textural stratification	10-14	---	Noncemented	0	---	Moderate	Moderate	Low
	Dense material	30-45	---	Noncemented					

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
220: Brevco, cool-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Lithic Haploxerepts, forested-----	Lithic bedrock	8-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
221: Brevco-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Lithic Haploxerepts, forested, moist-----	Lithic bedrock	8-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
222: Brevco, dry-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Lithic Haploxerepts, forested, dry-----	Lithic bedrock	8-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
223: Burnscreek-----	---	---	---	---	0	---	Moderate	Moderate	Low
224: Cashmere-----	---	---	---	---	0	---	Moderate	High	Low
225: Cashmere-----	---	---	---	---	0	---	Moderate	High	Low
226: Cashmere-----	---	---	---	---	0	---	Moderate	High	Low
227: Cashmere-----	---	---	---	---	0	---	Moderate	High	Low
228: Cashmont-----	---	---	---	---	0	---	Moderate	Moderate	Low
229: Cashmont-----	---	---	---	---	0	---	Moderate	Moderate	Low

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
230: Cashmont-----	---	---	---	---	0	---	Moderate	Moderate	Low
231: Cashmont-----	---	---	---	---	0	---	Moderate	Moderate	Low
232: Cashmont-----	---	---	---	---	0	---	Moderate	Moderate	Low
233: Cashmont, extremely stony surface-----	---	---	---	---	0	---	Moderate	Moderate	Low
234: Cashmont, extremely stony surface-----	---	---	---	---	0	---	Moderate	Moderate	Low
235: Cassal-----	Dense material	40-60	---	Noncemented	0	---	Moderate	Low	Low
236: Chesaw-----	---	---	---	---	0	---	Low	Moderate	Low
237: Chesaw, extremely stony surface-----	---	---	---	---	0	---	Low	Moderate	Low
238: Chesaw-----	---	---	---	---	0	---	Low	Moderate	Low
Bong-----	Strongly contrasting textural stratification	15-30	---	Noncemented	0	---	Moderate	Low	Low
239: Chesaw-----	---	---	---	---	0	---	Low	Moderate	Low
Bong-----	Strongly contrasting textural stratification	15-30	---	Noncemented	0	---	Moderate	Low	Low

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
240: Chesaw-----	---	---	---	---	0	---	Low	Moderate	Low
Bong-----	Strongly contrasting textural stratification	15-30	---	Noncemented	0	---	Moderate	Low	Low
241: Chewack-----	---	---	---	---	0	---	Moderate	Moderate	Low
Sitdown, cool-----	Strongly contrasting textural stratification	10-14	---	Noncemented	0	---	High	Low	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
242: Chumstick-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Low	Low
Mineral-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
243: Chumstick-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Low	Low
Mineral-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
244: Chumstick-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Low	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
245: Colville, poorly drained-----	---	---	---	---	0	---	High	High	Low
246: Colville, somewhat poorly drained-----	---	---	---	---	0	---	High	High	Low

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
247: Conconully-----	Dense material	26-40	---	Noncemented	0	---	Moderate	Moderate	Low
248: Conconully-----	Dense material	26-40	---	Noncemented	0	---	Moderate	Moderate	Low
249: Conconully-----	Dense material	26-40	---	Noncemented	0	---	Moderate	Moderate	Low
250: Conconully, extremely stony surface-----	Dense material	26-40	---	Noncemented	0	---	Moderate	Moderate	Low
251: Conconully, extremely stony surface-----	Dense material	26-40	---	Noncemented	0	---	Moderate	Moderate	Low
252: Conconully-----	Dense material	26-40	---	Noncemented	0	---	Moderate	Moderate	Low
Donavan-----	Dense material	20-40	---	Noncemented	0	---	Moderate	Moderate	Low
253: Coxit-----	---	---	---	---	0	---	Moderate	Low	Moderate
Pelican-----	Dense material	35-50	---	Noncemented	0	---	Moderate	Low	Moderate
254: Crocamp-----	Lithic bedrock	40-60	---	Indurated	0	---	Moderate	Moderate	Moderate
Burget-----	Paralithic bedrock	10-20	---	Moderately cemented	0	---	Moderate	Moderate	Moderate
255: Crocamp-----	Lithic bedrock	40-60	---	Indurated	0	---	Moderate	Moderate	Moderate
Burget-----	Paralithic bedrock	10-20	---	Moderately cemented	0	---	Moderate	Moderate	Moderate
256: Crocamp-----	Lithic bedrock	40-60	---	Indurated	0	---	Moderate	Moderate	Moderate
Lithic Humicryepts, nonforested, xeric----	Lithic bedrock	8-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
257: Cubhill-----	---	---	---	---	0	---	Moderate	Moderate	Low
Johntom-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Low	Low
258: Dams-----	---	---	---	---	---	---	---	---	---
259: Devore, warm-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
260: Devore-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Treebutte-----	Lithic bedrock	14-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
261: Devore-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Treebutte-----	Lithic bedrock	14-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
262: Disautel-----	Dense material	20-40	---	Noncemented	0	---	High	High	Low
263: Disautel-----	Dense material	20-40	---	Noncemented	0	---	High	High	Low
264: Disautel, extremely stonny surface-----	Dense material	20-40	---	Noncemented	0	---	High	High	Low
265: Disautel, extremely stonny surface-----	Dense material	20-40	---	Noncemented	0	---	High	High	Low
266: Disautel, eroded-----	Dense material	20-40	---	Noncemented	0	---	High	High	Low
267: Donavan-----	Dense material	20-40	---	Noncemented	0	---	Moderate	Moderate	Low

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
268: Donavan-----	Dense material	20-40	---	Noncemented	0	---	Moderate	Moderate	Low
269: Donavan-----	Dense material	20-40	---	Noncemented	0	---	Moderate	Moderate	Low
270: Donavan, extremely stony surface-----	Dense material	20-40	---	Noncemented	0	---	Moderate	Moderate	Low
271: Donavan, extremely stony surface-----	Dense material	20-40	---	Noncemented	0	---	Moderate	Moderate	Low
272: Donavan, extremely stony surface-----	Dense material	20-40	---	Noncemented	0	---	Moderate	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
273: Entiat-----	Paralithic bedrock	10-20	---	Moderately cemented	0	---	Moderate	Moderate	Low
274: Ewall-----	---	---	---	---	0	---	Low	Moderate	Low
275: Ewall-----	---	---	---	---	0	---	Low	Moderate	Low
276: Ewall-----	---	---	---	---	0	---	Low	Moderate	Low
277: Farway, moist-----	---	---	---	---	0	---	High	Low	Low
278: Finney-----	Lithic bedrock	40-60	---	Indurated	0	---	High	Low	Moderate
Myerscreek, moist-----	Dense material	20-35	---	Noncemented	0	---	High	Moderate	Moderate
279: Goddard-----	Strongly contrasting textural stratification	7-14	---	Noncemented	0	---	High	Moderate	Low

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		<i>In</i>	<i>In</i>		<i>In</i>	<i>In</i>			
279: Lithic Haploxerepts, forested-----	Lithic bedrock	8-20	---	Indurated	0	---	Moderate	Moderate	Low
280: Goddard-----	Strongly contrasting textural stratification	7-14	---	Noncemented	0	---	High	Moderate	Low
Parmenter-----	Strongly contrasting textural stratification	14-30	---	Noncemented	0	---	High	Moderate	Low
281: Goddard, warm-----	Strongly contrasting textural stratification	7-14	---	Noncemented	0	---	High	Moderate	Low
Parmenter, dry-----	Strongly contrasting textural stratification	14-30	---	Noncemented	0	---	High	Moderate	Low
282: Granflat-----	Strongly contrasting textural stratification	10-16	---	Noncemented	0	---	Moderate	Low	Low
283: Haley-----	Strongly contrasting textural stratification	20-30	---	Noncemented	0	---	Moderate	Moderate	Low
284: Haley-----	Strongly contrasting textural stratification	20-30	---	Noncemented	0	---	Moderate	Moderate	Low

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
285: Haploxerandic Haplocryepts, forested, till substratum-----	Dense material	20-81	---	Noncemented	0	---	High	Moderate	Moderate
Cryaquolls, poorly drained, till substratum-----	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	High	Moderate	Low
286: Havillah-----	Dense material	20-40	---	Noncemented	0	---	High	High	Low
287: Havillah-----	Dense material	20-40	---	Noncemented	0	---	High	High	Low
288: Havillah-----	Dense material	20-40	---	Noncemented	0	---	High	High	Low
289: Havillah, eroded-----	Dense material	20-40	---	Noncemented	0	---	High	High	Low
290: Havillah, extremely stony surface-----	Dense material	20-40	---	Noncemented	0	---	High	High	Low
291: Histic Cryaquepts-----	Strongly contrasting textural stratification	8-16	---	Noncemented	4-8	8-16	High	High	Moderate
Cryohemists-----	Strongly contrasting textural stratification	16-40	---	Noncemented	8-20	16-40	High	High	Moderate
292: Histosols, ponded-----	Strongly contrasting textural stratification	16-60	---	Noncemented	8-30	16-60	High	Moderate	High

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
293: Hodgson-----	---	---	---	---	0	---	High	High	Low
294: Humic Vitricryands, nonforested-----	Paralithic bedrock	20-50	---	Moderately cemented	0	---	High	Moderate	Moderate
	Lithic bedrock	24-50	---	Indurated					
Typic Humicryepts, nonforested-----	Lithic bedrock	20-81	---	Indurated	0	---	High	Moderate	Moderate
295: Hunters-----	---	---	---	---	0	---	High	High	Low
296: Hunters-----	---	---	---	---	0	---	High	High	Low
297: Hunters, eroded-----	---	---	---	---	0	---	High	High	Low
298: Jimbluff-----	---	---	---	---	0	---	Moderate	Low	Moderate
299: Jimbluff-----	---	---	---	---	0	---	Moderate	Low	Low
300: Johntom-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Low	Low
Borgeau-----	---	---	---	---	0	---	Moderate	Low	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
301: Johntom-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Low	Low
Foggydew-----	Lithic bedrock	40-60	---	Indurated	0	---	Moderate	Low	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
302: Johntom-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Low	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		<i>In</i>	<i>In</i>		<i>In</i>	<i>In</i>			
303: Johntom-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Low	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
304: Karamin-----	Strongly contrasting textural stratification	12-23	---	---	0	---	Moderate	Moderate	Moderate
305: Kartar-----	Strongly contrasting textural stratification	20-30	---	Noncemented	0	---	Moderate	Moderate	Low
306: Kartar-----	Strongly contrasting textural stratification	20-30	---	Noncemented	0	---	Moderate	Moderate	Low
307: Kartar, cool-----	Strongly contrasting textural stratification	20-30	---	Noncemented	0	---	Moderate	Moderate	Low
308: Kartar-----	Strongly contrasting textural stratification	20-30	---	Noncemented	0	---	Moderate	Moderate	Low
309: Kartar-----	Strongly contrasting textural stratification	20-30	---	Noncemented	0	---	Moderate	Moderate	Low
310: Kartar-----	Strongly contrasting textural stratification	20-30	---	Noncemented	0	---	Moderate	Moderate	Low

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
311: Kartar, extremely stony surface-----	Strongly contrasting textural stratification	20-30	---	Noncemented	0	---	Moderate	Moderate	Low
312: Kartar, extremely stony surface-----	Strongly contrasting textural stratification	20-30	---	Noncemented	0	---	Moderate	Moderate	Low
313: Karu-----	---	---	---	---	0	---	Moderate	Low	Moderate
314: Karu-----	---	---	---	---	0	---	Moderate	Low	Low
315: Koepke-----	Dense material	40-60	---	Noncemented	0	---	Moderate	High	Low
316: Koepke-----	Dense material	40-60	---	Noncemented	0	---	Moderate	High	Low
317: Koepke-----	Dense material	40-60	---	Noncemented	0	---	Moderate	High	Low
318: Koepke-----	Dense material	40-60	---	Noncemented	0	---	Moderate	High	Low
319: Koepke, well drained---	Dense material	40-60	---	Noncemented	0	---	Moderate	High	Low
Koepke, moderately well drained-----	Dense material	40-60	---	Noncemented	0	---	Moderate	High	Low
320: Koepke, well drained---	Dense material	40-60	---	Noncemented	0	---	Moderate	High	Low
Koepke, moderately well drained-----	Dense material	40-60	---	Noncemented	0	---	Moderate	High	Low
321: Koepke, well drained---	Dense material	40-60	---	Noncemented	0	---	Moderate	High	Low

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
321: Koepke, moderately well drained-----	Dense material	40-60	---	Noncemented	0	---	Moderate	High	Low
322: Lani-----	---	---	---	---	0	---	Moderate	Moderate	Low
323: Lani-----	---	---	---	---	0	---	Moderate	Moderate	Low
324: Lani, extremely stony surface-----	---	---	---	---	0	---	Moderate	Moderate	Low
325: Lani, extremely stony surface-----	---	---	---	---	0	---	Moderate	Moderate	Low
326: Leavenworth-----	---	---	---	---	0	---	High	Moderate	Low
327: Leftcreek-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Low	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
328: Leiko-----	Strongly contrasting textural stratification	10-30	---	Noncemented	0	---	Moderate	Moderate	Moderate
329: Leiko-----	Strongly contrasting textural stratification	10-30	---	Noncemented	0	---	Moderate	Moderate	Moderate
330: Leiko-----	Strongly contrasting textural stratification	10-30	---	Noncemented	0	---	Moderate	Moderate	Moderate

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
331: Leiko, extremely stony surface-----	Strongly contrasting textural stratification	10-30	---	Noncemented	0	---	Moderate	Moderate	Moderate
332: Leiko, extremely stony surface-----	Strongly contrasting textural stratification	10-30	---	Noncemented	0	---	Moderate	Moderate	Moderate
333: Leiko-----	Strongly contrasting textural stratification	10-30	---	Noncemented	0	---	Moderate	Low	Low
334: Leiko, extremely stony surface-----	Strongly contrasting textural stratification	10-30	---	Noncemented	0	---	Moderate	Moderate	Moderate
335: Leiko-----	Strongly contrasting textural stratification	10-30	---	Noncemented	0	---	Moderate	Low	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
336: Lekrem, extremely stony surface-----	---	---	---	---	0	---	Moderate	Low	Low
Chumstick, moist-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Low	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
337: Lithic Humicryepts, forested, udic-----	Lithic bedrock	8-20	---	Indurated	0	---	Moderate	Moderate	Moderate

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
337: Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
338: Lithic Haploxerepts, range-----	Lithic bedrock	8-20	---	Indurated	0	---	Moderate	Moderate	Low
Cashmont, extremely stony surface-----	---	---	---	---	0	---	Moderate	Moderate	Low
339: Lithic Haploxerepts, range-----	Lithic bedrock	8-20	---	Indurated	0	---	Moderate	Moderate	Low
Conconully, extremely stony surface-----	Dense material	26-40	---	Noncemented	0	---	Moderate	Moderate	Low
340: Lithic Haploxerepts, range-----	Lithic bedrock	8-20	---	Indurated	0	---	Moderate	Moderate	Low
Donavan, extremely stony surface-----	Dense material	20-40	---	Noncemented	0	---	Moderate	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
341: Lithic Haploxerepts, range-----	Lithic bedrock	8-20	---	Indurated	0	---	Moderate	Moderate	Low
Kartar, extremely stony surface-----	Strongly contrasting textural stratification	20-30	---	Noncemented	0	---	Moderate	Moderate	Low
342: Lithic Haploxerepts, range-----	Lithic bedrock	8-20	---	Indurated	0	---	Moderate	Moderate	Low
Molson, extremely stony surface-----	Dense material	40-60	---	Noncemented	0	---	High	High	Low
343: Lithic Haploxerepts, range-----	Lithic bedrock	8-20	---	Indurated	0	---	Moderate	Moderate	Low

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
343: Newbon, extremely stony surface-----	---	---	---	---	0	---	Moderate	Moderate	Low
344: Lithic Haploxerepts, range-----	Lithic bedrock	8-20	---	Indurated	0	---	Moderate	Moderate	Low
Nighthawk, extremely stony surface-----	---	---	---	---	0	---	Moderate	High	Low
345: Lithic Haploxerepts, range-----	Lithic bedrock	8-20	---	Indurated	0	---	Moderate	Moderate	Low
Republic, extremely stony surface-----	---	---	---	---	0	---	Moderate	High	Low
346: Lithic Haploxerepts, range, moist-----	Lithic bedrock	8-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
347: Lithic Haploxerepts, range-----	Lithic bedrock	8-20	---	Indurated	0	---	Moderate	Moderate	Low
Vallan-----	Lithic bedrock	6-20	---	Indurated	0	---	Moderate	Moderate	Low
348: Lithic Haploxerepts, forested-----	Lithic bedrock	8-20	---	Indurated	0	---	Moderate	Moderate	Low
Wilma, dry-----	Lithic bedrock	20-40	---	Indurated	0	---	High	Low	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
349: Longort-----	Dense material	25-40	---	Noncemented	0	---	Moderate	Low	Low
350: Longort-----	Dense material	25-40	---	Noncemented	0	---	Moderate	Low	Low
Santop-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
351: Longswamp, warm-----	Dense material	25-40	---	Noncemented	0	---	Moderate	Moderate	Low
352: Louploup-----	Dense material	40-50	---	Noncemented	0	---	High	Moderate	Low
Stepstone-----	Strongly contrasting textural stratification	14-24	---	Noncemented	0	---	High	Moderate	Low
353: Louploup, dry-----	Dense material	40-50	---	Noncemented	0	---	High	Moderate	Low
Stepstone, dry-----	Strongly contrasting textural stratification	14-24	---	Noncemented	0	---	High	Moderate	Low
354: Manley-----	Dense material	20-40	---	Noncemented	0	---	High	Moderate	Low
355: Manley-----	Dense material	20-40	---	Noncemented	0	---	High	Moderate	Low
356: Manley, warm-----	Dense material	20-40	---	Noncemented	0	---	High	Moderate	Low
Devore, warm-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
357: Manley, warm-----	Dense material	20-40	---	Noncemented	0	---	High	Moderate	Low
Devore, warm-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
358: Mansonia-----	Lithic bedrock	40-60	---	Indurated	0	---	High	Moderate	Low
Swakane-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
359: Merkel-----	Dense material	20-40	---	Noncemented	0	---	Moderate	Moderate	Low

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		<i>In</i>	<i>In</i>		<i>In</i>	<i>In</i>			
360: Merkel-----	Dense material	20-40	---	Noncemented	0	---	Moderate	Moderate	Low
361: Merkel-----	Dense material	20-40	---	Noncemented	0	---	Moderate	Moderate	Low
362: Merkel-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Lithic Haploxerepts, forested-----	Lithic bedrock	8-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
363: Merkel-----	Dense material	20-40	---	Noncemented	0	---	Moderate	Moderate	Low
Wilma-----	Lithic bedrock	20-40	---	Indurated	0	---	High	Low	Low
364: Midpeak-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
Johntom-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Low	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
365: Mineral, dry-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
366: Mineral, dry-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
367: Mires-----	Strongly contrasting textural stratification	17-25	---	Noncemented	0	---	High	Moderate	Low

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
368: Mires-----	Strongly contrasting textural stratification	17-25	---	Noncemented	0	---	High	Moderate	Low
369: Mires-----	Strongly contrasting textural stratification	17-25	---	Noncemented	0	---	High	Moderate	Low
370: Mires, stony surface---	Strongly contrasting textural stratification	17-25	---	Noncemented	0	---	High	Moderate	Low
371: Mires, extremely stony surface-----	Strongly contrasting textural stratification	17-25	---	Noncemented	0	---	High	Moderate	Low
372: Mires-----	Strongly contrasting textural stratification	17-25	---	Noncemented	0	---	High	Moderate	Low
Leiko-----	Strongly contrasting textural stratification	10-30	---	Noncemented	0	---	Moderate	Moderate	Moderate
373: Mobu-----	---	---	---	---	0	---	High	High	Low
374: Mobu-----	---	---	---	---	0	---	High	High	Low
375: Mobu-----	---	---	---	---	0	---	High	High	Low

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
376: Mobu, eroded-----	---	---	---	---	0	---	High	High	Low
377: Molson-----	Dense material	40-60	---	Noncemented	0	---	High	High	Low
378: Molson-----	Dense material	40-60	---	Noncemented	0	---	High	High	Low
379: Molson-----	Dense material	40-60	---	Noncemented	0	---	High	High	Low
380: Molson-----	Dense material	40-60	---	Noncemented	0	---	High	High	Low
381: Molson, extremely stony surface-----	Dense material	40-60	---	Noncemented	0	---	High	High	Low
382: Molson, extremely stony surface-----	Dense material	40-60	---	Noncemented	0	---	High	High	Low
383: Molson-----	Dense material	40-60	---	Noncemented	0	---	High	High	Low
384: Muckamuck-----	---	---	---	---	0	---	High	Moderate	Low
385: Myerscreek, cool-----	Dense material	20-35	---	Noncemented	0	---	High	Moderate	Moderate
386: Myerscreek, moist-----	Dense material	20-35	---	Noncemented	0	---	High	Moderate	Moderate
387: Myerscreek, warm-----	Dense material	20-35	---	Noncemented	0	---	High	Moderate	Moderate
388: Myerscreek, warm-----	Dense material	20-35	---	Noncemented	0	---	High	Moderate	Moderate
389: Myerscreek, cool-----	Dense material	20-35	---	Noncemented	0	---	High	Moderate	Moderate

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
389: Aquandic Dystricrypts, udic, forested-----	Dense material	20-60	---	Noncemented	0	---	High	Moderate	Low
390: Myerscreek, cool-----	Dense material	20-35	---	Noncemented	0	---	High	Moderate	Moderate
Devore-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
391: Myerscreek, cool-----	Dense material	20-35	---	Noncemented	0	---	High	Moderate	Moderate
Devore-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
392: Myerscreek, moist-----	Dense material	20-35	---	Noncemented	0	---	High	Moderate	Moderate
Finney-----	Lithic bedrock	40-60	---	Indurated	0	---	High	Low	Moderate
393: Myerscreek, cool-----	Dense material	20-35	---	Noncemented	0	---	High	Moderate	Moderate
Histic Cryaquepts-----	Strongly contrasting textural stratification	8-16	---	Noncemented	4-8	8-16	High	High	Moderate
Cryohemists-----	Strongly contrasting textural stratification	16-40	---	Noncemented	8-20	16-40	High	High	Moderate
394: Myerscreek, moist-----	Dense material	20-35	---	Noncemented	0	---	High	Moderate	Moderate
Manley-----	Dense material	20-40	---	Noncemented	0	---	High	Moderate	Low
395: Myerscreek-----	Dense material	20-35	---	Noncemented	0	---	High	Moderate	Moderate
Twentymile-----	Dense material	20-35	---	Noncemented	0	---	Moderate	Moderate	Moderate
396: Nahahum, moist-----	---	---	---	---	0	---	Moderate	Moderate	Moderate

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
397: Nahahum, cool-----	---	---	---	---	0	---	Moderate	Moderate	Moderate
398: Nahahum-----	---	---	---	---	0	---	Moderate	Moderate	Low
Coxit-----	---	---	---	---	0	---	Moderate	Low	Moderate
399: Nahahum-----	---	---	---	---	0	---	Moderate	Moderate	Low
Coxit-----	---	---	---	---	0	---	Moderate	Low	Moderate
400: Nevine-----	Dense material	20-40	---	Noncemented	0	---	High	Moderate	Low
Nevine, warm-----	Dense material	20-40	---	Noncemented	0	---	High	Moderate	Low
401: Nevine-----	Dense material	20-40	---	Noncemented	0	---	High	Moderate	Low
Nevine, warm-----	Dense material	20-40	---	Noncemented	0	---	High	Moderate	Low
402: Nevine, cool-----	Dense material	20-40	---	Noncemented	0	---	High	Moderate	Low
Louploup-----	Dense material	40-50	---	Noncemented	0	---	High	Moderate	Low
403: Nevine-----	Dense material	20-40	---	Noncemented	0	---	High	Moderate	Low
Louploup, dry-----	Dense material	40-50	---	Noncemented	0	---	High	Moderate	Low
404: Nevine, moist-----	Dense material	20-40	---	Noncemented	0	---	High	Moderate	Low
Louploup, moist-----	Dense material	40-50	---	Noncemented	0	---	High	Moderate	Low
405: Nevine-----	Dense material	20-40	---	Noncemented	0	---	High	Moderate	Low
Merkel-----	Dense material	20-40	---	Noncemented	0	---	Moderate	Moderate	Low
406: Nevine-----	Dense material	20-40	---	Noncemented	0	---	High	Moderate	Low

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
406: Merkel-----	Dense material	20-40	---	Noncemented	0	---	Moderate	Moderate	Low
407: Nevine-----	Dense material	20-40	---	Noncemented	0	---	High	Moderate	Low
Oxerine-----	Lithic bedrock	20-40	---	Indurated	0	---	High	Low	Low
408: Nevine-----	Dense material	20-40	---	Noncemented	0	---	High	Moderate	Low
Nevine, warm-----	Dense material	20-40	---	Noncemented	0	---	High	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
409: Nevine-----	Dense material	20-40	---	Noncemented	0	---	High	Moderate	Low
Nevine, warm-----	Dense material	20-40	---	Noncemented	0	---	High	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
410: Nevine-----	Dense material	20-40	---	Noncemented	0	---	High	Moderate	Low
Wilma-----	Lithic bedrock	20-40	---	Indurated	0	---	High	Low	Low
411: Nevine-----	Dense material	20-40	---	Noncemented	0	---	High	Moderate	Low
Wilma, dry-----	Lithic bedrock	20-40	---	Indurated	0	---	High	Low	Low
412: Nevine-----	Dense material	20-40	---	Noncemented	0	---	High	Moderate	Low
Wilma-----	Lithic bedrock	20-40	---	Indurated	0	---	High	Low	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
413: Newbon-----	---	---	---	---	0	---	Moderate	Moderate	Low
414: Newbon-----	---	---	---	---	0	---	Moderate	Moderate	Low

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Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
415: Newbon-----	---	---	---	---	0	---	Moderate	Moderate	Low
416: Newbon-----	---	---	---	---	0	---	Moderate	Moderate	Low
417: Newbon-----	---	---	---	---	0	---	Moderate	Moderate	Low
418: Newbon, extremely stony surface-----	---	---	---	---	0	---	Moderate	Moderate	Low
419: Newbon, eroded-----	---	---	---	---	0	---	Moderate	Moderate	Low
420: Newhorn-----	Dense material	20-40	---	Noncemented	0	---	High	Low	Low
421: Newhorn, moist-----	Dense material	20-40	---	Noncemented	0	---	High	Low	Low
422: Nicmar-----	---	---	---	---	0	---	Moderate	Moderate	Low
423: Nicmar-----	---	---	---	---	0	---	Moderate	Moderate	Low
424: Nicmar, warm-----	---	---	---	---	0	---	Moderate	Moderate	Low
Baldknob-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
425: Nicmar-----	---	---	---	---	0	---	Moderate	Moderate	Low
Santop-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
426: Nighthawk-----	---	---	---	---	0	---	Moderate	High	Low
427: Nighthawk-----	---	---	---	---	0	---	Moderate	High	Low

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
428: Nighthawk-----	---	---	---	---	0	---	Moderate	High	Low
429: Nighthawk, extremely stony surface-----	---	---	---	---	0	---	Moderate	High	Low
430: Nighthawk, extremely stony surface-----	---	---	---	---	0	---	Moderate	High	Low
431: Okanogan-----	---	---	---	---	0	---	Moderate	High	Low
432: Okanogan-----	---	---	---	---	0	---	Moderate	Moderate	Low
433: Owhi-----	Strongly contrasting textural stratification	12-26	---	Noncemented	0	---	Moderate	Moderate	Low
434: Owhi-----	Strongly contrasting textural stratification	12-26	---	Noncemented	0	---	Moderate	Moderate	Low
435: Owhi, extremely stony surface-----	Strongly contrasting textural stratification	12-26	---	Noncemented	0	---	Moderate	Moderate	Low
436: Owhi, extremely stony surface-----	Strongly contrasting textural stratification	12-26	---	Noncemented	0	---	Moderate	Moderate	Low

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Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
437: Owhi-----	Strongly contrasting textural stratification	12-26	---	Noncemented	0	---	Moderate	Moderate	Low
438: Owhi-----	Strongly contrasting textural stratification	12-26	---	Noncemented	0	---	Moderate	Moderate	Low
Haley-----	Strongly contrasting textural stratification	20-30	---	Noncemented	0	---	Moderate	Moderate	Low
439: Owhi-----	Strongly contrasting textural stratification	12-26	---	Noncemented	0	---	Moderate	Moderate	Low
Haley-----	Strongly contrasting textural stratification	20-30	---	Noncemented	0	---	Moderate	Moderate	Low
440: Owhi-----	Strongly contrasting textural stratification	12-26	---	Noncemented	0	---	Moderate	Moderate	Low
Haley-----	Strongly contrasting textural stratification	20-30	---	Noncemented	0	---	Moderate	Moderate	Low
441: Oxerine-----	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Low
442: Oxerine, warm-----	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Low

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		<i>In</i>	<i>In</i>		<i>In</i>	<i>In</i>			
442: Lithic Haploxerepts, forested, cool-----	Lithic bedrock	8-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
443: Oxerine, warm-----	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Low
Nevine, warm-----	Dense material	20-40	---	Noncemented	0	---	High	Moderate	Low
444: Oxerine, cool-----	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
445: Pebcreek-----	Strongly contrasting textural stratification	10-14	---	Noncemented	0	---	Moderate	Moderate	Low
	Dense material	30-45	---	Noncemented					
446: Pebcreek-----	Strongly contrasting textural stratification	10-14	---	Noncemented	0	---	Moderate	Moderate	Low
	Dense material	30-45	---	Noncemented					
Brevco, cool-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
447: Pebcreek-----	Strongly contrasting textural stratification	10-14	---	Noncemented	0	---	Moderate	Moderate	Low
	Dense material	30-45	---	Noncemented					
Brevco, cool-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
448: Pebcreek, dry-----	Strongly contrasting textural stratification Dense material	10-14	---	Noncemented	0	---	Moderate	Moderate	Low
Lithic Haploxerepts, forested, dry-----	Lithic bedrock	8-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
449: Peka-----	Dense material	40-60	---	Noncemented	0	---	Moderate	Low	Low
450: Peka, moist-----	Dense material	40-60	---	Noncemented	0	---	Moderate	Moderate	Low
Donavan-----	Dense material	20-40	---	Noncemented	0	---	Moderate	Moderate	Low
451: Peka-----	Dense material	40-60	---	Noncemented	0	---	Moderate	Moderate	Low
Swakane-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
452: Pelican-----	Dense material	35-50	---	Noncemented	0	---	Moderate	Low	Moderate
453: Pettijohn-----	---	---	---	---	0	---	Moderate	Moderate	Low
Mineral-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
454: Pettijohn-----	---	---	---	---	0	---	Moderate	Moderate	Low
Wilma-----	Lithic bedrock	20-40	---	Indurated	0	---	High	Low	Low

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
455: Pogue-----	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Moderate	Moderate	Low
456: Pogue-----	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Moderate	Moderate	Low
457: Pogue-----	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Moderate	Moderate	Low
458: Pogue-----	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Moderate	Moderate	Low
459: Pogue, extremely stony surface-----	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Moderate	Moderate	Low
460: Pogue, extremely stony surface-----	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Moderate	Moderate	Low
461: Pogue-----	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Moderate	Moderate	Low

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
462: Pogue-----	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Moderate	Moderate	Low
463: Radercreek-----	Lithic bedrock	40-60	---	Indurated	0	---	Moderate	Low	Low
Santop-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
464: Redpeak-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
Ontrail-----	---	---	---	---	0	---	Moderate	Low	Low
465: Remmel-----	---	---	---	---	0	---	Moderate	Low	Moderate
Devore, cold-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
466: Rendovy-----	---	---	---	---	0	---	High	Moderate	Low
Goshawk-----	Lithic bedrock	20-40	---	Indurated	0	---	High	Low	Moderate
467: Republic-----	---	---	---	---	0	---	Moderate	High	Low
468: Republic-----	---	---	---	---	0	---	Moderate	High	Low
469: Republic-----	---	---	---	---	0	---	Moderate	High	Low
470: Republic-----	---	---	---	---	0	---	Moderate	High	Low
471: Republic, extremely stony surface-----	---	---	---	---	0	---	Moderate	High	Low

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		<i>In</i>	<i>In</i>		<i>In</i>	<i>In</i>			
472: Resner-----	Strongly contrasting textural stratification	14-22	---	Noncemented	0	---	High	Moderate	Moderate
473: Resner, cool-----	Strongly contrasting textural stratification	14-22	---	Noncemented	0	---	High	Moderate	Moderate
Sitdown, cold-----	Strongly contrasting textural stratification	10-14	---	Noncemented	0	---	High	Low	Low
474: Resner-----	Strongly contrasting textural stratification	14-22	---	Noncemented	0	---	High	Moderate	Moderate
Sitdown-----	Strongly contrasting textural stratification	10-14	---	Noncemented	0	---	High	Low	Low
475: Riverwash-----	---	---	---	---	0	---	---	---	---
476: Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
477: Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
Donavan-----	Dense material	20-40	---	Noncemented	0	---	Moderate	Moderate	Low
Peka-----	Dense material	40-60	---	Noncemented	0	---	Moderate	Moderate	Low
478: Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
Lithic Haplocryepts, xeric, forested-----	Lithic bedrock	8-20	---	Indurated	0	---	Moderate	Moderate	Moderate

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
478: Rubble land-----	---	---	---	---	0	---	---	---	---
479: Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
Rubble land-----	---	---	---	---	0	---	---	---	---
480: Rufus-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Wynhoff-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
481: Rufus-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Wynhoff-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
482: Sacheen-----	---	---	---	---	0	---	Low	Low	Moderate
483: Salcreek-----	---	---	---	---	0	---	Moderate	Moderate	Low
484: Salcreek-----	---	---	---	---	0	---	Moderate	Moderate	Low
485: Scheiner-----	Strongly contrasting textural stratification	7-14	---	Noncemented	0	---	Moderate	Low	Low
Myerscreek-----	Dense material	20-35	---	Noncemented	0	---	High	Moderate	Moderate
486: Scoap-----	---	---	---	---	0	---	Moderate	Moderate	Low
487: Setill-----	Dense material	25-35	---	Noncemented	0	---	Moderate	Moderate	Low
Johntom-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Low	Low

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
488: Shalrock, cool-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
Johntom-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Low	Low
489: Shalrock-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
490: Shalrock-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
491: Sinlahekin-----	---	---	---	---	0	---	Moderate	Low	Moderate
Peka-----	Dense material	40-60	---	Noncemented	0	---	Moderate	Moderate	Low
Hodgson-----	---	---	---	---	0	---	High	High	Low
492: Sitdown, cool-----	Strongly contrasting textural stratification	10-14	---	Noncemented	0	---	High	Low	Low
493: Sitdown, cool-----	Strongly contrasting textural stratification	10-14	---	Noncemented	0	---	High	Low	Low
494: Sitdown-----	Strongly contrasting textural stratification	10-14	---	Noncemented	0	---	High	Low	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
495: Sitdown, cool-----	Strongly contrasting textural stratification	10-14	---	Noncemented	0	---	High	Low	Low
Wellsfar-----	Paralithic bedrock	20-40	---	Moderately cemented	0	---	Moderate	Moderate	Moderate
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
496: Skaha-----	---	---	---	---	0	---	Low	Moderate	Low
497: Skaha-----	---	---	---	---	0	---	Low	Moderate	Low
498: Skaha-----	---	---	---	---	0	---	Low	Moderate	Low
499: Smokejump-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Moderate
Jantill-----	---	---	---	---	0	---	High	Low	Low
500: Smokejump-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Moderate
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
501: Smokejump-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Twentymile-----	Dense material	20-35	---	Noncemented	0	---	Moderate	Moderate	Moderate
502: Stapaloop-----	---	---	---	---	0	---	Moderate	Low	Moderate
503: Stemilt-----	---	---	---	---	0	---	Moderate	Moderate	Low
Midpeak-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		<i>In</i>	<i>In</i>		<i>In</i>	<i>In</i>			
504: Stepstone-----	Strongly contrasting textural stratification	14-24	---	Noncemented	0	---	High	Moderate	Low
505: Stepstone, dry-----	Strongly contrasting textural stratification	14-24	---	Noncemented	0	---	High	Moderate	Low
506: Stepstone-----	Strongly contrasting textural stratification	14-24	---	Noncemented	0	---	High	Low	Low
Torboy-----	Strongly contrasting textural stratification	14-20	---	Noncemented	0	---	Moderate	Low	Low
507: Storer-----	Lithic bedrock	40-60	---	Indurated	0	---	Moderate	Low	Low
Swakane-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
508: Strat-----	---	---	---	---	0	---	Moderate	High	Low
509: Swakane-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Peka, moist-----	Dense material	40-60	---	Noncemented	0	---	Moderate	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
510: Swakane-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
511: Swakane-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
Peka, moist-----	Dense material	40-60	---	Noncemented	0	---	Moderate	Moderate	Low
512: Sycreek-----	Dense material	35-45	---	Noncemented	0	---	Moderate	Moderate	Low
513: Synarep-----	---	---	---	---	0	---	High	High	Low
Colville, poorly drained-----	---	---	---	---	0	---	High	High	Low
Xerofluvents-----	---	---	---	---	0	---	High	Moderate	Low
514: Thout-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
515: Thow-----	---	---	---	---	0	---	High	Low	Low
Vingulch-----	Lithic bedrock	20-40	---	Indurated	0	---	High	Low	Low
516: Thrapp-----	Dense material	35-45	---	Noncemented	0	---	Moderate	Low	Low
Aquandic Xerofluvents--	Strongly contrasting textural stratification	40-60	---	Noncemented	0	---	High	Moderate	Low
517: Thuso-----	---	---	---	---	0	---	Moderate	Low	Low
518: Thuso-----	---	---	---	---	0	---	Moderate	Low	Low
519: Thuso, cool-----	---	---	---	---	0	---	Moderate	Low	Low

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
520: Thuso-----	---	---	---	---	0	---	Moderate	Low	Low
Lithic Haploxerepts, range, moist-----	Lithic bedrock	8-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
521: Toats-----	Strongly contrasting textural stratification	12-14	---	Noncemented	0	---	Moderate	Low	Low
Longswamp-----	---	---	---	---	0	---	Moderate	Moderate	Moderate
522: Tonasket-----	---	---	---	---	0	---	Moderate	High	Low
523: Tonasket-----	---	---	---	---	0	---	Moderate	High	Low
524: Tonasket-----	---	---	---	---	0	---	Moderate	High	Low
525: Tonasket-----	---	---	---	---	0	---	Moderate	High	Low
526: Tonasket-----	---	---	---	---	0	---	Moderate	High	Low
527: Tonasket, extremely stony surface-----	---	---	---	---	0	---	Moderate	High	Low
528: Twentymile-----	Dense material	20-35	---	Noncemented	0	---	Moderate	Moderate	Moderate
529: Twentymile-----	Dense material	20-35	---	Noncemented	0	---	Moderate	Moderate	Moderate
Smokejump-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Moderate
530: Vallan-----	Lithic bedrock	6-20	---	Indurated	0	---	Moderate	Moderate	Low

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
530: Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
531: Vanbrunt-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Swakane-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
532: Verhart, cold-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
533: Veridge-----	Lithic bedrock	20-40	---	Indurated	0	---	High	Low	Low
Farway-----	---	---	---	---	0	---	High	Low	Low
534: Veridge, moist-----	Lithic bedrock	20-40	---	Indurated	0	---	High	Low	Low
Farway, moist-----	---	---	---	---	0	---	High	Low	Low
535: Veridge-----	Lithic bedrock	20-40	---	Indurated	0	---	High	Low	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
536: Vinegar-----	---	---	---	---	0	---	High	Low	Low
537: Vinegar-----	---	---	---	---	0	---	High	Low	Low
Thow-----	---	---	---	---	0	---	High	Low	Low
538: Vingulch-----	Lithic bedrock	20-40	---	Indurated	0	---	High	Low	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
539: Vitrandic Humicryepts, nonforested-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
539: Lithic Humicryepts, nonforested, udic-----	Lithic bedrock	8-20	---	Indurated	0	---	Moderate	Moderate	Moderate
540: Vitrandic Haploxerepts	Lithic bedrock	40-60	---	Indurated	0	---	Moderate	Low	Low
Lithic Haploxerepts, forested, dry-----	Lithic bedrock	8-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
541: Vitrixerandic Haplocryepts, forested	Strongly contrasting textural stratification	12-25	---	Noncemented	0	---	Moderate	Moderate	Moderate
Cryaquolls, somewhat poorly drained, till substratum-----	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	High	Moderate	Low
542: Wadams-----	Strongly contrasting textural stratification	24-36	---	Noncemented	0	---	High	Moderate	Low
543: Wadams, extremely stony surface-----	Strongly contrasting textural stratification	24-36	---	Noncemented	0	---	High	Moderate	Low
544: Wagberg-----	---	---	---	---	0	---	Moderate	Moderate	Low
545: Wagberg-----	---	---	---	---	0	---	Moderate	Moderate	Low

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
546: Wagberg, cool-----	---	---	---	---	0	---	Moderate	Low	Low
Lithic Ultic Haploxerolls-----	Lithic bedrock	8-20	---	Indurated	0	---	Moderate	Low	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
547: Wagberg-----	---	---	---	---	0	---	Moderate	Low	Low
Swakane-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
548: Wagberg-----	---	---	---	---	0	---	Moderate	Low	Low
Swakane-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
549: Wagberg, extremely stony surface-----	---	---	---	---	0	---	Moderate	Moderate	Low
Swakane-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
550: Wapal, cool-----	Strongly contrasting textural stratification	10-20	---	Noncemented	0	---	Moderate	Low	Moderate
551: Wapal, cool-----	Strongly contrasting textural stratification	10-20	---	Noncemented	0	---	Moderate	Low	Moderate
552: Wapal, dry-----	Strongly contrasting textural stratification	10-20	---	Noncemented	0	---	Moderate	Moderate	Low

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
553: Wapal-----	Strongly contrasting textural stratification	10-20	---	Noncemented	0	---	Moderate	Moderate	Low
554: Wapal-----	Strongly contrasting textural stratification	10-20	---	Noncemented	0	---	Moderate	Moderate	Low
Brevco-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
555: Wapal-----	Strongly contrasting textural stratification	10-20	---	Noncemented	0	---	Moderate	Moderate	Low
Brevco-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
556: Wapal, dry-----	Strongly contrasting textural stratification	10-20	---	Noncemented	0	---	Moderate	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
557: Wapal, dry, warm-----	Strongly contrasting textural stratification	10-20	---	Noncemented	0	---	Moderate	Low	Moderate
Sacheen-----	---	---	---	---	0	---	Low	Low	Moderate
558: Water-----	---	---	---	---	---	---	---	---	---
559: Wenner-----	---	---	---	---	0	---	Moderate	Moderate	Low
560: Wilder-----	---	---	---	---	0	---	Moderate	Low	Low

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
560: Republic-----	---	---	---	---	0	---	Moderate	Low	Low
561: Wilma-----	Lithic bedrock	20-40	---	Indurated	0	---	High	Low	Low
Lithic Haploxerepts, forested-----	Lithic bedrock	8-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
562: Wilma, moist-----	Lithic bedrock	20-40	---	Indurated	0	---	High	Low	Low
Lithic Haploxerepts, forested-----	Lithic bedrock	8-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
563: Wilma, cool-----	Lithic bedrock	20-40	---	Indurated	0	---	High	Low	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
564: Winsand-----	Lithic bedrock	40-60	---	Indurated	0	---	Moderate	Low	Low
Verhart-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
565: Winthrop-----	---	---	---	---	0	---	Low	Moderate	Low
566: Winthrop, extremely stony surface-----	---	---	---	---	0	---	Low	Moderate	Low
567: Wynhoff-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
568: Wynhoff-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
Lithic Haploxerepts, range, moist-----	Lithic bedrock	8-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---

Table 11.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		<i>In</i>	<i>In</i>		<i>In</i>	<i>In</i>			
569: Xerofluvents, wet-----	---	---	---	---	0	---	High	Moderate	Low
570: Yellcreek-----	---	---	---	---	0	---	Moderate	Low	Low
Midpeak-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---

Soil Survey of Okanogan County Area, Washington

Table 12.--Taxonomic Classification of the Soils

(An asterisk in the first column indicates a taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series.)

Soil name	Family or higher taxonomic class
Aeneas-----	Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Aridic Haploxerolls
Aits-----	Coarse-loamy, isotic, frigid Andic Haploxerepts
Andic Dystrocryepts-----	Andic Dystrocryepts
Aquandic Dystrocryepts---	Aquandic Dystrocryepts
Aquandic Endoaquolls-----	Aquandic Endoaquolls
Aquandic Xerofluvents----	Aquandic Xerofluvents
Baldknob-----	Loamy-skeletal, mixed, superactive, frigid Lithic Ultic Haploxerolls
Bearspring-----	Loamy-skeletal, isotic, frigid Vitrandic Haploxerolls
Bluebuck-----	Sandy-skeletal, isotic Vitrixerandic Haplocryepts
Boesel-----	Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, frigid Cumulic Haploxerolls
Bong-----	Sandy, mixed, mesic Vitrandic Haploxerolls
Borgeau-----	Loamy-skeletal, isotic, mesic Vitrandic Haploxerolls
Brevco-----	Loamy-skeletal, isotic, frigid Vitrandic Haploxerepts
Burget-----	Loamy, mixed, superactive, shallow Vitrixerandic Humicryepts
Burnscreek-----	Loamy-skeletal, mixed, superactive, mesic Pachic Ultic Haploxerolls
Cashmere-----	Coarse-loamy, mixed, superactive, mesic Aridic Haploxerolls
Cashmont-----	Coarse-loamy, mixed, superactive, mesic Aridic Haploxerolls
Cassal-----	Loamy-skeletal, isotic, frigid Vitrandic Haploxerolls
Chesaw-----	Sandy-skeletal, mixed, frigid Entic Haploxerolls
Chewack-----	Ashy-skeletal over loamy-skeletal, glassy over isotic Xeric Vitricryands
Chumstick-----	Loamy-skeletal, isotic, frigid Lithic Ultic Haploxerolls
Colville-----	Fine-silty, mixed, superactive, calcareous, mesic Fluvaquentic Endoaquolls
Conconully-----	Coarse-loamy, mixed, superactive, mesic Vitrandic Haploxerolls
Coxit-----	Loamy-skeletal, isotic, frigid Vitrandic Haploxerepts
Crocamp-----	Loamy-skeletal, mixed, superactive Vitrixerandic Humicryepts
Cryaquolls-----	Cryaquolls
Cryohemists-----	Cryohemists
Cubhill-----	Loamy-skeletal, mixed, superactive, mesic Vitrandic Argixerolls
Devore-----	Loamy-skeletal, isotic Haploxerandic Haplocryepts
Disautel-----	Coarse-loamy, mixed, superactive, mesic Calcic Haploxerolls
Donavan-----	Coarse-loamy, isotic, mesic Vitrandic Haploxerolls
Entiat-----	Loamy-skeletal, mixed, superactive, mesic, shallow Aridic Haploxerolls
Ewall-----	Mixed, mesic Typic Xeropsammets
Farway-----	Ashy over loamy-skeletal, glassy over isotic, frigid Typic Vitrixerands
Finney-----	Loamy-skeletal, isotic Haploxerandic Haplocryepts
Foggydew-----	Loamy-skeletal, mixed, superactive, mesic Vitrandic Haploxerolls
Goddard-----	Sandy-skeletal, isotic, frigid Andic Haploxerepts
Goshawk-----	Loamy-skeletal, isotic, frigid Andic Haploxeralfs
Granflat-----	Sandy-skeletal, isotic, frigid Vitrandic Haploxerolls
Haley-----	Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Vitrandic Haploxerolls
Haplosaprists-----	Haplosaprists
Haploxerandic	
Haplocryepts-----	Haploxerandic Haplocryepts
Havillah-----	Ashy over loamy, glassy over isotic, frigid Humic Vitrixerands
Histic Cryaquepts-----	Histic Cryaquepts
Histosols-----	Histosols
*Hodgson-----	Fine-loamy, mixed, superactive, mesic Vitrandic Palexeralfs
Humic Vitricryands-----	Humic Vitricryands
Hunters-----	Fine-silty, mixed, superactive, mesic Vitrandic Haploxerolls
Jantill-----	Sandy-skeletal, isotic Andic Dystrocryepts
Jimbluff-----	Loamy-skeletal, isotic, frigid Vitrandic Haploxerepts
Johntom-----	Loamy-skeletal, mixed, superactive, mesic Lithic Haploxerolls
Karamin-----	Sandy, isotic, frigid Vitrandic Dystroxerepts
Kartar-----	Coarse-loamy, isotic, mesic Vitrandic Haploxerepts
Karu-----	Loamy-skeletal, isotic Vitrixerandic Haplocryepts
*Koepeke-----	Coarse-loamy, isotic, frigid Vitrandic Haploxerolls
Lani-----	Coarse-loamy, isotic, frigid Vitrandic Haploxerolls

Soil Survey of Okanogan County Area, Washington

Table 12.--Taxonomic Classification of the Soils--Continued

Soil name	Family or higher taxonomic class
Leavenworth-----	Coarse-loamy, mixed, superactive, mesic Cumulic Haploxerolls
Leftcreek-----	Ashy-skeletal, glassy, mesic Lithic Vitrixerands
Leiko-----	Sandy-skeletal, mixed, mesic Vitrandic Haploxerolls
Lekrem-----	Loamy-skeletal, isotic, frigid Vitrandic Haploxerepts
Lithic Haplocryepts-----	Lithic Haplocryepts
Lithic Haploxerepts-----	Lithic Haploxerepts
Lithic Humicryepts-----	Lithic Humicryepts
Lithic Ultic Haploxerolls	Lithic Ultic Haploxerolls
Longort-----	Loamy-skeletal, isotic, frigid Vitrandic Haploxerepts
Longswamp-----	Fine-loamy, isotic Vitrandic Haplocryolls
*Longswamp-----	Coarse-loamy, isotic, frigid Vitrandic Haploxerolls
Louploup-----	Ashy over loamy, glassy over isotic, frigid Typic Vitrixerands
Manley-----	Ashy over loamy-skeletal, glassy over isotic Xeric Vitricryands
Mansonia-----	Ashy, glassy, mesic Vitrandic Haploxerolls
Merkel-----	Loamy-skeletal, isotic, frigid Vitrandic Dystroxerepts
*Merkel-----	Loamy-skeletal, isotic, frigid Vitrandic Haploxerepts
Midpeak-----	Loamy-skeletal, isotic, frigid Vitrandic Haploxerolls
Mineral-----	Loamy-skeletal, isotic, frigid Vitrandic Haploxerolls
Mires-----	Ashy over sandy or sandy-skeletal, glassy over mixed, frigid Humic Vitrixerands
Mobu-----	Coarse-silty, mixed, superactive, mesic Calcic Haploxerolls
Molson-----	Ashy over loamy, glassy over mixed, superactive, frigid Humic Vitrixerands
Muckamuck-----	Fine-loamy, mixed, superactive, frigid Fluventic Haploxerolls
Myerscreek-----	Loamy-skeletal, isotic Haploxerandic Haplocryepts
Nahahum-----	Fine-loamy, isotic, frigid Vitrandic Haploxeralfs
Nevine-----	Ashy over loamy-skeletal, glassy over isotic, frigid Typic Vitrixerands
Newbon-----	Coarse-loamy, mixed, superactive, mesic Typic Haploxerolls
Newhorn-----	Loamy-skeletal, isotic, frigid Andic Haploxerepts
Nicmar-----	Loamy-skeletal, isotic, frigid Vitrandic Palexeralfs
Nighthawk-----	Loamy-skeletal, mixed, superactive, mesic Calcic Haploxerolls
Okanogan-----	Coarse-loamy, mixed, superactive, mesic Cumulic Haploxerolls
Ontrail-----	Loamy-skeletal, isotic, frigid Vitrandic Haploxerepts
Owhi-----	Sandy-skeletal, mixed, mesic Vitrandic Haploxerolls
Oxerine-----	Loamy-skeletal, isotic, frigid Andic Haploxerepts
Parmenter-----	Ashy over sandy or sandy-skeletal, glassy over isotic, frigid Typic Vitrixerands
Pebcreek-----	Sandy-skeletal, isotic, frigid Vitrandic Haploxerepts
Peka-----	Loamy-skeletal, mixed, superactive, mesic Vitrandic Haploxerolls
Pelican-----	Loamy-skeletal, mixed, superactive, frigid Vitrandic Haploxerolls
Pettijohn-----	Ashy-skeletal, glassy, frigid Typic Vitrixerands
Pogue-----	Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Aridic Haploxerolls
Radercreek-----	Loamy-skeletal, isotic, frigid Vitrandic Haploxerepts
Redpeak-----	Loamy-skeletal, isotic, frigid Vitrandic Haploxerepts
Remmel-----	Loamy-skeletal, isotic Haploxerandic Haplocryepts
Rendovy-----	Loamy-skeletal, isotic, frigid Andic Palexeralfs
Republic-----	Coarse-loamy, isotic, frigid Vitrandic Haploxerolls
Resner-----	Ashy over sandy or sandy-skeletal, glassy over isotic Xeric Vitricryands
Rufus-----	Loamy-skeletal, isotic, mesic Lithic Ultic Haploxerolls
Sacheen-----	Mixed, frigid Typic Xeropsamments
Salcreek-----	Fine-loamy, isotic, frigid Vitrandic Argixerolls
Santop-----	Loamy-skeletal, isotic, frigid Vitrandic Haploxerepts
Scheiner-----	Sandy, isotic Vitrixerandic Haplocryepts
Scoop-----	Loamy-skeletal, isotic, frigid Vitrandic Haploxerolls
Setill-----	Loamy-skeletal, isotic, mesic Vitrandic Argixerolls
Shalrock-----	Loamy-skeletal, isotic, frigid Vitrandic Haploxerolls
Sinlahekin-----	Loamy-skeletal, isotic, mesic Vitrandic Haploxerolls
Sitdown-----	Sandy-skeletal, isotic Haploxerandic Haplocryepts
Skaha-----	Sandy-skeletal, mixed, mesic Xeric Torriorthents
Smokejump-----	Loamy-skeletal, isotic Andic Dystrocryepts
Stapaloop-----	Coarse-loamy, isotic, frigid Vitrandic Haploxerepts
Stemilt-----	Loamy-skeletal, isotic, frigid Vitrandic Argixerolls
Stepstone-----	Ashy over sandy or sandy-skeletal, glassy over isotic, frigid Typic Vitrixerands

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Table 12.--Taxonomic Classification of the Soils--Continued

Soil name	Family or higher taxonomic class
Storer-----	Loamy-skeletal, mixed, superactive, mesic Typic Haploxerolls
Strat-----	Loamy-skeletal, mixed, superactive, mesic Calcic Haploxerolls
Swakane-----	Loamy-skeletal, mixed, superactive, mesic Lithic Ultic Haploxerolls
Sycreek-----	Loamy-skeletal, isotic, frigid Vitrandic Argixerolls
Synarep-----	Ashy, glassy, mesic Typic Vitrikerands
Thout-----	Loamy-skeletal, isotic, frigid Vitrandic Haploxerepts
Thow-----	Ashy, glassy, frigid Typic Vitrikerands
Thripp-----	Coarse-loamy, isotic, frigid Vitrandic Haploxerolls
Thuso-----	Loamy-skeletal, mixed, superactive, mesic Vitrandic Haploxerolls
Toats-----	Loamy-skeletal, mixed, superactive Vitrikerandic Humicryepts
Tonasket-----	Coarse-loamy, mixed, superactive, mesic Calcic Haploxerolls
Torboy-----	Sandy, isotic, frigid Vitrandic Haploxerepts
Treebutte-----	Loamy-skeletal, isotic Lithic Haplocryepts
Twentymile-----	Loamy-skeletal, isotic Andic Dystrocryepts
Typic Humicryepts-----	Typic Humicryepts
Vallan-----	Loamy, mixed, superactive, frigid Lithic Haploxerepts
Vanbrunt-----	Loamy-skeletal, isotic, mesic Vitrandic Haploxerolls
Verhart-----	Loamy-skeletal, isotic Vitrikerandic Haplocryepts
Veridge-----	Loamy-skeletal, isotic, frigid Andic Haploxerepts
Vinegar-----	Ashy, glassy, frigid Typic Vitrikerands
Vingulch-----	Ashy over loamy-skeletal, glassy over isotic, frigid Typic Vitrikerands
Vitrandic Haploxerepts---	Vitrandic Haploxerepts
Vitrandic Humicryepts---	Vitrandic Humicryepts
Vitrikerandic Haplocryepts-----	Vitrikerandic Haplocryepts
Wadams-----	Ashy over sandy or sandy-skeletal, glassy over mixed, mesic Typic Vitrikerands
Wagberg-----	Loamy-skeletal, mixed, superactive, mesic Vitrandic Haploxerolls
Wapal-----	Sandy-skeletal, isotic, frigid Vitrandic Haploxerepts
Wellsfar-----	Loamy-skeletal, isotic Vitrikerandic Haplocryepts
Wenner-----	Fine-loamy, mixed, superactive, mesic Vitrandic Argixerolls
Wilder-----	Sandy, isotic, frigid Vitrandic Haploxerolls
Wilma-----	Loamy-skeletal, isotic, frigid Andic Haploxerepts
Winsand-----	Loamy-skeletal, isotic Vitrikerandic Haplocryepts
Winthrop-----	Sandy-skeletal, mixed, mesic Entic Ultic Haploxerolls
Wynhoff-----	Loamy-skeletal, mixed, superactive, mesic Typic Haploxerolls
Xerofluvents-----	Xerofluvents
Yellcreek-----	Loamy-skeletal, isotic, frigid Vitrandic Haploxerolls

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