



A product 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 participants

Custom Soil Resource Report for Umatilla County Area, Oregon, and Umatilla National Forest, Oregon



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is 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?agency=nrcs>) 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.

The National Cooperative Soil Survey is 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 (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Soil Data Mart Web site or the NRCS Web Soil Survey. The Soil Data Mart is the data storage site for the official soil survey information.

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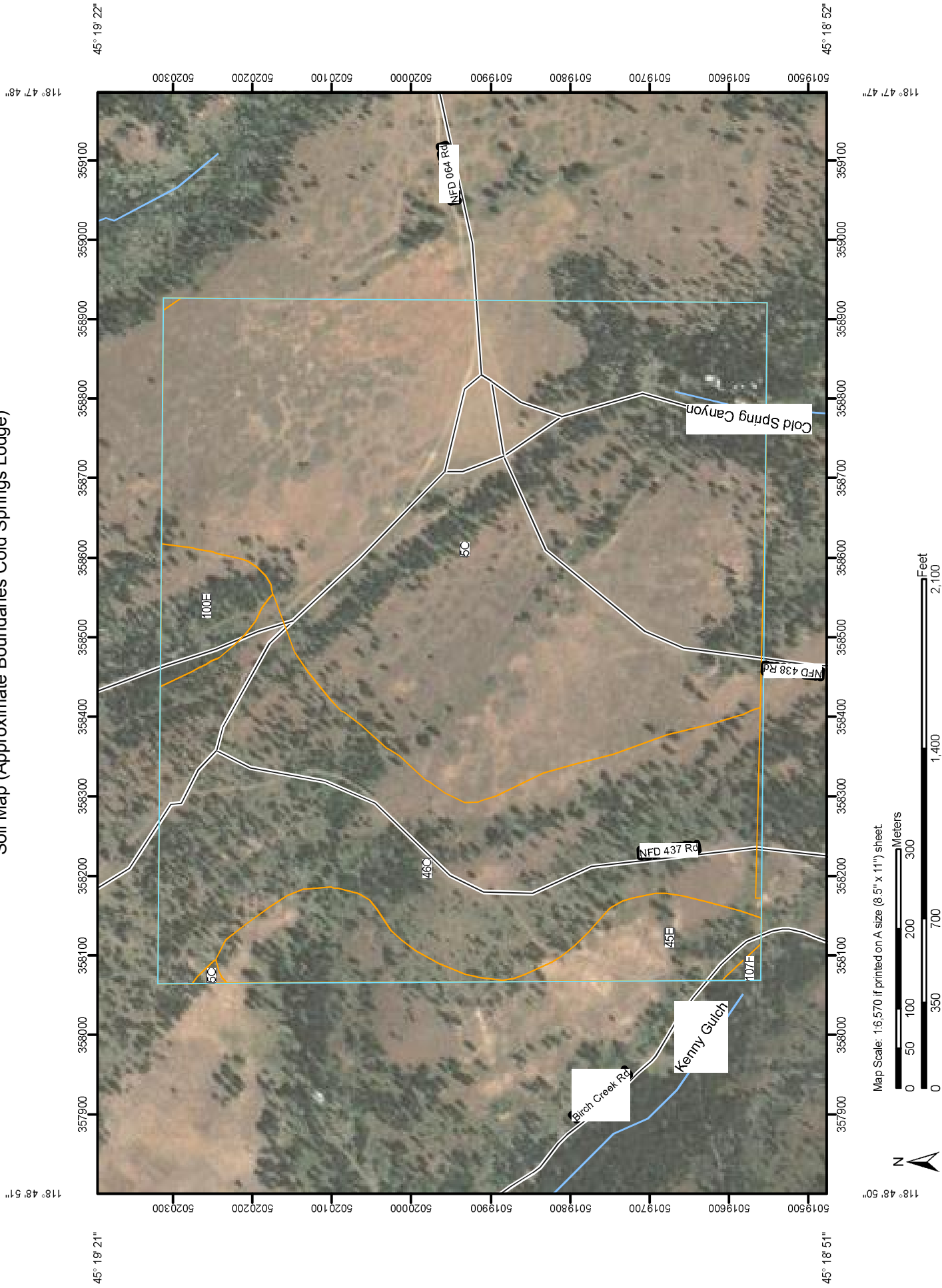
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Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map (Approximate Boundaries Cold Springs Lodge)



MAP INFORMATION

Map Scale: 1:6,570 if printed on A size (8.5" x 11") sheet.
 The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
 Coordinate System: UTM Zone 11N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Umatilla County Area, Oregon
 Survey Area Data: Version 7, Feb 9, 2010





































Soil Survey Area: Umatilla National Forest, Oregon
 Survey Area Data: Not available

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Date(s) aerial images were photographed: 7/23/2005

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

MAP LEGEND

- Area of Interest (AOI)
 - Area of Interest (AOI) 
- Soils 
- Soil Map Units
 - Very Stony Spot 
 - Wet Spot 
 - Other 
- Special Point Features
 - Blowout 
 - Borrow Pit 
 - Clay Spot 
 - Closed Depression 
 - Gravel Pit 
 - Gravelly Spot 
 - Landfill 
 - Lava Flow 
 - Marsh or swamp 
 - Mine or Quarry 
 - Miscellaneous Water 
 - Perennial Water 
 - Rock Outcrop 
 - Saline Spot 
 - Sandy Spot 
 - Severely Eroded Spot 
 - Sinkhole 
 - Slide or Slip 
 - Sodic Spot 
 - Spoil Area 
 - Stony Spot 
- Special Line Features
 - Gully 
 - Short Steep Slope 
 - Other 
- Political Features
 - Cities 
- Water Features
 - Streams and Canals 
- Transportation
 - Rails 
 - Interstate Highways 
 - US Routes 
 - Major Roads 
 - Local Roads 

Map Unit Legend (Approximate Boundaries Cold Springs Lodge)

Umatilla County Area, Oregon (OR667)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
5C	Albee-Bocker-Anatone complex, 2 to 15 percent slopes	96.3	59.8%
45E	Klicker very stony silt loam, 20 to 40 percent slopes	11.6	7.2%
46C	Klicker-Anatone-Bocker complex, 2 to 15 percent slopes	48.1	29.9%
100E	Tolo-Klicker association, 15 to 35 percent slopes	4.3	2.6%
107F	Umatilla-Kahler association, 35 to 70 percent slopes	0.3	0.2%
Subtotals for Soil Survey Area		160.5	99.7%
Totals for Area of Interest		161.0	100.0%

Umatilla National Forest, Oregon (OR607)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
No soil data available for this soil survey area.			
Subtotals for Soil Survey Area		—	—
Totals for Area of Interest		161.0	100.0%

Map Unit Descriptions (Approximate Boundaries Cold Springs Lodge)

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

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

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a

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particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. 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 important soil properties and qualities.

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

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

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

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

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

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

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

Umatilla County Area, Oregon

5C—Albee-Bocker-Anatone complex, 2 to 15 percent slopes

Map Unit Setting

Elevation: 3,500 to 5,200 feet
Mean annual precipitation: 17 to 35 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 60 to 110 days

Map Unit Composition

Albee and similar soils: 40 percent
Bocker and similar soils: 30 percent
Anatone and similar soils: 20 percent

Description of Albee

Setting

Landform: Patterned ground on plateaus
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loess and volcanic ash mixed with colluvium derived from basalt

Properties and qualities

Slope: 2 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 5.1 inches)

Interpretive groups

Land capability (nonirrigated): 3e
Ecological site: MOUNTAIN LOAMY 17-24 PZ (R009XY018OR)

Typical profile

0 to 10 inches: Silt loam
10 to 20 inches: Silt loam
20 to 28 inches: Silt loam
28 to 32 inches: Bedrock

Description of Bocker

Setting

Landform: Patterned ground on plateaus
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loess and volcanic ash mixed with residuum weathered from basalt

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Properties and qualities

Slope: 2 to 15 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 0.7 inches)

Interpretive groups

Land capability (nonirrigated): 7s
Ecological site: MOUNTAIN VERY SHALLOW 13+ PZ (R009XY027OR)

Typical profile

0 to 4 inches: Very cobbly silt loam
4 to 7 inches: Extremely cobbly loam
7 to 11 inches: Unweathered bedrock

Description of Anatone

Setting

Landform: Patterned ground on plateaus
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loess mixed with colluvium and residuum derived from basalt

Properties and qualities

Slope: 2 to 15 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 1.2 inches)

Interpretive groups

Land capability (nonirrigated): 7s
Ecological site: MOUNTAIN SHALLOW 13+ PZ (R009XY022OR)

Typical profile

0 to 5 inches: Very cobbly silt loam
5 to 12 inches: Extremely cobbly loam
12 to 16 inches: Unweathered bedrock

45E—Klicker very stony silt loam, 20 to 40 percent slopes

Map Unit Setting

Elevation: 3,000 to 5,000 feet

Mean annual precipitation: 17 to 40 inches

Mean annual air temperature: 39 to 45 degrees F

Frost-free period: 60 to 100 days

Map Unit Composition

Klicker and similar soils: 70 percent

Description of Klicker

Setting

Landform: Hillslopes

Landform position (two-dimensional): Backslope, shoulder

Landform position (three-dimensional): Side slope

Down-slope shape: Linear, concave

Across-slope shape: Linear

Parent material: Loess and volcanic ash mixed with colluvium from basalt

Properties and qualities

Slope: 20 to 40 percent

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

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water capacity: Low (about 3.2 inches)

Interpretive groups

Land capability (nonirrigated): 7s

Typical profile

0 to 1 inches: Slightly decomposed plant material

1 to 8 inches: Very stony ashy silt loam

8 to 22 inches: Very cobbly silty clay loam

22 to 26 inches: Unweathered bedrock

46C—Klicker-Anatone-Bocker complex, 2 to 15 percent slopes

Map Unit Setting

Elevation: 3,300 to 5,000 feet

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Mean annual precipitation: 18 to 35 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 60 to 100 days

Map Unit Composition

Klicker and similar soils: 50 percent
Anatone and similar soils: 25 percent
Bocker and similar soils: 15 percent

Description of Klicker

Setting

Landform: Plateaus
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loess and volcanic ash mixed with colluvium from basalt

Properties and qualities

Slope: 2 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.2 inches)

Interpretive groups

Land capability (nonirrigated): 7s

Typical profile

0 to 1 inches: Slightly decomposed plant material
1 to 8 inches: Very stony ashy silt loam
8 to 22 inches: Very cobbly silty clay loam
22 to 26 inches: Unweathered bedrock

Description of Anatone

Setting

Landform: Plateaus
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loess mixed with colluvium and residuum derived from basalt

Properties and qualities

Slope: 2 to 15 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None

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Frequency of ponding: None
Available water capacity: Very low (about 1.2 inches)

Interpretive groups

Land capability (nonirrigated): 7s
Ecological site: MOUNTAIN SHALLOW 13+ PZ (R009XY022OR)

Typical profile

0 to 5 inches: Very cobbly silt loam
5 to 12 inches: Extremely cobbly loam
12 to 16 inches: Unweathered bedrock

Description of Bocker

Setting

Landform: Plateaus
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loess and volcanic ash mixed with residuum weathered from basalt

Properties and qualities

Slope: 2 to 15 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 0.7 inches)

Interpretive groups

Land capability (nonirrigated): 7s
Ecological site: MOUNTAIN VERY SHALLOW 13+ PZ (R009XY027OR)

Typical profile

0 to 4 inches: Very cobbly silt loam
4 to 7 inches: Very cobbly silt loam
7 to 11 inches: Unweathered bedrock

100E—Tolo-Klicker association, 15 to 35 percent slopes

Map Unit Setting

Elevation: 3,000 to 4,500 feet
Mean annual precipitation: 20 to 40 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 60 to 100 days

Map Unit Composition

Tolo and similar soils: 40 percent
Klicker and similar soils: 30 percent

Description of Tolo

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Volcanic ash over mixed loess and colluvium derived from basalt

Properties and qualities

Slope: 15 to 35 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: High (about 9.9 inches)

Interpretive groups

Land capability (nonirrigated): 6e

Typical profile

0 to 1 inches: Slightly decomposed plant material
1 to 5 inches: Silt loam
5 to 23 inches: Silt loam
23 to 61 inches: Silt loam

Description of Klicker

Setting

Landform: Hillslopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loess and volcanic ash mixed with colluvium from basalt

Properties and qualities

Slope: 15 to 35 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.2 inches)

Interpretive groups

Land capability (nonirrigated): 7s

Typical profile

0 to 1 inches: Slightly decomposed plant material
1 to 8 inches: Very stony ashy silt loam
8 to 22 inches: Very cobbly silty clay loam
22 to 26 inches: Unweathered bedrock

107F—Umatilla-Kahler association, 35 to 70 percent slopes

Map Unit Setting

Elevation: 2,000 to 5,000 feet
Mean annual precipitation: 15 to 45 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 30 to 90 days

Map Unit Composition

Umatilla and similar soils: 50 percent
Kahler and similar soils: 25 percent

Description of Umatilla

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loess and volcanic ash over colluvium from basalt

Properties and qualities

Slope: 35 to 70 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: High (about 9.6 inches)

Interpretive groups

Land capability (nonirrigated): 7e

Typical profile

0 to 2 inches: Slightly decomposed plant material
2 to 14 inches: Loam
14 to 30 inches: Cobbly clay loam
30 to 62 inches: Very cobbly clay loam

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Description of Kahler

Setting

Landform: Hillslopes

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Concave

Across-slope shape: Concave, linear

Parent material: Volcanic ash and loess mixed with colluvium from basalt

Properties and qualities

Slope: 35 to 70 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water capacity: High (about 10.7 inches)

Interpretive groups

Land capability (nonirrigated): 6e

Typical profile

0 to 1 inches: Slightly decomposed plant material

1 to 21 inches: Silt loam

21 to 38 inches: Silty clay loam

38 to 61 inches: Cobbly silty clay loam

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