GEOLOGY AND SOILS REPORT
HILLSIDE DEVELOPMENT REGULATIONS
TETON COUNTY, IDAHO

LONE PINE SPRINGS SUBDIVISION
3955 S 2000 E
TETON COUNTY, IDAHO

PREPARED
FOR
BIG GREEN RANCH LLC
CHICAGO, ILLINOIS

PREPARED
BY
NELSON ENGINEERING
VICTOR, IDAHO

APRIL 2023
Project No. 22-181

TABLE OF CONTENTS

GENERAL AND PROJECT DESCRIPTION

This is the report of a geologic and soils site assessment performed at the proposed Lone Pine Springs Subdivision in Teton County, Idaho. Teton County, Idaho Hillside Development Regulations require a "Geology and Soils Report" as part of the subdivision application. The report addresses the following excerpt from the Land Development Regulations:

"all available information from state or federal agencies, as well as any available local studies, regarding the nature and mechanical properties of existing soils and the underlying hydrology and geology of the site. It will also include a statement from a professional engineer as to whether the geology, hydrology, or soils on the parcel create an increased risk of danger to human life, damage to property, soil erosion, or contamination of surface or groundwater when compared with the site prior to development. If the Report identifies additional risks, it shall identify potential steps, if any, that could effectively reduce or mitigate those risks."

SITE CONDITIONS

Parcel Description

The property proposed for subdivision is a 117.3-acre parcel located on the lower western slopes of the Teton Mountain Range in southern central Teton Valley. Three lots are proposed as shown on Drawing 1 in the Appendix.

The parcel spans the topographic break between flatter valley and steeper mountain slopes. Moderately sloping alluvial fan at the base of the mountains occupies the western third, steeper slopes of the Teton Range occupy the western two thirds. Sorensen Creek emerges from a canyon to the east and flows from east to west along the southwest parcel corner. The canyon mouth is located on the south property boundary at the top of the alluvial fan.

Pasture and upland grasses occupy the fan, aspen and conifer forest cover the steeper mountain side. Existing structures are two agricultural outbuildings and a silo along S 2000 E. The parcel is bounded by residential and agricultural parcels to the north, south, and west and the Wyoming State line and Targhee National Forest to the east. Access is from S 2000 E along the west property boundary.

Geologic and Soil Mapping

The area's surface geology is mapped on the USGS "Geologic Map of the Driggs Quadrangle, Bonneville and Teton Counties, Idaho, and Teton County, Wyoming," Pampeyan, E.H., Schroeder, M.L., Schell, E.M., and Cressman, E.R., 1967. Mapped surface geology is shown on Figure 1. Mapped deposits on the western third of the parcel are "Qf – Alluvial fan deposits." These deposits are commonly described as water transported gravel, sand, silt, and clay the spread from the mouths of canyons and drainages. The majority of eastern hillside within the parcel is mapped as "Qc – Colluvium" which is commonly described as clay to boulder sized slope wash from upslope formations. Mapped along the property boundary centrally within the property are "Qg – Older gravels – Poorly sorted moderately well cemented coarse gravel" and "Tk – Kirkham Hollow Volcanics – Mainly pinkish to yellowish-gray compact rhyolitic vitric crystal tuff." Mapped at the southeast corner of the parcel is "Ppu – Upper unit of the Phosphoria Formation includes: Shedhorn Sandstone,

brownish-gray fine-grained quartz sandstone…Tosi Chert Member of Phosphoria Formation, dark- to light-colored chert…Retort Phosphatic Shale Member of Phosphoria Formation, black mudstone and thin beds of phosphorite…Franson Member of Park City Formation, light-gray aphanitic dolomite containing lenses and nodules of black chert."

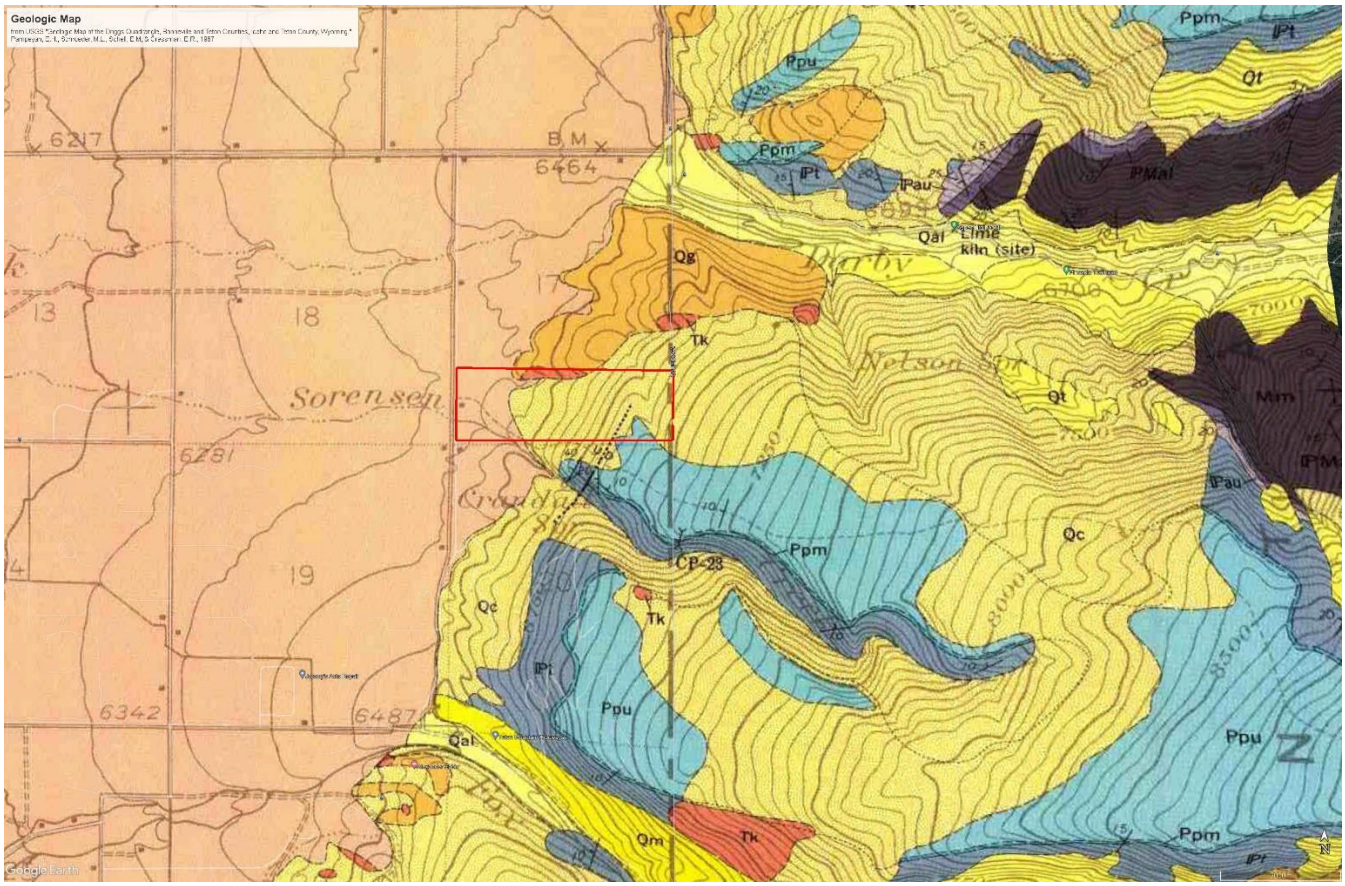

Figure 1. Geologic Map Showing Approximate Subdivision Boundary

Soils mapped in the western third on the alluvial fan are the Alpine-Badgerton complex, Alpine-St. Anthony complex, Coldfeet gravelly loam and the Greys-Dranyon complex. The majority of the alluvial fan soils are the Alpine-Badgerton complex and Alpine-St. Anthony complex both of which are mixed gravelly alluvial deposits. The Coldfeet gravelly loam is mapped on the south where Sorensen Creek enters the property and is a gravelly colluvium. The Greys-Dranyon complex on 2 to 12 percent slopes is mapped along the north property boundary at the eastern/upslope margin of the alluvial fan and is composed of silt loess and silt mixed with gravel and rock colluvium.

Mapped soils on the mountain slopes include the Greys-Dranyon complex, the Beehunt-Conner complex, and the Edgway-Koffgo-Povey association. The majority of the mountain area is the Greys-Dranyon complex on 12 to 30 percent slopes as described above. The Beehunt-Conner complex is mapped along the northern property boundary on the lower portion of the hillside and is gravelly colluvium with shallow bedrock. The Edgway-Koffgo-Povey association is mapped along the eastern property boundary and is composed of gravelly colluvium.

The NRCS Soil Survey soils report for the parcel is included in the Appendix.

Geologic Hazards

Landslide
The Wyoming Geologic Survey has mapped landslides in Wyoming on the western slope of the Teton Mountain Range. The landslide mapping does not indicate landslides within 1 mile of the site, landslides are mapped to the northeast on very steep slopes in Darby Canyon. Similar terrain does not exist in the parcel. Composition and slopes within the parcel lead us to conclude landslide risk is negligible.

Debris Flows
Sorensen Creek is a secondary drainage that drains the western slope of the Teton Mountain Range between more the prominent drainages of Darby Creek to the north and Fox Creek to the south. Flooding and debris flows from small canyons like Sorensen Creek are most often caused by localized high intensity rainfall or snowmelt. In this type of flash flood event, flash flooding causes canyon slope soils become saturated and unstable resulting in debris flows with entrained mud, soils, and debris emanating from the canyon and flowing down the alluvial fan. Another potential mechanism for debris flooding is damming of the canyon by a slump landslide. During the next streamflow event, the dam may overtop and breach resulting in flash flooding and debris flow. Google Earth aerial photography dating to the 1990's does not show any indications of slumps or debris flows generated by Sorensen Creek.

Alluvial fan features are notoriously difficult to assess in terms of long-term flood hazards. This is mainly due to shifting channel configurations and flow paths through time caused by natural areas of flow expansion and sediment deposition. An evaluation of alluvial fan flooding by the National Research Council (NRC 1996), resulted in the following definition for alluvial fan flooding:

"Alluvial fan flooding is characterized by flow path uncertainty so great that this uncertainty cannot be set aside in realistic assessments of flood risk or in the reliable mitigation of the hazard. An alluvial fan flooding hazard is indicated by three related criteria: (a) flow path uncertainty below the hydrographic apex, (b) abrupt deposition and ensuing erosion of sediment as a stream or debris flow loses its competence to carry material eroded from as steeper, upstream source area, and (c) an environment where the combination of sediment availability, slope, and topography creates an ultrahazardous condition for which elevation on fill will not reliably mitigate the risk."

Near Sorensen Creek, the hazard of alluvial fan flooding is likely low as evidenced by the absence of evidence of severe flood events observed on the ground and through historic aerial photography. To mitigate the already low risk, placement of homes and development on the southern lot should maximize distance from the canyon mouth. Farther down the fan to the west, energy and depth of flows will be low. Additional measures to mitigate flooding may be indicated and could consist of berms and swales to route flooding. Locating development up the slope from the canyon mouth, out of the path of flooding, will also obviate the risk.

Seismic Hazard
Teton Valley is located within the Intermountain Seismic Belt, a zone extending from southern Utah through eastern Idaho and western Montana and encompassing western

Idaho and the Teton Range as referenced by Robert B. Smith and Walter J. Arabasz in "Seismicity of the Intermountain Seismic Belt, Neotectonics of North America," 1991. The USGS Earthquake Hazards Program has mapped Quaternary faults and folds in the United States as displayed on Google Earth with the following active faults near the project site: the Teton Fault, Philips Canyon Faults, Rexburg Fault, Heise Fault, and secondary faults in the Jackson Hole Valley. In particular, the Teton Fault is thought to be capable of producing major earthquakes of a magnitude of six or greater. The USGS Earthquake Hazards Program shows the Teton Fault running along the base of the east side of the range about 12 miles to the east. Multiple minor earthquakes with epicenters near the site have occurred in recent years (USGS Earthquake Database).

The USGS "Geologic Map of the Driggs Quadrangle, Bonneville and Teton Counties, Idaho, and Teton County, Wyoming," Pampeyan, E.H., Schroeder, M.L., Schell, E.M., and Cressman, E.R., 1967, shows an unnamed fault trending northeast to southwest through Sorensen Creek about 700 feet south of the property and the inferred (dashed) trace of the fault extends into the southeast corner of the property as shown on Figure 1. The east side of the fault is downthrown and west side of the fault is upthrown. This fault is not considered to be active by the USGS. It is not listed in the Quaternary Fault and Fold Database.

The seismic hazard within the proposed subdivision is similar to that of other developed areas within the County.

Hydrologic Assessment

Groundwater

Area groundwater studies including "Ground Water in the Upper Part of the Teton Valley, Teton Counties, Idaho and Wyoming," Geological Survey Water-Supply Paper 1789, Chabot Kilburn, 1964 and "Final Report – Ground-Water Model for the Upper Teton Watershed," Nicklin Earth & Water, Inc. 2003, focus on groundwater in the unconfined aquifer within Teton Valley with less information along the margins of the valley including the project site.

A review of area water well logs available from the Idaho Department of Water Resources indicates variable hydrologic conditions will be encountered across the property. Well driller logs indicate alluvial fan deposits, Tertiary volcanic deposit, and Paleozoic shale and limestone were encountered while drilling wells in the vicinity of the property. Area wells both in the alluvial fan and within the lower slopes of the Teton Mountain Range are completed in confined and unconfined aquifers within bedrock deposits at variable depths.

Well logs at two residences within the alluvial fan at the southwest property corner show variable conditions, an older well, Barry Silverstein (Permit #773879) indicates an unconfined aquifer within "clay with boulders" alluvial fan deposits and fractured shale with static water level of 50 feet and total depth of 160 feet. An adjacent well, Andrew Carpenter (Permit #883925), is completed in a deeper confined aquifer within fractured bedrock below alluvial fan and shale deposits found in the Silverstein well with static water level of 160 feet and total depth of 320 feet.

Variable conditions will also be found on the hillside. The well log for Dan Willert (Permit #702960) within the Crandall Springs subdivision on the terrace south of the property

indicates groundwater was found in various zones of fractured bedrock from 100 feet to the bottom of the well at 205 feet. Static water level was 90 feet indicating artesian head. Further south in the Sorensen Creek Subdivision numerous well logs show variable conditions throughout the subdivision. Lot 2 (Dean Brown, permit #885994) at the base of the hillside was completed in fractured "loose rock" with a static water level of 95 feet and total depth of 255 feet. Adjacent Lot 3 (Carl Jordan, permit #860176) was a flowing artesian well completed in fractured bedrock with a total depth of 140 feet. Lot 6 (Nathan Ray, permit #896445) was completed in bedrock with static water level of 55 feet and total depth of 260 feet. Lot 9 (Randy Alfono, permit #825727) was completed in bedrock with a static water level of 140 feet and total depth of 280 feet. Wells within the subdivision further upslope to the east are deeper with completion in bedrock. Variable static water levels between 250 and 410 feet and total well depths between 480 and 640 feet were recorded on the upslope wells.

Conclusion

Subdivision of the parcel into three residential lots will not increase risk of danger to human life, damage to property, soil erosion, or contamination of surface or groundwater when compared with the site prior to development provide the County, State, and Federal regulations and codes for grading and erosion, wastewater disposal, and other pertinent codes are followed in both design and construction.

WARRANTY AND LIMITING CONDITIONS

The field observations and research reported herein are considered sufficient in detail and scope to form a reasonable basis for the purposes cited above. Nelson Engineering warrants that the findings and conclusions contained herein have been promulgated in accordance with generally accepted professional geologic engineering practice in the fields of foundation engineering, soil mechanics, and engineering geology, only for the site described in this report. No other warranties are implied or expressed. There is a distinct possibility that conditions may exist which could not be identified within the scope of this research effort. The report is also limited to the information available at the time it was prepared. In the event additional information is provided to Nelson Engineering following this report, it will be forwarded to the client in the form received for evaluation by the client. The conclusions and recommendations presented in this report are based on the agreed-upon scope of work outlined in the report and the contract for professional services between Client and Nelson Engineering ("Consultant"). Use or misuse of this report, or reliance upon the findings hereof by any parties other than the Client, is at their own risk. Neither the Client nor Consultant may make any representation of warranty to such other parties as to the accuracy or completeness of this report or the suitability of its use by such other parties for any purpose whatsoever, known or unknown, to the Client or Consultant. Neither the Client nor Nelson Engineering shall have any liability to or indemnifies or holds harmless third parties for any losses incurred, by the actual or purported use or misuse of this report. No other warranties are implied or expressed.

Philip Gyr, PE
Geotechnical Engineer

APPENDIX

DRAWINGS

TETON MEADOWS LLC
RP04N46E174200

PARENT PARCEL
BOUNDARY

TETON MEADOWS LLC
RP04N46E188400

LOT 3
44.00 ACRES

LOT 2
44.16 ACRES

LOT 1
29.17 ACRES

PROPOSED
DRIVEWAY, TYP.

SUBDIVISION
LOT BOUNDARY,
TYP.

TARGHEE NATIONAL FOREST

COUNTY ROAD S 2000 E

WILLERT, DANIEL T
FAMILY TRUST
RP001950000010

WILLERT FAMILY TRUST
RP0019500000R0

WILLERT, DANIEL T FAMILY TRUST
RP04N46E200603

ADJACENT PROPERTY
BOUNDARY, TYP.

N
E
W
S

0 300 600

		REV.
DATE	3/17/2023	
SURVEYED	NE	
ENGINEERED	AP	
DRAWN	AP	
CHECKED	PG	
APPROVED	PG	

NELSON ENGINEERING
P.O. BOX 1599, JACKSON WYOMING (307) 733-2087

DRAWING TITLE
SITE PLAN

JOB TITLE
LONE PINE SPRINGS SUBDIVISION
3955 S 2000 E
GEOLOGY AND SOILS REPORT

DRAWING NO
1

JOB NO
22-181

USDA-NRCS
SOIL SURVEY REPORT

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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 Targhee National Forest, Idaho and Wyoming, and Teton Area, Idaho and Wyoming

Lone Pine Springs Subdivision

February 16, 2023

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://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

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 Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

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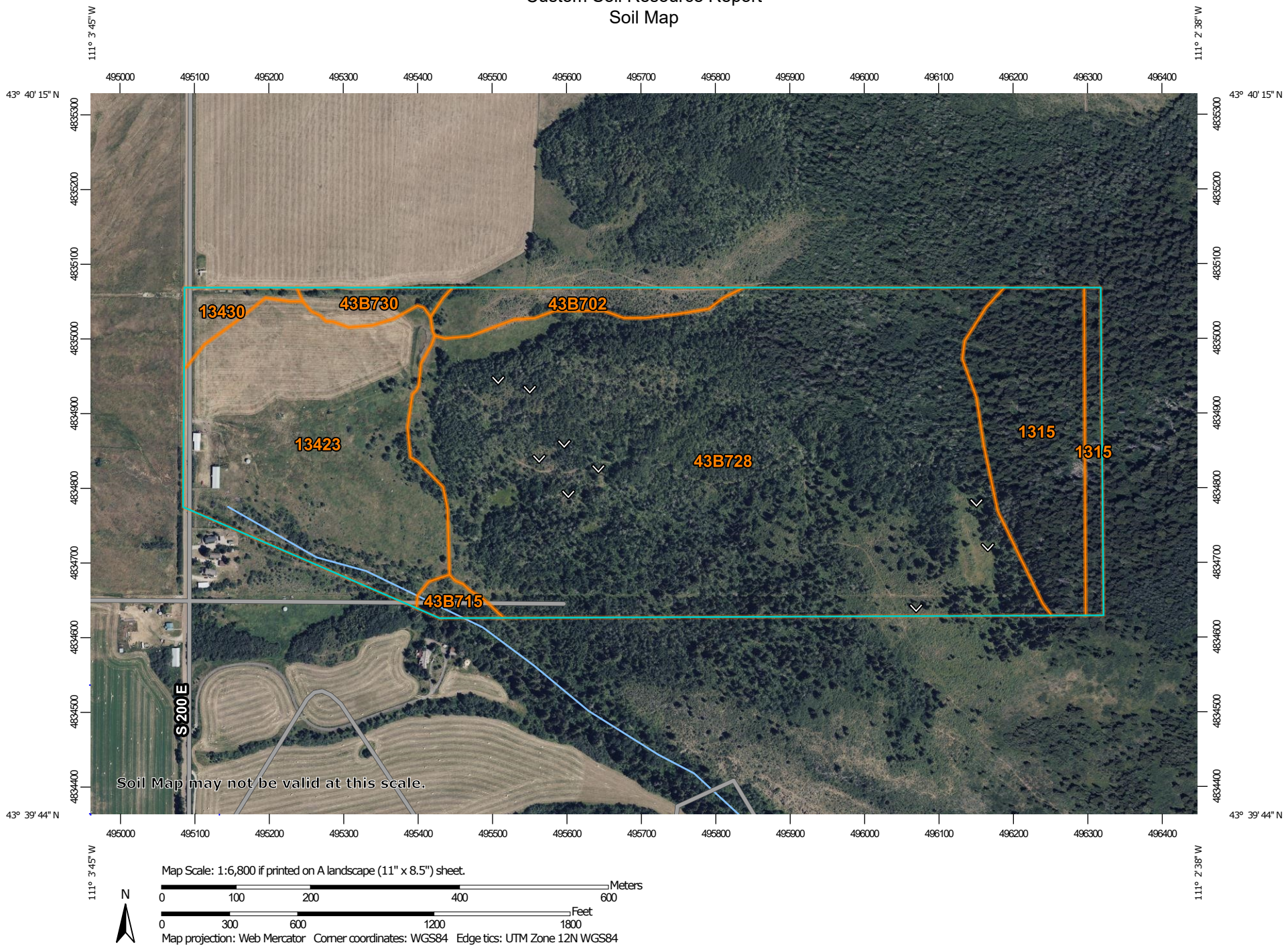
Contents

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



Map Scale: 1:6,800 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0, 100, 200, 400, 600

Feet: 0, 300, 600, 1200, 1800

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 12N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

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
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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 map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

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

Soil Survey Area: Targhee National Forest, Idaho and Wyoming
Survey Area Data: Version 18, Sep 6, 2022

Soil Survey Area: Teton Area, Idaho and Wyoming
Survey Area Data: Version 11, Sep 2, 2022

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.

MAP LEGEND

MAP INFORMATION

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 20, 2022—Jul 25, 2022

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 Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1315	Edgway-Koffgo-Povey association, 15 to 50 percent slopes	2.5	2.0%
Subtotals for Soil Survey Area		**2.5**	**2.0%**
Totals for Area of Interest		**128.8**	**100.0%**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
43B702	Beehunt-Conner complex, 20 to 60 percent slopes	4.0	3.1%
43B715	Coldfeet gravelly loam, 20 to 60 percent slopes	1.0	0.8%
43B728	Greys-Dranyon complex, 12 to 30 percent slopes	78.0	60.6%
43B730	Greys-Dranyon complex, 2 to 12 percent slopes	1.9	1.5%
1315	Edgway-Koffgo-Povey association, 15 to 50 percent slopes	13.3	10.3%
13423	Alpine-Badgerton complex, 8 to 20 percent slopes	26.3	20.4%
13430	Alpine-St. Anthony complex, 0 to 2 percent slopes	1.8	1.4%
Subtotals for Soil Survey Area		**126.3**	**98.0%**
Totals for Area of Interest		**128.8**	**100.0%**

Map Unit Descriptions

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 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.

Targhee National Forest, Idaho and Wyoming

1315—Edgway-Koffgo-Povey association, 15 to 50 percent slopes

Map Unit Setting

National map unit symbol: 51jc
Elevation: 6,000 to 9,600 feet
Mean annual precipitation: 20 to 55 inches
Mean annual air temperature: 32 to 39 degrees F
Frost-free period: 10 to 50 days
Farmland classification: Not prime farmland

Map Unit Composition

Edgway, abla/osch, pamy, and similar soils: 50 percent
Povey, artrv-syor2/feid, and similar soils: 15 percent
Koffgo, abla/vagl, pamy, and similar soils: 15 percent
Minor components: 4 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Edgway, Abla/osch, Pamy

Setting

Landform: Ridges, mountain slopes, hillslopes
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Colluvium

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 12 inches: ashy silt loam
AB - 12 to 20 inches: silt loam
Bt - 20 to 60 inches: very cobbly silt loam

Properties and qualities

Slope: 15 to 40 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 (0.20 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: F043BP910MT - Upland Cool Woodland Group, F043BP610ID - Upland Cool Woodland Group
Other vegetative classification: Abies lasiocarpa/Osmorhiza berteroi; Paxistima myrsinites (TF031)
Hydric soil rating: No

Description of Povey, Artrv-syor2/feid

Setting

Landform: Mountain slopes, hillslopes
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Colluvium

Typical profile

A - 0 to 27 inches: gravelly loam
Bw1 - 27 to 39 inches: very gravelly sandy loam
Bw2 - 39 to 60 inches: extremely gravelly sandy loam

Properties and qualities

Slope: 30 to 50 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 supply, 0 to 60 inches: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: F043BP910MT - Upland Cool Woodland Group, F043BP610ID - Upland Cool Woodland Group
Other vegetative classification: Artemisia tridentata Nutt. ssp. vaseyana-Symphoricarpos oreophilus/Festuca idahoensis (TF009)
Hydric soil rating: No

Description of Koffgo, Abla/vagl, Pamy

Setting

Landform: Hillslopes, mountain slopes
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loess over colluvium derived from igneous rock

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 8 inches: ashy silt loam
Bw - 8 to 17 inches: very gravelly silt loam
BC - 17 to 56 inches: extremely cobbly sandy loam
C - 56 to 60 inches: cobbles

Properties and qualities

Slope: 30 to 50 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 supply, 0 to 60 inches: Moderate (about 6.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: F043BP910MT - Upland Cool Woodland Group, F043BP610ID - Upland Cool Woodland Group
Other vegetative classification: Abies lasiocarpa/Vaccinium membranaceum; Paxistima myrsinites (TF032)
Hydric soil rating: No

Minor Components

Cryaquolls, salix/graminoid

Percent of map unit: 4 percent
Landform: Draws
Hydric soil rating: Yes

Teton Area, Idaho and Wyoming

43B702—Beehunt-Conner complex, 20 to 60 percent slopes

Map Unit Setting

National map unit symbol: 2lnxh
Elevation: 6,030 to 7,590 feet
Mean annual precipitation: 18 to 28 inches
Mean annual air temperature: 43 to 46 degrees F
Frost-free period: 70 to 100 days
Farmland classification: Not prime farmland

Map Unit Composition

Beehunt, very bouldery surface, and similar soils: 45 percent
Conner, extremely stony surface, and similar soils: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Beehunt, Very Bouldery Surface

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope, footslope
Down-slope shape: Concave, linear
Across-slope shape: Linear
Parent material: Colluvium derived from sandstone

Typical profile

A1 - 0 to 8 inches: extremely gravelly loam
A2 - 8 to 21 inches: extremely cobbly loam
BA - 21 to 37 inches: extremely cobbly loam
Bt - 37 to 54 inches: extremely cobbly loam
BC - 54 to 60 inches: extremely cobbly loam

Properties and qualities

Slope: 20 to 60 percent
Surface area covered with cobbles, stones or boulders: 2.5 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
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Very low (about 2.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: R013XY003ID - Steep South 16-22 PZ ARTRV/PSSPS, F043BP609ID - Upland Cold Woodland Group
Hydric soil rating: No

Description of Conner, Extremely Stony Surface

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Shoulder, backslope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Parent material: Colluvium derived from sandstone over residuum weathered from sandstone

Typical profile

A - 0 to 11 inches: very gravelly loam
Bk - 11 to 22 inches: extremely gravelly loam
R - 22 to 31 inches: bedrock

Properties and qualities

Slope: 20 to 60 percent
Surface area covered with cobbles, stones or boulders: 10.0 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
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Very low (about 1.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C
Ecological site: R013XY019ID - Stony Loam 16-22 PZ ARTRV/PSSPS, F043BP609ID - Upland Cold Woodland Group
Hydric soil rating: No

43B715—Coldfeet gravelly loam, 20 to 60 percent slopes

Map Unit Setting

National map unit symbol: 2lv78
Elevation: 6,160 to 7,710 feet
Mean annual precipitation: 21 to 36 inches
Mean annual air temperature: 33 to 40 degrees F
Frost-free period: 20 to 50 days
Farmland classification: Not prime farmland

Map Unit Composition

Coldfeet and similar soils: 75 percent

Minor components: 3 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Coldfeet

Setting
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Down-slope shape: Convex, linear
Across-slope shape: Linear
Parent material: Colluvium derived from sandstone and quartzite

Typical profile
Oi - 0 to 1 inches: slightly decomposed plant material
Oe - 1 to 3 inches: moderately decomposed plant material
A1 - 3 to 7 inches: gravelly loam
A2 - 7 to 12 inches: gravelly loam
E1 - 12 to 21 inches: gravelly fine sandy loam
E2 - 21 to 32 inches: very stony fine sandy loam
Bt1 - 32 to 44 inches: very stony silty clay loam
Bt2 - 44 to 60 inches: extremely stony loam

Properties and qualities
Slope: 20 to 60 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Moderate (about 6.1 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: F043BP609ID - Upland Cold Woodland Group
Other vegetative classification: subalpine fir/blue huckleberry (SC720)
Hydric soil rating: No

Minor Components

Foxcreek
Percent of map unit: 3 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: R013XY050ID - Riparian Wet Meadow SALIX/CAREX
Hydric soil rating: Yes

43B728—Greys-Dranyon complex, 12 to 30 percent slopes

Map Unit Setting

National map unit symbol: 2mhts
Elevation: 6,080 to 7,370 feet
Mean annual precipitation: 21 to 32 inches
Mean annual air temperature: 36 to 40 degrees F
Frost-free period: 35 to 55 days
Farmland classification: Not prime farmland

Map Unit Composition

Greys and similar soils: 50 percent
Dranyon and similar soils: 35 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Greys

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loess

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
A1 - 2 to 3 inches: silt loam
A2 - 3 to 7 inches: silt loam
A3 - 7 to 13 inches: silt loam
A/E - 13 to 16 inches: silt loam
E - 16 to 19 inches: silt loam
Bt1 - 19 to 28 inches: silt loam
Bt2 - 28 to 40 inches: silt loam
Bt3 - 40 to 58 inches: silt loam
Bk - 58 to 60 inches: silt loam

Properties and qualities

Slope: 12 to 30 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Very high (about 12.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6c
Hydrologic Soil Group: C
Ecological site: R013XY016ID - Moist Mountain Loam 20+ PZ POTR, F043BP609ID - Upland Cold Woodland Group
Hydric soil rating: No

Description of Dranyon

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Colluvium derived from sandstone or rhyolite with loess infulence

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A1 - 1 to 4 inches: silt loam
A2 - 4 to 7 inches: silt loam
AB - 7 to 13 inches: silt loam
Bt1 - 13 to 21 inches: gravelly silty clay loam
Bt2 - 21 to 30 inches: very stony silty clay loam
Bt3 - 30 to 40 inches: silty clay loam
Bt4 - 40 to 60 inches: clay loam

Properties and qualities

Slope: 12 to 30 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: High (about 9.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6c
Hydrologic Soil Group: C
Ecological site: R013XY016ID - Moist Mountain Loam 20+ PZ POTR, F043BP609ID - Upland Cold Woodland Group
Hydric soil rating: No

43B730—Greys-Dranyon complex, 2 to 12 percent slopes

Map Unit Setting

National map unit symbol: 2mhwn
Elevation: 6,140 to 6,610 feet
Mean annual precipitation: 21 to 28 inches
Mean annual air temperature: 36 to 40 degrees F
Frost-free period: 35 to 55 days
Farmland classification: Not prime farmland

Map Unit Composition

Greys and similar soils: 50 percent
Dranyon and similar soils: 35 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Greys

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Footslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loess

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
A1 - 2 to 3 inches: silt loam
A2 - 3 to 7 inches: silt loam
A3 - 7 to 13 inches: silt loam
A/E - 13 to 16 inches: silt loam
E - 16 to 19 inches: silt loam
Bt1 - 19 to 28 inches: silt loam
Bt2 - 28 to 40 inches: silt loam
Bt3 - 40 to 58 inches: silt loam
Bk - 58 to 60 inches: silt loam

Properties and qualities

Slope: 2 to 12 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Very high (about 12.6 inches)

Interpretive groups

Land capability classification (irrigated): 6c
Land capability classification (nonirrigated): 6c
Hydrologic Soil Group: C
Ecological site: R013XY016ID - Moist Mountain Loam 20+ PZ POTR, R043BY003ID - Loamy 22+ PZ FEID-PSSPS
Hydric soil rating: No

Description of Dranyon

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Footslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Colluvium derived from sandstone or rhyolite with loess infulence

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A1 - 1 to 4 inches: silt loam
A2 - 4 to 7 inches: silt loam
AB - 7 to 13 inches: silt loam
Bt1 - 13 to 21 inches: gravelly silty clay loam
Bt2 - 21 to 30 inches: very stony silty clay loam
Bt3 - 30 to 40 inches: silty clay loam
Bt4 - 40 to 60 inches: clay loam

Properties and qualities

Slope: 2 to 12 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: High (about 9.5 inches)

Interpretive groups

Land capability classification (irrigated): 6c
Land capability classification (nonirrigated): 6c
Hydrologic Soil Group: C
Ecological site: R013XY016ID - Moist Mountain Loam 20+ PZ POTR, R043BY003ID - Loamy 22+ PZ FEID-PSSPS
Hydric soil rating: No

1315—Edgway-Koffgo-Povey association, 15 to 50 percent slopes

Map Unit Setting

National map unit symbol: 51jc
Elevation: 6,000 to 9,600 feet
Mean annual precipitation: 20 to 55 inches
Mean annual air temperature: 32 to 39 degrees F
Frost-free period: 10 to 50 days
Farmland classification: Not prime farmland

Map Unit Composition

Edgway, abla/osch, pamy, and similar soils: 50 percent
Koffgo, abla/vagl, pamy, and similar soils: 15 percent
Povey, artrv-syor2/feid, and similar soils: 15 percent
Minor components: 4 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Edgway, Abla/osch, Pamy

Setting

Landform: Ridges, mountain slopes, hillslopes
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Colluvium

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 12 inches: ashy silt loam
AB - 12 to 20 inches: silt loam
Bt - 20 to 60 inches: very cobbly silt loam

Properties and qualities

Slope: 15 to 40 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 (0.20 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: F043BP910MT - Upland Cool Woodland Group, F043BP610ID - Upland Cool Woodland Group
Other vegetative classification: Abies lasiocarpa/Osmorhiza berteroi; Paxistima myrsinites (TF031)

Hydric soil rating: No

Description of Povey, Artrv-syor2/feid

Setting

Landform: Mountain slopes, hillslopes
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Colluvium

Typical profile

A - 0 to 27 inches: gravelly loam
Bw1 - 27 to 39 inches: very gravelly sandy loam
Bw2 - 39 to 60 inches: extremely gravelly sandy loam

Properties and qualities

Slope: 30 to 50 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 supply, 0 to 60 inches: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: F043BP910MT - Upland Cool Woodland Group, F043BP610ID - Upland Cool Woodland Group
Other vegetative classification: Artemisia tridentata Nutt. ssp. vaseyana-Symphoricarpos oreophilus/Festuca idahoensis (TF009)
Hydric soil rating: No

Description of Koffgo, Abla/vagl, Pamy

Setting

Landform: Hillslopes, mountain slopes
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loess over colluvium derived from igneous rock

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 8 inches: ashy silt loam
Bw - 8 to 17 inches: very gravelly silt loam
BC - 17 to 56 inches: extremely cobbly sandy loam
C - 56 to 60 inches: cobbles

Properties and qualities

Slope: 30 to 50 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 supply, 0 to 60 inches: Moderate (about 6.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: F043BP910MT - Upland Cool Woodland Group, F043BP610ID - Upland Cool Woodland Group
Other vegetative classification: Abies lasiocarpa/Vaccinium membranaceum; Paxistima myrsinites (TF032)
Hydric soil rating: No

Minor Components

Cryaquolls, salix/graminoid

Percent of map unit: 4 percent
Landform: Draws
Hydric soil rating: Yes

13423—Alpine-Badgerton complex, 8 to 20 percent slopes

Map Unit Setting

National map unit symbol: 1vggx
Elevation: 6,030 to 6,980 feet
Mean annual precipitation: 18 to 26 inches
Mean annual air temperature: 36 to 42 degrees F
Frost-free period: 20 to 90 days
Farmland classification: Not prime farmland

Map Unit Composition

Alpine, high precipitation, and similar soils: 60 percent
Badgerton, rarely flooded, and similar soils: 35 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Alpine, High Precipitation

Setting

Landform: Fan remnants, stream terraces
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Parent material: Mixed alluvium

Typical profile

A1 - 0 to 2 inches: gravelly loam
A2 - 2 to 11 inches: very gravelly loam

ABk - 11 to 17 inches: extremely gravelly loam
Bk - 17 to 25 inches: extremely gravelly sandy loam
Bkq - 25 to 31 inches: extremely gravelly loamy sand
Bk' - 31 to 35 inches: extremely gravelly sandy loam
Bkq' - 35 to 44 inches: extremely gravelly loamy sand
Bk1'' - 44 to 51 inches: extremely gravelly sandy loam
Bk2'' - 51 to 60 inches: gravel

Properties and qualities

Slope: 8 to 20 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
Calcium carbonate, maximum content: 75 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Very low (about 2.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: R043BY009ID - Loamy 16-22 PZ ARTRV/FEID
Hydric soil rating: No

Description of Badgerton, Rarely Flooded

Setting

Landform: Stream terraces
Down-slope shape: Linear
Across-slope shape: Concave, linear
Parent material: Mixed alluvium

Typical profile

A - 0 to 9 inches: loam
AB - 9 to 17 inches: very gravelly loam
BC - 17 to 31 inches: extremely gravelly loamy sand
C1 - 31 to 43 inches: extremely gravelly loamy coarse sand
C2 - 43 to 60 inches: very gravelly sandy loam

Properties and qualities

Slope: 8 to 20 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: NoneRare
Frequency of ponding: None
Calcium carbonate, maximum content: 4 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6c
Hydrologic Soil Group: B
Ecological site: R013XY050ID - Riparian Wet Meadow SALIX/CAREX
Hydric soil rating: No

Minor Components

Redfish, wooded

Percent of map unit: 5 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: R013XY050ID - Riparian Wet Meadow SALIX/CAREX
Hydric soil rating: Yes

13430—Alpine-St. Anthony complex, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 1vghp
Elevation: 5,910 to 6,480 feet
Mean annual precipitation: 16 to 18 inches
Mean annual air temperature: 38 to 44 degrees F
Frost-free period: 50 to 90 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Alpine and similar soils: 50 percent
St. anthony and similar soils: 35 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Alpine

Setting

Landform: Fan remnants, stream terraces
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Parent material: Mixed alluvium

Typical profile

A1 - 0 to 2 inches: gravelly loam
A2 - 2 to 11 inches: very gravelly loam
ABk - 11 to 17 inches: extremely gravelly loam
Bk - 17 to 25 inches: extremely gravelly sandy loam
Bkq - 25 to 31 inches: extremely gravelly loamy sand
Bk' - 31 to 35 inches: extremely gravelly sandy loam
Bkq' - 35 to 44 inches: extremely gravelly loamy sand
Bk1" - 44 to 51 inches: extremely gravelly sandy loam

Bk2" - 51 to 60 inches: gravel

Properties and qualities

Slope: 0 to 2 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
Calcium carbonate, maximum content: 75 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Very low (about 2.2 inches)

Interpretive groups

Land capability classification (irrigated): 4c
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: R013XY004ID - Shallow Gravelly 12-16 PZ ARTRV/PSSPS
Hydric soil rating: No

Description of St. Anthony

Setting

Landform: Swales on fan remnants
Down-slope shape: Concave, linear, convex
Across-slope shape: Concave, linear
Parent material: Gravelly mixed alluvium

Typical profile

A1 - 0 to 7 inches: gravelly loam
A2 - 7 to 12 inches: gravelly loam
Bw - 12 to 23 inches: very gravelly sandy loam
BC - 23 to 47 inches: extremely gravelly coarse sandy loam
2C - 47 to 60 inches: extremely gravelly loamy sand

Properties and qualities

Slope: 0 to 2 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
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Low (about 3.5 inches)

Interpretive groups

Land capability classification (irrigated): 4c
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: B
Ecological site: R013XY004ID - Shallow Gravelly 12-16 PZ ARTRV/PSSPS
Hydric soil rating: No

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