

The surface layer is brown loam and clay loam 16 to 30 inches thick. The underlying material is light yellowish brown gravelly clay loam 25 to 35 inches thick. Shale is at a depth of 60 inches or more.

Included in this unit are small areas of Typic Ustorthents and shale outcrop.

Permeability of this Adel soil is moderate. Available water capacity is moderate. Runoff is medium, and the hazard of water erosion is high.

This unit is used for forage production.

If this unit is used as rangeland, the main limitation is steepness of slope. Plant cover should be maintained on 40 to 50 percent of the unit to control erosion.

Steepness of slope severely limits road construction. Roads need to be surfaced. The hazard of cutbank slumping is moderate. The shale is rippable and therefore is not a serious limitation for roads.

This map unit is in capability subclass VIIe.

**2D—Animas loam, 4 to 25 percent slopes.** This moderately deep, somewhat poorly drained soil is in swales and on the lower parts of hummocky areas. It formed in landslide material derived from quartz latite, andesite, and other volcanic rock. Areas are circular and are 10 to 25 acres in size. The native vegetation is mainly birch, willows, and carex. Elevation is 6,500 to 9,000 feet. The average annual precipitation is 17 to 27 inches.

The surface layer is dark grayish brown and dark gray loam 5 to 12 inches thick. The subsoil is light brown gravelly sandy clay loam 7 to 13 inches thick. The substratum is brown gravelly sandy clay loam 12 to 20 inches thick. Shale is at a depth of 30 to 40 inches.

Included in this unit are small areas of Adel and Castelleia soils.

Permeability of this Animas soil is moderately slow. Available water capacity is high. Runoff is ponded or very slow, and the hazard of water erosion is slight. A seasonal high water table is at a depth of 18 to 30 inches in spring and summer.

This unit is used for wildlife habitat.

This unit is poorly suited to roads because of the seasonal high water table. Where feasible, roads should be built on adjacent, more suitable soils.

This map unit is in capability subclass VIw.

**2E—Animas loam, 25 to 65 percent slopes.** This moderately deep, somewhat poorly drained soil is on toe slopes along minor drainageways. It formed in landslide material derived from quartz latite, andesite, and other volcanic rock. Areas are long and narrow and are 10 to 25 acres in size. The native vegetation is mainly birch, willows, and carex. Elevation is 6,500 to 9,000 feet. The average annual precipitation is 17 to 27 inches.

The surface layer is dark grayish brown and dark gray loam 5 to 12 inches thick. The subsoil is light brown gravelly sandy clay loam 6 to 12 inches thick. The substratum is brown gravelly sandy clay loam 12 to 20 inches thick. Shale is at a depth of 30 to 40 inches.

Included in this unit are small areas of soils that do not have a sandy clay loam subsoil.

Permeability of this Animas soil is moderately slow. Available water capacity is moderate. Runoff is medium, and the hazard of water erosion is moderate. A seasonal high water table is at a depth of 18 to 30 inches in spring and summer.

This unit is used for wildlife habitat.

If roads are built on this unit, drainage and surfacing are needed because of the seasonal high water table. The shale is rippable and therefore is not a serious limitation for roads.

This map unit is in capability subclass VIIw.

**3—Badland.** This map unit consists of steep to extremely steep, deeply dissected areas of barren, exposed shale. Relief ranges from about 50 to 250 feet. Runoff is very rapid, and the hazard of water erosion is high.

Included in this unit are small areas of Carracas soils.

The main limitations for engineering uses are steepness of slope and low soil strength.

This map unit is in capability subclass VIIIe.

**4D—Carracas loam, 4 to 25 percent slopes.** This shallow, well drained soil is on ridgetops and mesas. It formed in residuum derived from interbedded shale and sandstone. Elevation is 6,500 to 8,000 feet. The average annual precipitation is about 22 to 27 inches.

The surface layer is very dark gray loam 2 to 4 inches thick. The underlying material is yellowish brown sandy loam 8 to 18 inches thick. Interbedded sandstone and shale are at a depth of 12 to 20 inches.

Included in this unit are small areas of shale and sandstone outcrop and a soil that has bedrock at a depth of more than 20 inches.

Permeability of this Carracas soil is moderate. Available water capacity is low. Runoff is medium, and the hazard of water erosion is moderate.

This unit is used for wildlife habitat.

The vegetation on this unit is sparse and is low in productivity. Revegetation of disturbed areas is difficult because of the low available water capacity and limited fertility of the soil.

The main limitation for engineering uses, such as roads, is shallow depth to bedrock.

This map unit is in capability subclass VIe.

**4E—Carracas loam, 25 to 65 percent slopes.** This shallow, well drained soil is on the sides of valleys and canyons and on scarp slopes of hogbacks and cuerdas. It formed in residuum derived from interbedded shale and sandstone. Elevation is 6,500 to 8,000 feet. The average annual precipitation is about 22 to 27 inches.

The surface layer is very dark gray loam 2 to 4 inches thick. The underlying material is yellowish brown sandy loam 8 to 18 inches thick. Interbedded shale and sandstone are at a depth of 12 to 20 inches.

Included in this unit are small areas of shale and sandstone outcrop.

Permeability of this Carracas soil is moderate. Available water capacity is low. Runoff is very rapid, and the hazard of water erosion is high.

This unit is used for wildlife habitat.

The vegetation on this unit is sparse and is low in productivity. Revegetation of disturbed areas is difficult because of low available water capacity and limited inherent fertility.

The main limitations for roads are depth to the weak, rippable bedrock and steepness of slope. The hazard of cutbank slumping is high.

This map unit is in capability subclass VIIe.

**5D—Castellela loam, 4 to 25 percent slopes.** This deep, well drained soil is in hummocky landslide areas. It formed in mixed landslide material derived from quartz latite and igneous rock overlying shale and sandstone at a depth of 5 to 50 feet. Elevation is 8,000 to 10,500 feet. The average annual precipitation is about 22 to 34 inches.

The surface layer is very dark brown loam 2 to 5 inches thick. The upper part of the subsurface layer is dark grayish brown loam 5 to 10 inches thick. The lower part is grayish brown loam 6 to 12 inches thick. The subsoil is dark brown clay loam 6 to 10 inches thick. The substratum to a depth of 60 inches or more is brown extremely stony clay loam.

Included in this unit are small areas of somewhat poorly drained Animas and Hunchback soils in swales and other low-lying areas.

Permeability of this Castelleia soil is moderate. Available water capacity is high. Runoff is medium, and the hazard of water erosion is slight.

This unit is used for timber production and as watershed and rangeland.

The present vegetation in most areas is mainly aspen, white fir, snowberry, grasses, and forbs. Standard range management practices, such as revegetation of disturbed areas, are suited to this unit.

The main limitation for roads is the wetness of the included soils.

This map unit is in capability subclass VIe.

**5E—Castellela loam, 25 to 65 percent slopes.** This deep, well drained soil is on hillsides and on toe slopes of valley sides. It formed in landslide material derived from quartz latite and other igneous rock overlying shale and sandstone at a depth of 5 to 30 feet. Elevation is 8,000 to 10,500 feet. The average annual precipitation is about 22 to 34 inches.

The surface layer is very dark brown loam less than 5 inches thick. The upper part of the subsurface layer is dark brown loam 6 to 10 inches thick. The lower part is grayish brown loam 8 to 12 inches thick. The subsoil is

dark brown clay loam 6 to 10 inches thick. The substratum to a depth of 60 inches or more is brown extremely stony clay loam.

Included in this unit are small areas of Rubble land and soils that are dominantly stones 1 inch to 8 inches in diameter.

Permeability of this Castelleia soil is moderate. Available water capacity is high. Runoff is medium, and the hazard of water erosion is high.

This unit is used for timber production and as watershed and rangeland.

The present vegetation in most areas is mainly aspen, white fir, snowberry, grasses, and forbs. Standard range management practices, such as revegetation of disturbed areas, are suited to this unit.

Steepness of slope and seep areas limit road construction. The hazard of cutbank slumping is moderate.

This map unit is in capability subclass VIIe.

**6E—Castellela loam, dark surface, 25 to 65 percent slopes.** This deep, well drained soil is in hummocky areas. It formed in mixed landslide material derived from quartz latite and other igneous rock overlying shale and sandstone at a depth of 5 to 30 feet. Elevation is 8,000 to 10,500 feet. The average annual precipitation is about 22 to 35 inches.

The surface layer is very dark brown loam 3 to 6 inches thick. The upper part of the subsurface layer is grayish brown loam 3 to 12 inches thick. The lower part is dark grayish brown and grayish brown clay loam 7 to 20 inches thick. The substratum to a depth of 60 inches or more is brown loam.

Included in this unit are small areas of somewhat poorly drained Animas and Hunchback soils in swales and other low-lying areas.

Permeability of this Castelleia soil is moderate. Available water capacity is high. Runoff is slow, and the hazard of water erosion is high.

This unit is used as watershed and for timber production.

The present vegetation in most areas is mainly white fir, Engelmann spruce, and aspen with an understory of nodding brome grass, common snowberry, lupine, and sedges. Standard range management practices, such as revegetation of disturbed areas, are suited to this unit.

The main limitation for roads is the wetness of the included soils.

This map unit is in capability subclass VIIe.

**7D—Castellela gravelly loam, 4 to 25 percent slopes.** This deep, well drained soil is in hummocky areas. It formed in mixed landslide material derived from quartz latite and other igneous rock overlying shale and sandstone at a depth of 10 to 50 feet. Elevation is 8,000 to 10,500 feet. The average annual precipitation is about 22 to 34 inches.