

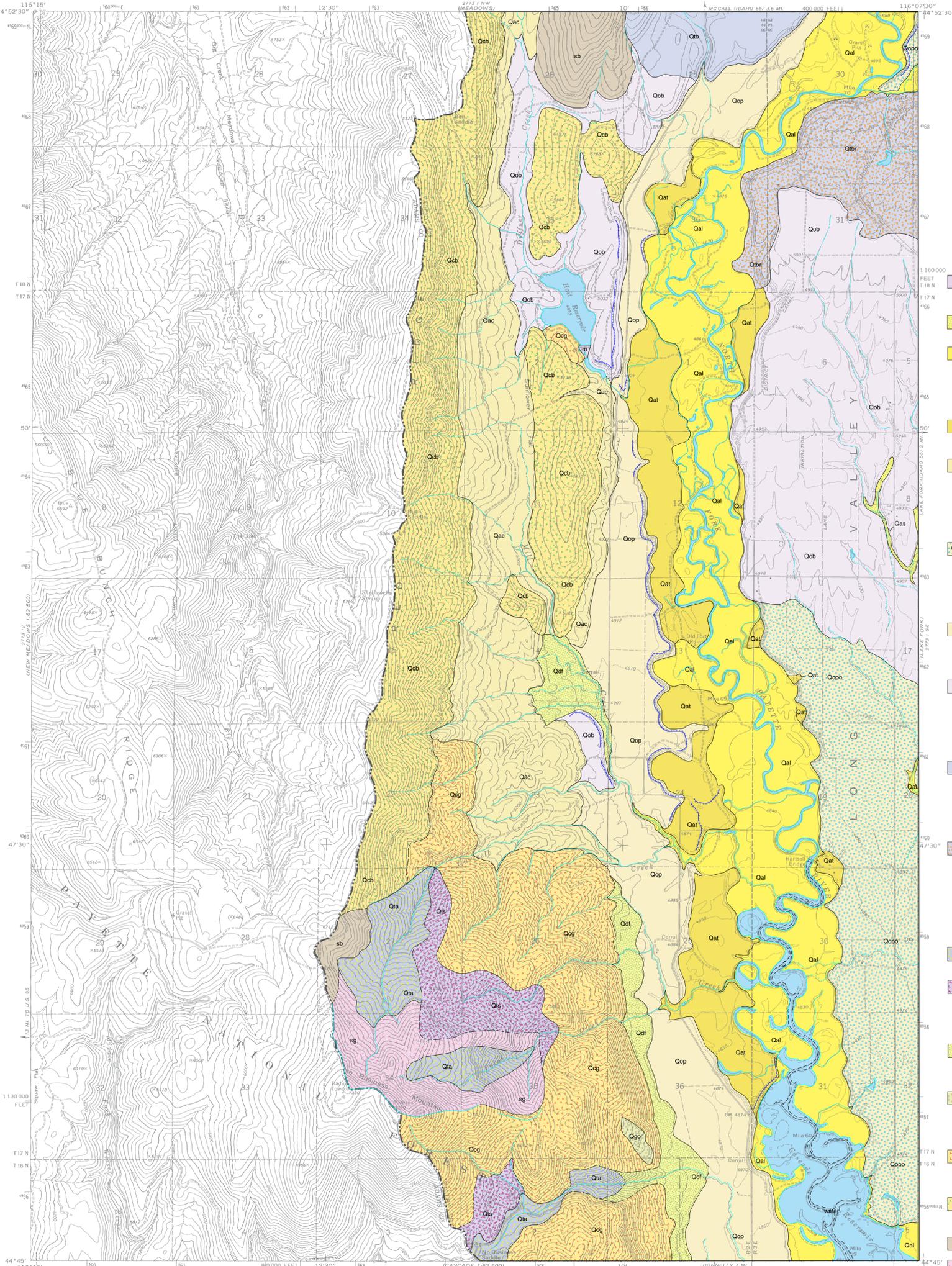
# SURFICIAL GEOLOGIC MAP OF THE NO BUSINESS MOUNTAIN QUADRANGLE, VALLEY COUNTY, IDAHO

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Mapping and data are incorporated in and superseded by DWM-68, **Surficial Geologic Map of Long Valley, Valley County, Idaho, 1:50,000 scale.**



## INTRODUCTION

Long Valley is bounded on the west by the West Mountains, a block of tilted Columbia River basalt, and on the east by the Salmon River Mountains of the Idaho batholith. The valley floor is about 4800 feet in elevation and the adjacent glaciated mountains rise above 7000 feet. The Payette Lakes are dammed behind a sequence of Pleistocene end moraines and Tertiary basalt is exposed along the shorelines. The geology of this part of Long Valley is dominated by alluvium, outwash, and mountain-slope colluvium. This part of Long Valley is dominated by outwash and by moraines and ice-contact deposits on the slopes of the West Mountains. The placer deposits of Long Valley were studied in the 5 by D.L. Schmidt and J.H. Mackin. Geology depicted on this 1:24,000-scale No Business Mountain 7.5' quadrangle is based partly on their mapping (Schmidt and Mackin, 1970). Colman and Pierce (1981, 1983) used weathering-rind dating techniques to subdivide the glacial sequence and estimate the numerical ages of Schmidt and Mackin's units but did not map the quadrangle. The landforms and surface deposits of the area were described by Othberg (1987). This map subdivides the glacial stratigraphy based on genesis, geomorphology, texture and relative age of the surficial units. The map uses terminology of Schmidt and Mackin (1970) and the Rocky Mountain Glacial Model (Mears, 1974), not because the units are directly correlated to the type localities, but because of the informal relationship to equivalent units in Idaho. At this time we have not applied new names based on the ages proposed by Colman and Pierce (1981, 1983), but their equivalents are listed in the map unit descriptions.

## DESCRIPTION OF MAP UNITS

### MAN-MADE DEPOSITS

**m** **Made land (Historical)**—Mixed deposits in man-made, earth-fill dam. Mostly coarse angular gravel mixed with sand, silt, and clay from local sources.

### ALLUVIAL DEPOSITS

**Qas** **Alluvium, fine grained (Holocene)**—Silt, clay, and organic muck of alluvium in local drainageways. Soils primarily Blackwell series (Rasmussen, 1981). Thickness 2-10 feet.

**Qal** **Alluvium (Holocene)**—Variable clayey silt, silty sand, gravelly sand and sandy gravel from flood plains in modern stream valleys of North Fork Payette River. Gravel clasts are rounded to subrounded. Bedding distinct to indistinct in sand and gravel, and thin to medium in silt and clay. Where the river enters Cascade Reservoir unit consists of soft clayey silt and at depth is locally underlain by late glacial outwash. Soils primarily Blackwell, Donnel, Kangas, Melton and Rosebery series (Rasmussen, 1981). Thickness 2-10 feet; thicker where entering Cascade Reservoir.

**Qat** **Older alluvium (Holocene)**—Primarily stratified sand of pre-modern channel and flood-plain deposits. Forms low terrace with river-cut edge. Soils primarily Duston and Rosebery series (Rasmussen, 1981). Thickness more than 20 feet.

**Qac** **Alluvium and colluvium (Holocene and Pleistocene)**—Silty sand, coarse sand, and silty, sandy cobble gravel. Unstratified, crudely bedded, or massive. Forms fans and aprons in foot slopes and gently sloping colluvial slopes. In areas of granitic rock includes old erosion surfaces, lag deposits, and tors. Soils in areas of basalt bedrock primarily Demast, Nisula, Suddath, and Tica series. Soils in areas of granitic bedrock primarily Bryon series (Rasmussen, 1981). Thickness 2-20 feet.

### GLACIAL RELATED DEPOSITS

**Qop** **Outwash deposits of older Pinedale age (late Pleistocene)**—Surface: silty sand and local areas of clay and silt; gray brown and dark gray (locally mottled); gray, yellow, brown, and olive. Below 1 meter: silty sand and pebbly sand; gray, brown and dark gray (locally mottled); gray, yellow, brown and olive. Forms large outwash plain graded to the end moraines in the McCall quadrangle. Underlain in places by glaciolacustrine silts and sands deposited in a proglacial lake(?). Equivalent to outwash of McCall age of Colman and Pierce (1983). Soils primarily Rosebery series (Rasmussen, 1981). Thickness probably exceeds 30 feet.

**Qoo** **Outwash of Pinedale age, undivided (late Pleistocene)**—Coarse sand with a silty fine sand matrix. Forms outwash plain above the modern flood plain probably graded to end moraines in the McCall quadrangle. Outwash grades northward to Pinedale moraines in the McCall quadrangle. Soils primarily Donnel and Rosebery series (Rasmussen, 1981). Thickness 10 feet to more than 30 feet.

**Qob** **Outwash deposits of Bull Lake (pre-late Pleistocene)**—Surface: silty clay and clayey silt; brown and dark brown. 0.5-2 meters; sandy clayey silt, clayey silt, clayey silty sand, and pebbly sand; dark brown, brown, and yellowish brown. Below 2 meters: silty sand, sand, and pebbly sand; brown, pale brown, and light gray. Pebble clasts, rounded to subrounded. Forms flat to gently undulating remnants of a broad plain of outwash graded to end moraines (Qtb and Qtr). Includes narrow dissected channels of younger ages. Soils primarily Archabal loam (Rasmussen, 1981). Thickness feet to more than 40 feet.

**Qot** **Till deposits of Bull Lake glaciation (pre-late Pleistocene)**—Surface: cobbly and bouldery silty clay and clayey silt; brown and dark brown. 0.5-2 meters: gravely sandy clayey silt and gravely clayey silty sand; pebble-to boulder-sized gravel dark brown, brown, and yellowish brown. Below 2 meters: massive unsorted till; consists of gravely silty sand; pebble to boulder-sized gravel clasts, brown and gray. Grades laterally into and includes water-laid till and ice contact and meltwater deposits. Unstratified to stratified and angular to subrounded clasts. Occasional very large rounded boulders of basalt and granite. Forms subdued hummocky stagnation moraine with filled depressions and dissected drainage; and recessional moraines with irregular subdued crests. Soils primarily Archabal series (Rasmussen, 1981). Thickness 40 feet to more than 80 feet.

**Qtr** **Recessional, ice contact and end moraine deposits of Bull Lake (pre-late Pleistocene)**—Surface: cobbly and bouldery silty clay and clayey silt; brown and dark brown. 0.5-2 meters: gravely sandy clayey silt and gravely clayey silty sand; pebble-to boulder-sized gravel dark brown, brown, and yellowish brown. Below 2 meters: massive unsorted till; consists of gravely silty sand; pebble to boulder-sized gravel clasts, brown and gray. Grades laterally into and includes water-laid till and ice contact and meltwater deposits. Unstratified to stratified and angular to subrounded clasts. Occasional very large rounded boulders of basalt and granite. Forms subdued hummocky stagnation moraine with filled depressions and dissected drainage; and recessional moraines with irregular subdued crests. Soils primarily Archabal series (Rasmussen, 1981). Thickness 40 feet to more than 80 feet.

**Qta** **Alpine till deposits, undivided (Holocene and late Pleistocene)**—Brown to gray silty, sandy cobble- to boulder till and protalus. Predominantly unsorted and unstratified. Thickness 5-30 feet.

**Qts** **Scattered deposits of till, undivided (Pleistocene)**—Mostly brown to gray silty, sandy gravel. Gravel is pebble-to boulder-sized clasts of basalt and granitic rocks. Extent of till is discontinuous in steep-mountain bedrock terrain. Common bedrock outcrop. Density of clast pattern on map indicates relative distribution and thickness on bedrock. Includes boulder block fields of frost-wedged and fractured granitic rocks. Soils primarily Bryon and Pyle series (Rasmussen, 1981). Thickness 2-20 feet.

**Qtf** **Debris-fan deposits (Pleistocene)**—Pebbles, cobbles, and boulders in a silty sand matrix. Poorly to crudely sorted, angular to subrounded clasts of basalt and granitic rocks. Debris flows and alluvium derived from steep slopes where complex glacial and periglacial processes interact. Thickness 5-50 feet.

**Qgo** **Older glacial deposits (early Pleistocene and Tertiary)**—Mostly till(?) deposits. Cobbly and bouldery silty clay and clayey silt. Unsorted to moderately sorted. Rounded to subrounded granitic clasts and subrounded to subangular basalt clasts. Thickness unknown.

### COLLUVIAL DEPOSITS AND BEDROCK

**Qcg** **Colluvium derived from granitic rocks (Holocene and Pleistocene)**—Mostly sandy grus derived from the Idaho batholith. Rock types include highly fractured and weathered granite, gneiss, mica schist, and porphyritic biotite-granite. Soils primarily Bryon and Ligget series (Rasmussen, 1981). Thickness 2-10 feet.

**Qcb** **Colluvium derived from basaltic rocks (Holocene and Pleistocene)**—Mostly cobbly, angular gravel with a matrix of fine sand, silt, and clay. Derived from the Columbia River Basalt Supergroup. Soils primarily Demast and Tica series (Rasmussen, 1981). Thickness 2-10 feet.

**sb** **Ice-scoured basalt bedrock and post-glacial colluvium**—Soil in colluvium primarily Tika series (Rasmussen, 1981).

**sg** **Ice-scoured granitic bedrock, grus residuum, and Holocene colluvium**—Soils not mapped in area of unit (Rasmussen, 1981).

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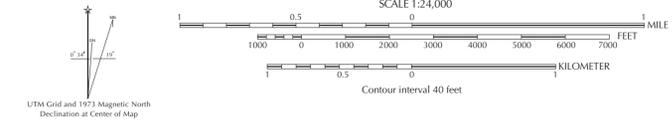
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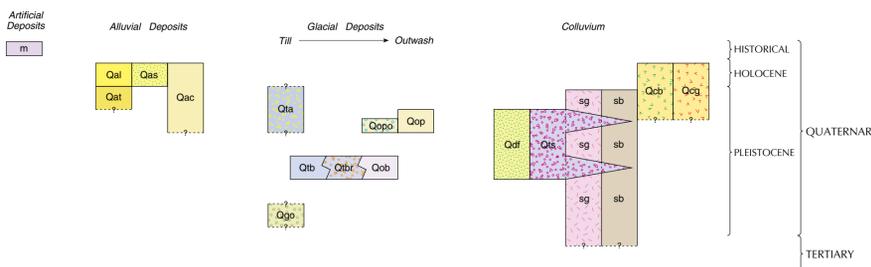
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Base map scanned from USGS film-positive base, 1973. Topography by photogrammetric methods from aerial photographs taken 1965, 1966, and 1972. Field checked 1973. Transverse Mercator, 1927 North American Datum. 10,000-foot grid ticks based on Idaho coordinate system, west zone. 1000-meter Universal Transverse Mercator grid ticks, zone 11.



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## CORRELATION OF MAP UNITS



## SYMBOLS

