



CORRELATION OF MAP UNITS

Q	QUATERNARY
Ti	TERTIARY
Tv	Tertiary
Tvo	Tertiary
Pzs	PALEOZOIC
pc	PRECAMBRIAN

DESCRIPTION OF MAP UNITS

- Q** SURFICIAL DEPOSITS — Includes landslide material, rock glaciers, talus and related materials on slopes, alluvium in stream valleys and mountain basins, and unconsolidated glacial debris, all of probable Quaternary age.
- Ti** INTRUSIVE IGNEOUS ROCKS — Includes small irregular-shaped plutons and dikes of mafic to silicic composition, all of late to middle Tertiary age.
- Tv** VOLCANIC AND SEDIMENTARY ROCKS, UNDIFFERENTIATED — Includes lava flows, flow breccias, welded ash-flow tuffs, and volcaniclastic rocks representing unassigned units, the Henson, Burns, Picayune, and San Juan Formations, and Eureka Member of the Sapinero Mesa Tuff, and conglomerate beds of the Telluride Conglomerate, all of middle to early Tertiary age.
- Tvy** VOLCANIC ROCKS, YOUNGER — Includes those rock units deposited during and following formation of the San Juan caldera.
- Tvo** VOLCANIC AND SEDIMENTARY ROCKS, OLDER — Includes those rock units deposited before formation of the San Juan caldera.
- Pzs** PALEOZOIC SEDIMENTARY ROCKS — Includes beds of conglomerate, shale, limestone, and dolomite in the Pennsylvanian Molas Formation, Mississippian Leadville Limestone, Devonian Ouray Limestone and Elbert Formation, and Cambrian Ignacio Formation.
- pc** PRECAMBRIAN ROCKS — Includes schist, gneiss, amphibolite, and locally coarse-grained granite all with diabase dikes (d).

- CONTACT — Dashed where approximately located.
- VEIN
- FAULT — Dashed where approximately located; dotted where concealed. Bar and ball on downthrown side.
- S STRIKE AND DIP
- PLANAR STRUCTURES — Flow layering in lava flows, and gneissic and schistose foliation in metamorphic rocks

GEOLOGY IN SOUTHWEST PART MODIFIED
IN PART FROM U.S.G.S. PP. 378-A.

Map compiled, edited, and published by the Geological Survey
Control by USGS

Topography from aerial photographs by multiplex methods
Aerial photographs taken 1951. Field check 1955

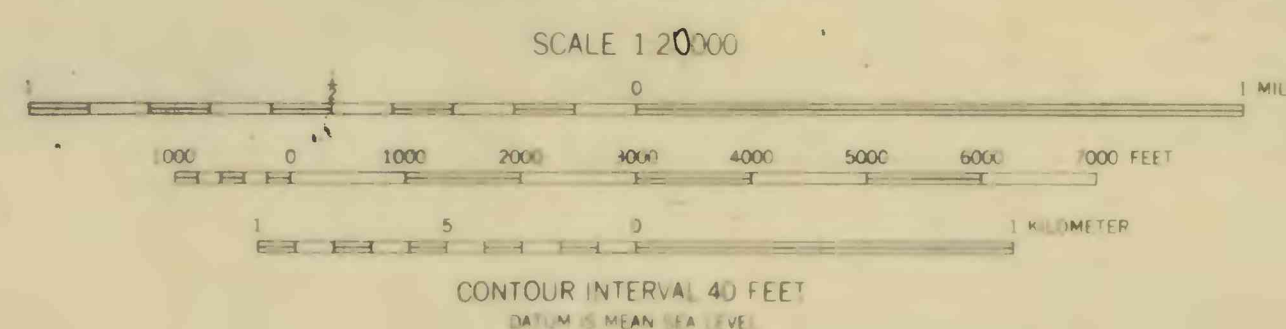
Projection: 1927 North American datum
10,000-foot grid based on Colorado coordinate system,
south zone

Land lines are omitted in T. 40 N., T. 41 N., and T. 42 N. R. 6 W.
and R. 7 W. because of insufficient data

All mining features on this map are inactive unless otherwise indicated

Unchecked elevations are shown in brown

TRUE NORTH
MAGNETIC NORTH
APPROXIMATE MEAN
DECLINATION, 1955



CONTOUR INTERVAL 40 FEET
DATUM IS MEAN SEA LEVEL

ROAD CLASSIFICATION

Light duty Unimproved dirt

State Route

HOWARDSVILLE, COLO.

SECTION 4 SILVERTON 15 QUADRANGLE
N 3745 — W 10730, 7.5

COLORADO
QUADRANGLE LOCATION

FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER 2, COLORADO OR WASHINGTON 25, D.C.

PRELIMINARY GEOLOGIC MAP OF THE HOWARDSVILLE QUADRANGLE, COLORADO

BY ROBERT G. LUEDKE AND WILBUR S. BURBANK

1975

U.S. Geological Survey
OPEN-FILE MAP 75-432
This map is preliminary and has not
been edited for conformity with
Geological Survey standards or
nomenclature.