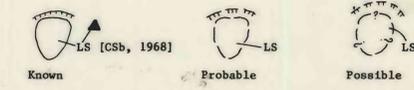


Surficial deposits		Sedimentary bedrock		Igneous and metamorphic bedrock	
Fw	Sanitary landfill	ms-ss-cgl	Siltstone, sandstone, and conglomerate	gE	Granitic rocks
Fe	Earthwork	ss-cs	Sandstone and claystone	bf 1 bf 2	Basaltic lava rock Basaltic lava rock Basaltic undifferentiated
Gs	Sandy gravel with cobbles	ms-cs	Siltstone and claystone	df	Basaltic dike rocks
Smb Sm	Silty sand with boulders Silty sand and gravel with boulders	cs-ms	Claystone and siltstone	bg	Biotitic gneiss
Smo	Organic silty sand and gravel	ms-ss	Siltstone and sandstone	gg	Granitic gneiss
SCb	Sand, silt, and clay, with boulders	cs-sh	Claystone and shale	fr	Thoroughly fractured rock
Sc	Clayey sand	ms-sh	Siltstone and shale		
Cm	Silty clay with sand, pebbles, and cobbles	ls	Limestone		
		ss-ms-cs	Sandstone, siltstone, and claystone		
		ms-cs-ls	Siltstone, claystone, and limestone		
		ms	Siltstone		
		ss	Sandstone		
		cgl-ms	Conglomerate and siltstone		

Overlining: indicates hard to moderately hard rock; hard rock may require blasting, moderately hard rock may be difficult to rip

Underlining: indicates potential for swelling when wetted; no underline indicates swelling potential insignificant or absent

— indicates high swelling potential,
— indicates moderate swelling potential,
— indicates slight swelling potential



Known landslide deposit: area where slope is known to have failed, as evidenced from field investigations, aerial photographs, other maps, or written reports or records; boundary accurately located.

Probable landslide deposit: area where slope is believed to have failed, as evidenced from field investigations and aerial photographs; boundary approximately located.

Possible landslide deposit: area where slope may have failed as evidenced from field investigations and aerial photographs; boundary indefinitely located.

Symbol: a landslide deposit is characterized by one or more of the following symbols to indicate the information available. (See also page 3 of the explanatory text.)

- ▲ Site of a landslide deposit too small to map; generally less than 200 ft across
- LS Landslide deposit
- LSa Landslide deposit actively moving at the time of field study
- [1968] Most recent year during which movement of a landslide is known to have occurred
- [SCb] Soil texture or rock lithology of engineering geologic map unit or units that constitute the landslide deposit; multiple units may be partly intermixed
- TTT TTT TTT Main scarp at upper end of landslide; includes crown cracks if present up slope of main scarp

42 Contact between map units, showing dip in degrees below the horizontal
Dashed where approximately located, short-dashed where gradational or inferred, queried where indefinite, dotted where concealed

42 Indicates direction and amount of dip of contact (See Explanatory notes and definitions in this report.)

71 Fault, and fracture zone, showing dip in degrees below the horizontal
Dashed where approximately located, short-dashed where gradational or inferred, dotted where concealed. A fracture zone is marked by breccia (crushed angular rock fragments), gouge (finely crushed to pulverized rock), or breccia and gouge, may be recemented by minerals deposited from ground water

71 Indicates direction and amount of dip of fault or fracture zone. (See Explanatory notes and definitions in this report.)

72 Inclined Overturned Vertical
Strike and dip of beds in sedimentary bedrock Generalized strike and dip foliation of layering in metamorphic bedrock (See Explanatory notes and definitions in this report.)

S₀₄ Symbol indicates probable concentration of sulfate compounds that may be deleterious to certain cements, and of other chemical salts that may be corrosive to steel pipe.

A₂₀₋₄₀₀ Workings 20-400 ft

Shaft; numbers indicate depths to abandoned mine workings

Approximate boundary of reported mined area; mines not operating

Adit or tunnel, generally caved, extent unknown

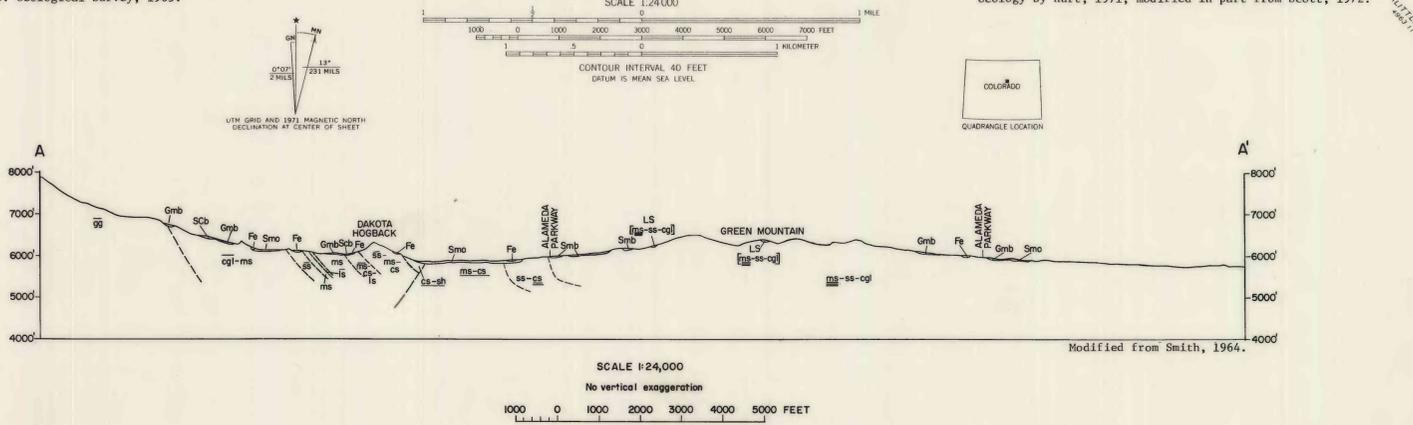
A Clay C Coal

Sand and gravel pit; may not be operating, may be abandoned

Crushed rock quarry or clay pit; latter may not be operating

S Sand G Sand and gravel A Clay R Rock

Line showing location of geologic cross section



PRELIMINARY GEOLOGIC MAP OF THE MORRISON QUADRANGLE, JEFFERSON COUNTY, COLORADO

By
Howard E. Simpson and Stephen S. Hart
1980