

Figure 3.6-5, Northwest Riverside County Geologic Map Legend

LEGEND

SURFICIAL SEDIMENTS
Handworked, unconsolidated

Qg Alluvial gravel and sand of stream channels
Qa Alluvial sand, gravel and clay of flat flood plains of stream channels

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Qls Gravel rubble in Tst

LANDSLIDE DEBRIS

OLDER SURFICIAL SEDIMENTS
Weakly indurated alluvial fan deposits dissected or partially so

Ql Alluvial fan of San Geronimo Pass, sand and gravel of plutonic and gneissic detritus derived from rising San Bernardino mountains to the north, dissected at lower south margins, in part blends into unit **Qoa** to the west
Qoa Dissected alluvial fan sand and gravel, light reddish, crudely bedded
Qol Alluvial gravel and sand of high fans of Banning Bench (Mesa) area, brown subindurated of mostly gneissic detritus derived from San Bernardino Mountains, dissected and eroded to remnants

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ROCK UNITS NORTH OF SAN GORGONIO PASS

QUATERNARY

QTSf **QTSg**

SAN TIMOTHY FORMATION
Stream and alluvial sediments, deposited in western extension of Salton Trough, similar to San Timothy Formation south of San Geronimo Pass, also similar to and possibly equivalent to Painted Hill Formation of Allen 1954 east of this quadrangle, age, Pliocene, possibly in part Pleistocene, weakly to moderately lithified

QTSf Sandstone, light gray, fine to coarse grained, locally pebbly with granitic pebbles and some cobbles, includes interbeds of green and red claystone
QTSg Conglomerate/anglomerate, brownish gray, crudely bedded, of poorly sorted subrounded clasts of granitic and gneissic detritus in sandy matrix, exposed only at west border near NW corner of quadrangle

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COACHELLA ANGLOMERATE
of Allen, 1954, 1971 and 1981 included in Hatheway Formation by Allen 1974, coarse alluvial sediments, including basalt at top, exposed only at east border north of Banning

Tb Basalt, black olivine bearing locally vesicular, about 50m (150 ft) thick
Tcl Anglomerate, gray-brown, massive to crudely bedded, of unsorted detritus of plutonic and gneissic rocks derived from San Bernardino Mountains

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PLUTONIC ROCKS
medium grained to coarse grained granitic rocks, age, Cretaceous

gr Granitic rock of Mount Eden, granite to monzo-granite (Morton and Math 2001) composed of quartz, potassic feldspar and sodic plagioclase feldspar in nearly equal amounts but with somewhat more potassic feldspar, scattered flakes of white mica and almost no mafic minerals, nearly white, massive, intrusive into meta-sedimentary rocks, exposed only near and SE of Mount Eden
qdi Granodiorite of east area, composed of quartz, potassic feldspar and sodic plagioclase feldspar in nearly equal amounts but with somewhat more sodic plagioclase feldspar, minor biotite, light gray, massive to very faintly gneissoid
qdx Quartz diorite (Bonzal Tonalite of Larsen, 1948) composed of about 1:3 quartz, 2:3 sodic plagioclase feldspar, minor potassic feldspar and 5-10% biotite and hornblende, light gray gneissoid with abundant dark gray discoid inclusions (xenoliths) parallel to gneissoid foliation, exposed only at SW corner of quadrangle
grq Granitic rock exposed NE of Banning fault at NE corner, of quartz monzonite composition, of quartz, potassic feldspar and sodic plagioclase feldspar in nearly equal amounts and about 5-10% biotite as evenly scattered flakes, light gray, massive, somewhat incoherent

MITAMORPHIC ROCKS
Occurs as small pendant remnants engulfed in units qd and grq

mq **gn**

q Quartzite, light brown, fine grained, massive, brittle, age unknown, Precambrian (?)
g Gneiss, composed of light gray quartz feldspar rich laminae alternating with gray to black siliceous laminae, medium grained, hard but brittle, much fractured, commonly contorted

ROCK UNITS SOUTH OF SAN GORGONIO PASS

Tst

SAN TIMOTHY FORMATION
San Timothy Beds of Larsen, 1921 stream and alluvial sediments of detritus derived from basement rocks of San Bernardino Mountains but deposited on uneven surface of basement rocks of Peninsular Ranges, thin in this quadrangle and probably is main part of this formation exposed at El Casco quadrangle where it thickens westward, weakly indurated, age, Pliocene (?)

T Sandstone, light gray, friable, arkosic, includes some interbedded pebble-cobble conglomerate and greenish to reddish claystone

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PLUTONIC ROCKS
Medium grained holocrystalline plutonic rocks of San Jacinto Mountains, part of within the pluton of Peninsular Ranges intrusive into or recrystallized from enormously thick metasedimentary petroblith at great depth in Cretaceous time

m Granitic rock, mostly quartz diorite (tonalite) but may range into granodiorite, composed of about 1:3 quartz, 2:3 feldspar with greater amounts of sodic plagioclase than potassic feldspar, and small amounts of biotite, rock light gray, massive to faintly gneissoid from sub-surface orientation of biotite flakes, locally contains scattered small discoid inclusions (enclites) parallel to gneissoid structure of rock, rock moderately hard, coherent

ms **ml**

METASEDIMENTARY ROCKS
Part of metasedimentary petroblith of Peninsular Ranges engulfed as unassimilated remnants in batholithic rocks, age Paleozoic (?)

ms Mica schist/phyllite, composed of biotite mica, feldspar and quartz, dark gray, fine grained, foliated parallel to original bedding, in some places, includes thin lenses of marble (m), too small to map in this quadrangle

gn

GNEISS
gn Silky quartz feldspar-biotite gneiss, thin bedded, hard but brittle, age Precambrian (?), occurs as small pendant remnants engulfed in unit grq NE of Banning fault

GEOLOGIC SYMBOLS

not all symbols shown on each map

FORMATION CONTACT
dashed where inferred or indefinite
dotted where concealed

MEMBER CONTACT
between units of a formation
Prominent bed

CONTACT BETWEEN SURFICIAL SEDIMENTS
located only approximately in places

FAULT: Dashed where indefinite or inferred, dotted where concealed, queried where existence is doubtful. Parallel arrows indicate inferred relative lateral movement. Relative vertical movement is shown by U/D (U=upthrown side, D=downthrown side). Short arrow indicates dip of fault plane. Sawtooth are on upper plate of low angle thrust fault.

FOLDS:

overturned

ANTICLINE

SYNCLINE

arrow on axial trace of fold indicates direction of plunge; dotted where concealed by surficial sediments

Strike and dip of Sedimentary rocks	10°	20°	30°	60°	horizontal	vertical
	inclined	inclined (approximate)	inclined	overturned	horizontal	vertical

Strike and dip of metamorphic or igneous rock foliation or flow banding or compositional layers	75°	vertical	vertical	vertical	vertical	vertical
	inclined	inclined (approximate)	vertical	vertical	vertical	vertical

OTHER SYMBOLS:

Direction of landslide movement

outling of water bodies shown on map

water well

oil well

- Sources:**
- Dibblee, T.W. and Minch, J.A., ed., 2003, Geologic map of the El Casco quadrangle, Riverside County, California: Dibblee Geological Foundation, Map DF-113, scale 1:24000.
 - Dibblee, T.W. and Minch, J.A., ed., 2003, Geologic map of the Beaumont quadrangle, Riverside County, California: Dibblee Geological Foundation, Map DF-114, scale 1:24000.
 - Dibblee, T.W. and Minch, J.A., ed., 2004, Geologic map of the Cabazon quadrangle, Riverside County, California: Dibblee Geological Foundation, Map DF-119, scale 1:24000.

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