GEOLOGIC LEGEND

(GENERALIZED DESCRIPTION OF ROCK TYPES)

CENOZOIC

MARINE SEDIMENTARY ROCKS

QUATERNARY — Pleistocene-Holocene

Qs — Extensive marine and nonmarine sand deposits, generally near the coast or desert playas.

Q — Alluvium, lake, playa, and terrace deposits; unconsolidated and semi-consolidated. Mostly nonmarine, but includes marine deposits near the coast.

TERTIARY — Pliocene

P — Sandstone, siltstone, shale, and conglomerate; mostly moderately consolidated.

TERTIARY — Miocene

M — Sandstone, shale, siltstone, conglomerate, and breccia; moderately to well consolidated.

TERTIARY — Oligocene

Φ — Sandstone, shale, conglomerate; mostly well consolidated.

TERTIARY — Eocene

E — Shale, sandstone, conglomerate, minor limestone; mostly well consolidated.

TERTIARY — Paleocene

Ep — Sandstone, shale, and conglomerate; mostly well consolidated.

NONMARINE (CONTINENTAL) SEDIMENTARY ROCKS

Qs — Selected large landslides, such as Blackhawk Slide on north side of San Bernardino Mountains; early to late Quaternary.

Qt — Glacial till and moraines. Found at high elevations mostly in the Sierra Nevada and Klamath Mountains.

QPc — Pliocene and/or Pleistocene sandstone, shale, and gravel deposits; mostly loosely consolidated.

Mc — Sandstone, shale, conglomerate, and fanglomerate; moderately to well consolidated.

Tc — Undivided Tertiary sandstone, shale, conglomerate, breccia, and ancient lake deposits.

Φc — Sandstone, shale, and conglomerate; mostly well consolidated.

Ec — Sandstone, shale, conglomerate; moderately to well consolidated.

VOLCANIC ROCKS

Qrv | Qrv^p

Qrv: Recent (Holocene) volcanic flow rocks; minor pyroclastic deposits.

Qrv^p: Recent (Holocene) pyroclastic and volcanic mudflow deposits.

Qv | Qv^p

Qv: Quaternary volcanic flow rocks; minor pyroclastic deposits.

Qv^p: Quaternary pyroclastic and volcanic mudflow deposits.

Tv | Tv^p

Tv: Tertiary volcanic flow rocks; minor pyroclastic deposits.

Tv^p: Tertiary pyroclastic and volcanic mudflow deposits.

Ti — Tertiary intrusive rocks; mostly shallow (hypabyssal) plugs and dikes.

PLUTONIC ROCKS

gr^Ce — Cenozoic (Tertiary) granitic rocks—quartz monzonite, quartz latite, and minor monzonite, granodiorite, and granite; found in the Kingston, Panamint, Amargosa, and Greenwater Ranges in southeastern California.

MESOZOIC

MARINE SEDIMENTARY AND METASEDIMENTARY ROCKS

TERTIARY–CRETACEOUS

TK — Sandstone, shale, and minor conglomerate in coastal belt of northwestern California; included by some in Franciscan Complex. Previously considered Cretaceous, but now known to contain early Tertiary microfossils in places.

CRETACEOUS

Ku — Upper Cretaceous sandstone, shale, and conglomerate.

Kl — Lower Cretaceous sandstone, shale, and conglomerate.

K — Undivided Cretaceous sandstone, shale, and conglomerate; minor nonmarine rocks in Peninsular Ranges.

KJf | KJf_m | KJf_s

KJf: Franciscan Complex: Cretaceous and Jurassic sandstone with smaller amounts of shale, chert, limestone, and conglomerate. Includes Franciscan mélange, except where separated–see KJf_m.

KJf_m: Mélange of fragmented and sheared Franciscan Complex rocks.

KJf_s: Blueschist and semi-schist of Franciscan Complex.

JURASSIC

J — Shale, sandstone, minor conglomerate, chert, slate, limestone; minor pyroclastic rocks.

sch — Schists of various types; mostly Paleozoic or Mesozoic age; some Precambrian.

TRIASSIC

Ꞧ — Shale, conglomerate, limestone and dolomite, sandstone, slate, hornfels, quartzite; minor pyroclastic rocks.

ls — Limestone, dolomite, and marble whose age is uncertain but probably Paleozoic or Mesozoic.

PALEOZOIC

PERMIAN

Pm — Shale, conglomerate, limestone and dolomite, sandstone, slate, hornfels, quartzite; minor pyroclastic rocks.

CARBONIFEROUS

C — Shale, sandstone, conglomerate, limestone, dolomite, chert, hornfels, marble, quartzite; in part pyroclastic rocks.

Pz — Undivided Paleozoic metasedimentary rocks. Includes slate, sandstone, shale, chert, conglomerate, limestone, dolomite, marble, phyllite, schist, hornfels, and quartzite.

DEVONIAN

D — Limestone and dolomite, sandstone and shale; in part tuffaceous.

SILURIAN–ORDOVICIAN

SO — Sandstone, shale, conglomerate, chert, slate, quartzite, hornfels, marble, dolomite, phyllite; some greenstone.

CAMBRIAN

Є — Sandstone, shale, limestone, dolomite, chert, quartzite, and phyllite; includes some rocks that are possibly Precambrian.

PRECAMBRIAN

pC — Conglomerate, shale, sandstone, limestone, dolomite, marble, gneiss, hornfels, and quartzite; may be Paleozoic in part.

MIXED ROCKS

gr-m — Granitic and metamorphic rocks, mostly gneiss and other metamorphic rocks injected by granitic rocks. Mesozoic to Precambrian.

m — Undivided pre-Cenozoic metasedimentary and metavolcanic rocks of great variety. Mostly slate, quartzite, hornfels, chert, phyllite, mylonite, schist, gneiss, and minor marble.

pCc — Complex of Precambrian igneous and metamorphic rocks. Mostly gneiss and schist intruded by igneous rocks; may be Mesozoic in part.

METAVOLCANIC ROCKS

Mzv — Undivided Mesozoic volcanic and metavolcanic rocks. Andesite and rhyolite flow rocks, greenstone, volcanic breccia and other pyroclastic rocks; in part strongly metamorphosed. Includes volcanic rocks of Franciscan Complex: basaltic pillow lava, diabase, greenstone, and minor pyroclastic rocks.

mv — Undivided pre-Cenozoic metavolcanic rocks. Includes latite, dacite, tuff, and greenstone; commonly schistose.

Pzv — Undivided Paleozoic metavolcanic rocks. Mostly flows, breccia, and tuff, including greenstone, diabase and pillow lavas; minor interbedded sedimentary rocks.

PLUTONIC ROCKS

gr^Mz — Mesozoic granite, quartz monzonite, granodiorite, and quartz diorite.

um — Ultramafic rocks, mostly serpentine. Minor peridotite, gabbro, and diabase. Chiefly Mesozoic.

gb — Gabbro and dark dioritic rocks; chiefly Mesozoic.

gr — Undated granitic rocks.

gr^Pz — Paleozoic and Permo-Triassic granitic rocks in the San Gabriel and Klamath Mountains

gr^pC — Precambrian granite, syenite, anorthosite, and gabbroic rocks in the San Gabriel Mountains; also various Precambrian plutonic rocks elsewhere in southeastern California.