

CORRELATION OF MAP UNITS

Qal	Holocene	QUATERNARY	CENOZOIC
Qt	Pleistocene		
Kl		CRETACEOUS	MESOZOIC
Ks			
Jm	JURASSIC (?)		
Tj	TRIASSIC (?)		

DESCRIPTION OF MAP UNITS

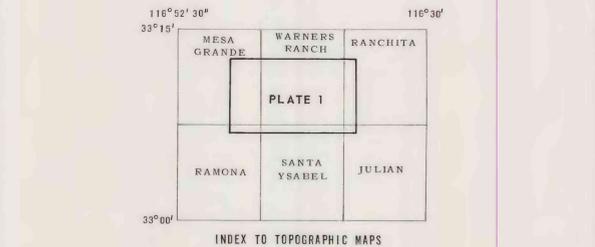
Qal	ALLUVIUM (Quaternary) -- Sand, gravel, silt and clay beneath small stream channels and alluvial valleys. Generally yields small to moderate quantities of water
Qt	TEMECULA ARKOSE OF MANN, 1955 (Quaternary) -- Arkosic sandstone, sand and gravel with small quantities of cobbles and boulders. Does not occur on the reservation
Kl	LAKEVIEW MOUNTAIN TONALITE (Cretaceous) -- Quartz diorite (tonalite) with minor granodiorite and granite. Yields small to moderate quantities of water where highly fractured or where deeply weathered
Ks	SAN MARCOS GABBRO (Cretaceous) -- Gabbro with minor norite and diorite. Yields water in small to moderate quantities where deeply weathered or in joints and fractures
Jm	MIXED ROCKS OF MERRIAM, 1958 (Jurassic?) -- Quartz diorite and schist. Yields water in weathered zones and in fractures
Tj	JULIAN SCHIST (Triassic?) -- Schist, minor quantities of gneiss and quartzite, some dolomite and limestone. Yields moderate quantities of water in closely spaced fractures parallel to the foliation

EXPLANATION

---	CONTACT -- Dashed where approximately located
---	FAULT -- Dashed where approximately located, dotted where concealed
---	PROBABLE FAULT
---	SURFACE-WATER DRAINAGE DIVIDE
o J1	WELL
x R1	DRY OR DESTROYED WELL
~ DS1	SPRING -- Flowing when visited
o ES1	SPRING -- Dry when visited
Δ 2	SURFACE-WATER SITE -- Streamflow measurement or water sample for analysis
◇	PRECIPITATION STATION

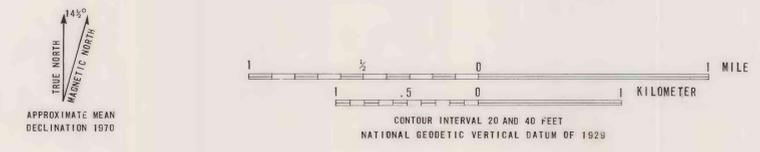
WELL AND SPRING-NUMBERING SYSTEM -- Letter indicates position in section

D	C	B	A
E	F	G	H
M	L	K	J
N	P	Q	R



Base from U. S. Geological Survey  
Mesa Grande, 1948, photorevision as of 1971;  
Warners Ranch, 1960; Ranchita, 1960;  
Ramona, 1955, photorevision as of 1971 and 1975;  
Santa Ysabel, 1960, and Julian, 1960

Geology compiled and modified by  
J. R. Freckleton from published  
maps by R. Merriam (1958), F. H.  
Ginsworth (1953), and F. H. Weber Jr.  
(1963)



MAP OF SANTA YSABEL AND MESA GRANDE INDIAN RESERVATIONS AND VICINITY, SAN DIEGO COUNTY, CALIFORNIA,  
SHOWING GEOLOGY AND LOCATION OF WELLS, SPRINGS, PRECIPITATION STATION, AND SURFACE-WATER SITES