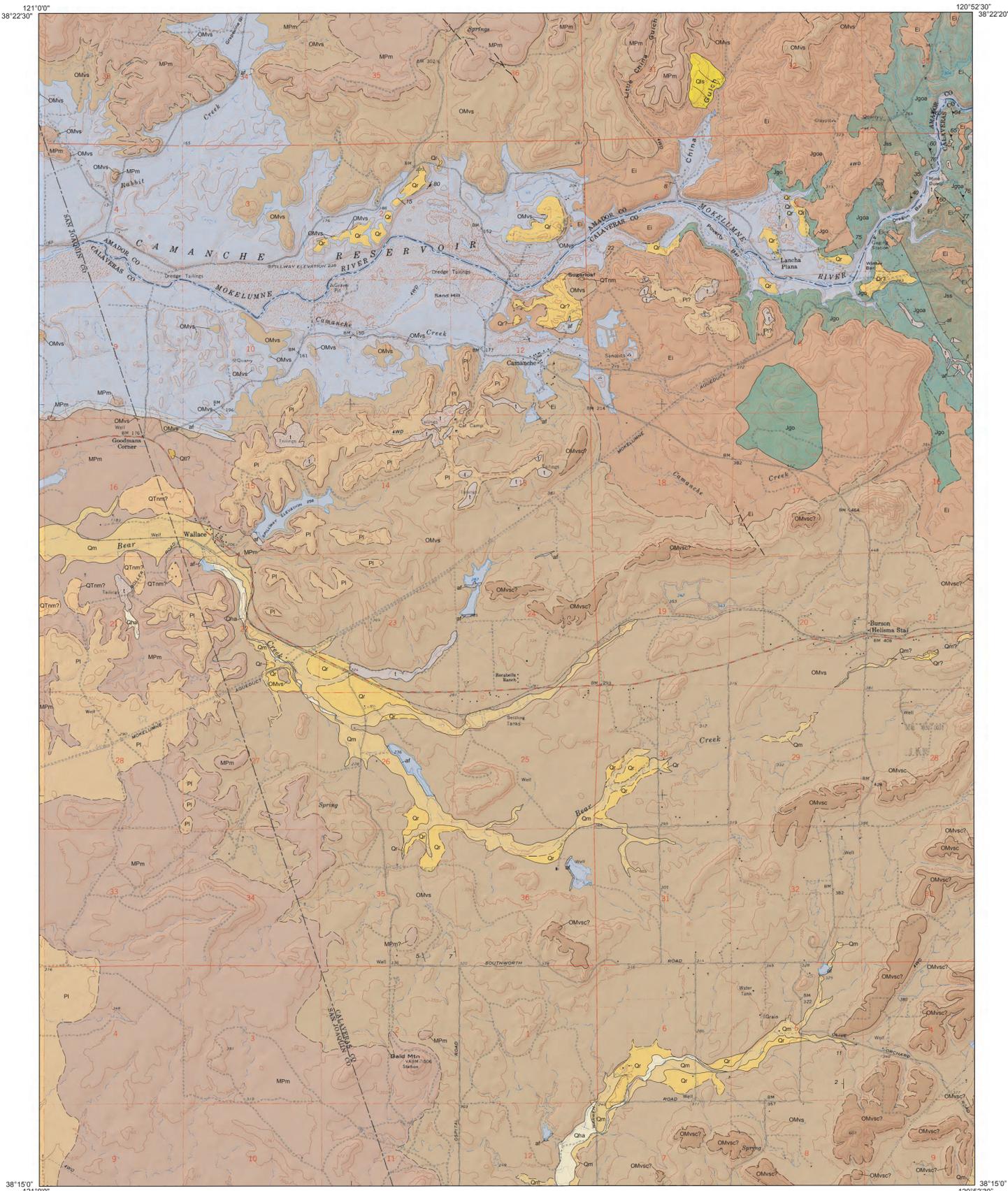


PRELIMINARY GEOLOGIC MAP OF THE WALLACE 7.5' QUADRANGLE, AMADOR, CALAVERAS AND SAN JOAQUIN COUNTIES, CALIFORNIA



VERSION 1.0
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DESCRIPTION OF MAP UNITS

- SURFICIAL UNITS**
- af** Artificial fill (historic)—Anthropogenic deposits of earth materials arranged to serve as infrastructure substrate.
 - t** Tailings (historic)—Anthropogenic deposits of earth materials generated as a byproduct of mining processes.
 - Oha** Alluvial deposits (Holocene)—Alluvium deposited in fan, terrace, or basin environments. Consists of poorly to moderately sorted sand, silt, and gravel.
 - Qls** Landslide deposits (Holocene to Pleistocene)—Arrows indicate direction of movement.
 - Qm** Modesto Formation, undivided (early Holocene to late Pleistocene)—Alluvial deposits of arkosic gravel, sand, and silt. Deposited as a series of coalescing alluvial fans extending continuously from the Kern River drainage in the south, to the Sacramento River tributaries in the north. Compositionally, deposits of the Modesto Formation are often indistinguishable from those of the Riverbank, Turlock Lake and Laguna Formations. However, these units are temporally distinct and separated by unconformities. Identity is usually determined by topographic position, geomorphic expression, or (most commonly) by soil development. (Marchand and Allwardt, 1981)
 - Qr** Riverbank Formation, undivided (Pleistocene)—Consists primarily of arkosic sediment derived from the Sierra Nevada, and lesser locally derived sediments from small drainage basins along the foothills (Marchand and Allwardt, 1981).
 - Qtl** Turlock Lake Formation (Pleistocene)—Alluvial sand, silt and gravel of arkosic composition, with minor clay interbeds. Gravel composition is heterogeneous, featuring granitic, metamorphic, volcanic and vein-quartz clasts.
 - QTnm** North Merced Gravel (Pleistocene to Pliocene)—Lag gravel deposits typically occurring as a thin veneer of well-rounded cobbles overlying (and sourced from) the lone Formation. Tentatively correlated by Bartow and Marchand (1979) to the North Merced Gravel of Arkley (1962).
 - PI** Laguna Formation (late Pliocene)—Alluvial gravel, sand and silt of granitic composition. Conglomerate beds are dominated by cobbles of vein quartz, quartzite and metamorphic rocks. The gravels of this unit were thought to be gold-bearing, and where exposed, they are often disturbed by historic strip mining (Marchand and Allwardt, 1981).
- TERTIARY SEDIMENTARY AND VOLCANIC UNITS**
- MPm** Mehrten Formation (early Pliocene to Miocene)—Volcanic mudflow deposits interbedded with sandstone and conglomerate. Composition is distinctly dominated by andesite cobbles. Lahar beds laden with andesite cobbles are particularly resistant and often occur as cap rock with corresponding cliff faces.
 - OMvs** Valley Springs Formation (Miocene to middle Oligocene)—Tuffaceous sandstone, siltstone, and conglomerate interbedded with tuff and minor clay. Deposits are moderately mature compositionally which reflects the petrological environment of deposition. The formation may be distinguishable by rhyolitic ash component. Conglomerate is compositionally heterogeneous and features significant proportions of Jurassic metamorphic rocks, quartzite, and chert cobbles. Tuff beds often occur as resistant, cliff-forming outcrops. Green clay rock, which consists of silica-cemented pebbles of expansive smectitic clay, is present near the base of the unit and poses significant geologic hazards related to ground swelling and slope stability (California Geological Survey, 2009; Wood and Gismann, 2013; Wood, 2015).
 - OMvsc** Conglomerate—Particularly resistant conglomeratic beds, often with distinct geomorphic expression as flat ridges with soft rounded edges.
 - Ei** lone Formation (middle Eocene)—Clay, sandstone, and siltstone. Distinctly light in color; dominated by white and light pastel shades of buff, rust and lavender on the weathered surface. Compositionally, this unit is very mature and is distinctly dominated by various forms of quartz, especially vein quartz. Clays are predominantly kaolinitic and are interpreted as having formed in a tropical climate (Wood, 1996). Sandstones are often silica-cemented. Conglomerates typically feature abundant white vein quartz and quartzite cobbles in a matrix of reddish oxidized silt and sand. Finer beds typically feature striking sedimentary structures such as cross-bedding and convolute laminae crossed by more recent subparallel and subvertical joints filled with iron or silica cement. Clays of the lone Fm. are commercially valuable and have been actively mined for many decades. Early prospectors also suspected the lone conglomerates of being gold-bearing and where exposed, they are often disturbed by historic exploratory strip mining.

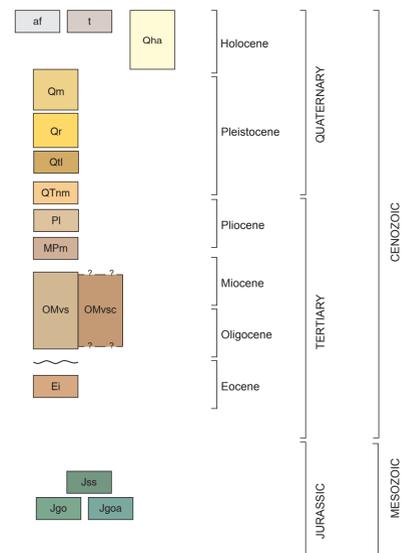
JURASSIC METAMORPHIC UNITS

- Jss** Salt Springs Slate (Late Jurassic)—Black sericite slate is the dominant lithology of the formation, but greywacke and tuff are widespread, and thin conglomerate layers occur locally (Clark, 1964). Late Oxfordian to early Kimmeridgian in age based on invertebrate fossils collected along the Cosumnes River. Plesiosaur fossil reported from Salt Springs Slate at Lake McClure south of the Quadrangle (Clark, 1964).
- Jgo** Gopher Ridge Volcanics (Late Jurassic)—Includes volcanic breccia, lentic and vitric tuffs, and massive lavas, locally exhibiting pillow structure. Compositions range from mafic to intermediate. Degree of metamorphism varies but schistose textures are common. Named by Clark (1964) for exposures along the Calaveras River within the Valley Springs quadrangle. Likely Oxfordian in age (Clark, 1964).
- Jgoa** Amphibolite facies

MAP SYMBOLS

- Contact between map units - Solid where accurately located; long dash where approximately located; short dash where inferred; dotted where concealed; queried where identity or existence is uncertain
- - - - - Fault - Solid where accurately located; long dash where approximately located; short dash where inferred; dotted where concealed; queried where identity or existence is uncertain
- 30° Strike and dip of sedimentary beds. Number indicates dip angle in degrees
- 50° Strike and dip of metamorphic foliation. Number indicates dip angle in degrees
- W Strike and dip of inclined joints. Number indicates dip angle in degrees.

CORRELATION OF MAP UNITS



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REMOTE SENSING DATA

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