

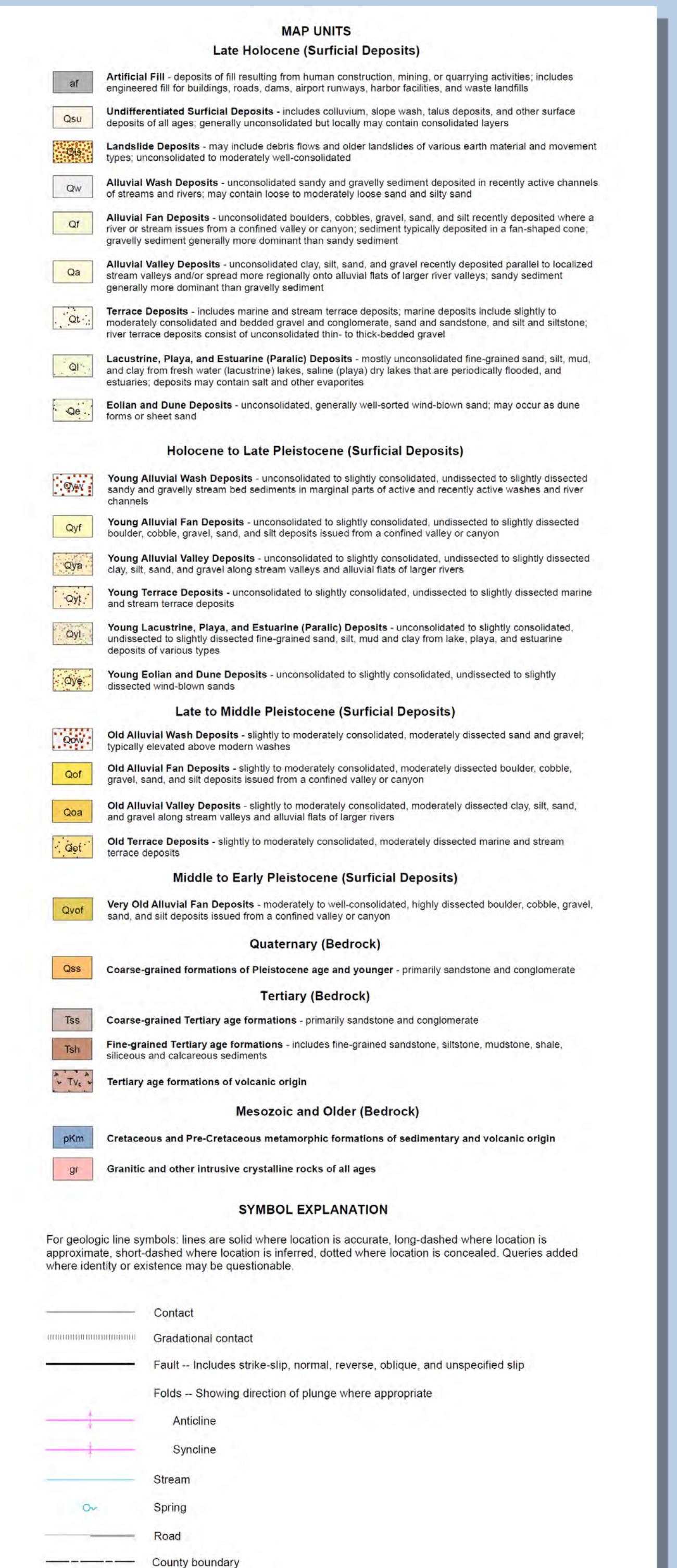
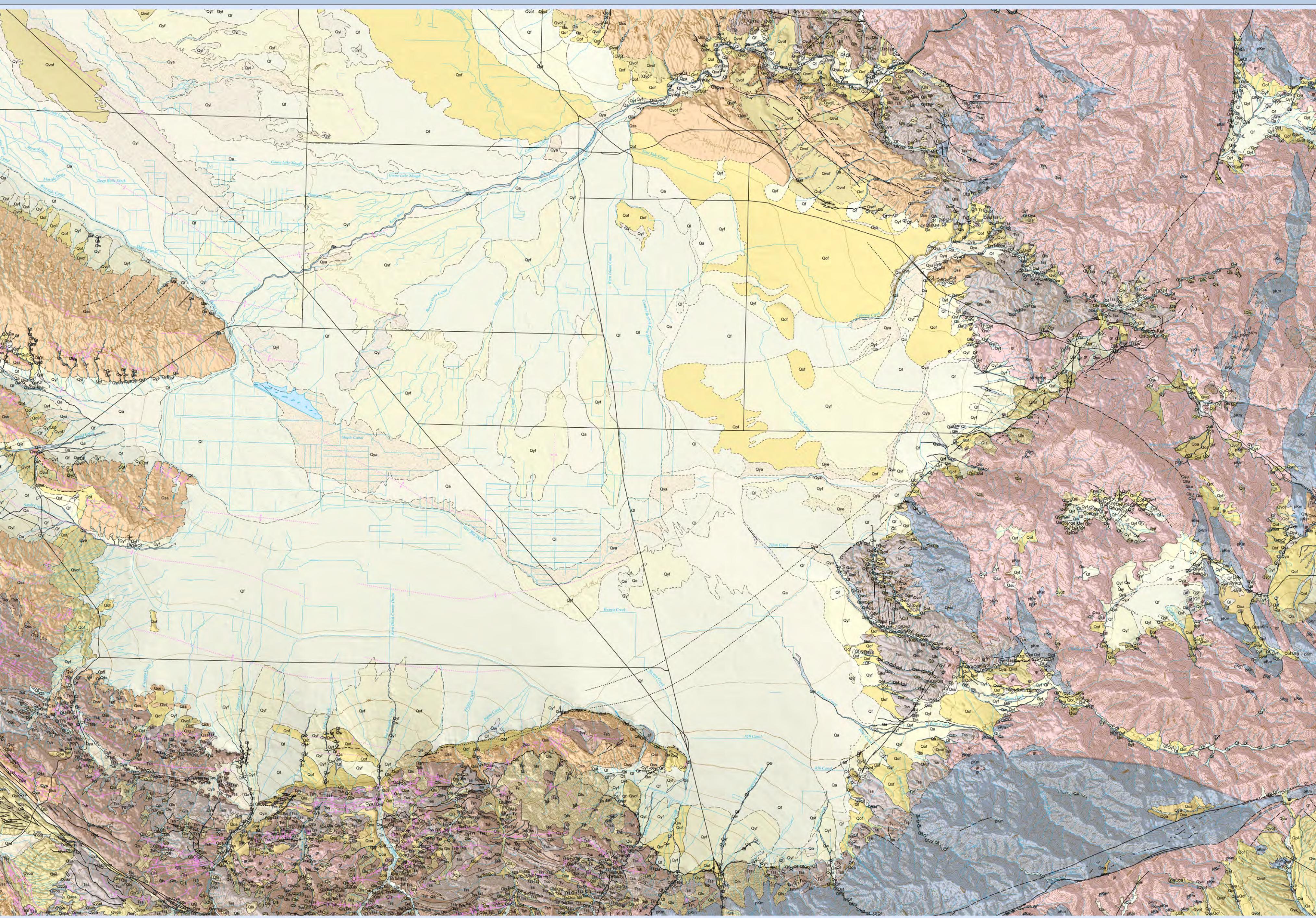
QUATERNARY SURFICIAL DEPOSITS OF THE SOUTHERN SAN JOAQUIN VALLEY

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Abstract

As part of the California Geological Survey's (CGS) Alluvial Fan Mapping Program, we mapped Quaternary surficial deposits and digitally compiled bedrock mapping, structure and landslides in the southern San Joaquin Valley near Bakersfield and Arvin for the Department of Water Resources (DWR). DWR is working to identify areas more susceptible to flooding on alluvial fans in urbanizing areas. This mapping is also a first step towards an evaluation of seismic shaking amplification, liquefaction, and collapsible soils. Four relative ages of alluvial fans (early/late Pleistocene, early/late Holocene) were interpreted from topographic data, geomorphic expression and imagery. Recent to early Pleistocene alluvial units mapped at 1:24,000 include wash, fans, axial-valley, lacustrine and eolian deposits. USDA soil surveys helped delineate flatland deposits. Mapping criteria included topographic expression, dissection, texture, slope, and profile development. Quaternary age flatland alluvial deposits near the southern end of the San Joaquin Valley are dominated by late Holocene Kern River, Caliente Creek and Tejon Creek alluvial fans emanating from bedrock uplands and spreading out toward the valley center. Early Holocene alluvial fans were interpreted between or at distal ends of the younger fans. Typically, Holocene fan deposits lie adjacent to the major drainages and near the mountain fronts, while early and late Pleistocene alluvial fans are located along the topographically higher margins of valleys and at distal ends of younger fans. Isolated remnants of early Pleistocene fans occupy the tops of many side ridges within several west-draining drainages. These early Pleistocene to late Holocene age alluvial fan and wash deposits include historic debris-flow deposits. Holocene wind-blown sand dunes are present south of Arvin. The valley center is underlain by the Buena Vista and Kern lake bed deposits, with alluvial valley deposits in interconnecting sloughs. The alluvial flatland deposits are surrounded on three sides by tectonically active mountains experiencing deformation resulting in uplift, displacement, tilting or folding, and erosion of the older Quaternary sediments at basin margins, narrowing the southern San Joaquin Valley and forcing younger sediments to prograde toward the valley center.



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