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Preliminary Geologic Map available from:
http://www.conservation.ca.gov/cgs/rghm/rgm/preliminary_geologic_maps.htm

GEOLOGIC MAP OF THE COTATI 7.5' QUADRANGLE SONOMA COUNTY, CALIFORNIA: A DIGITAL DATABASE

VERSION 1.0

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Digital Database
by:
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2003

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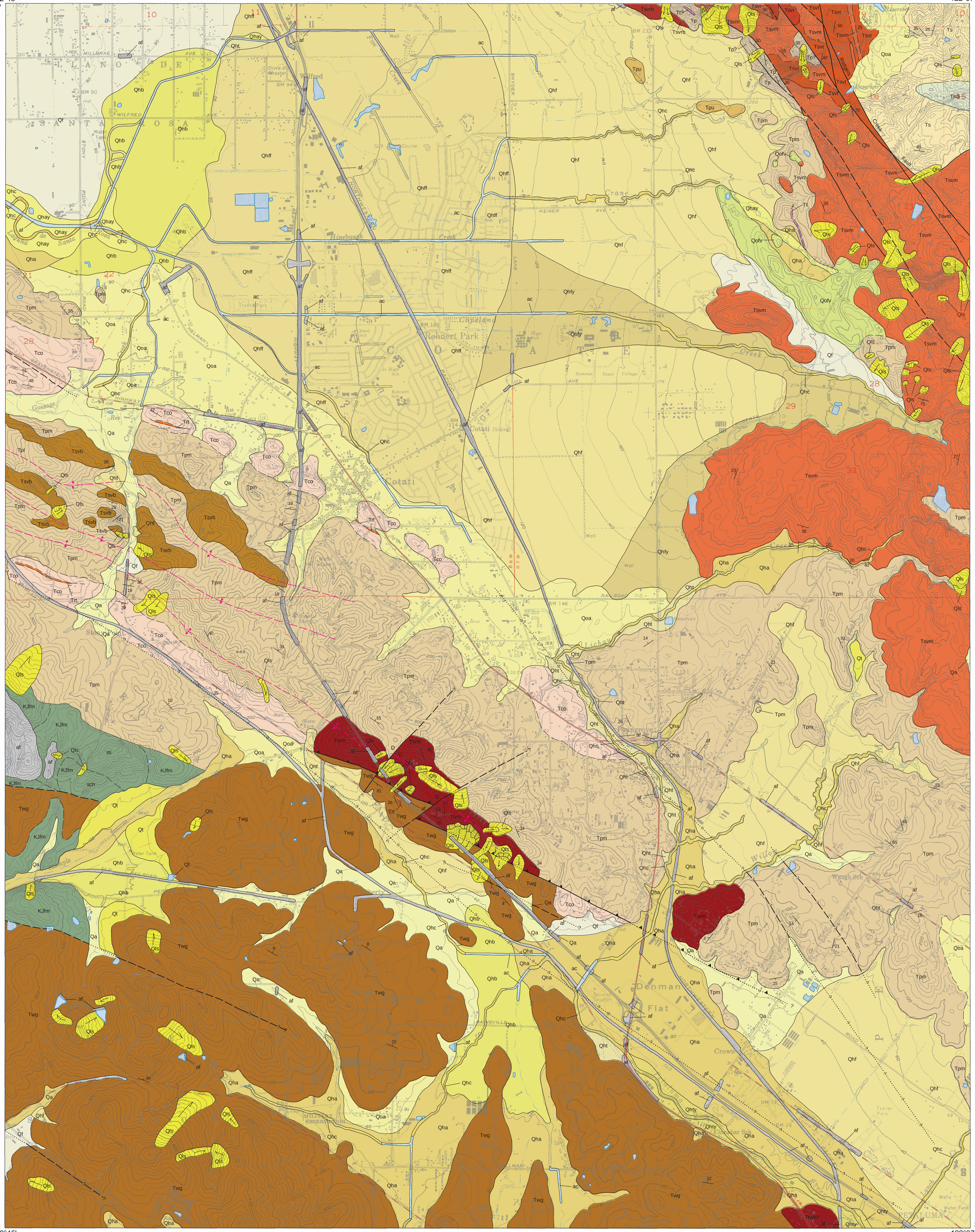
3. William Lettis & Associates, Inc., 1777 Botello Drive, Suite 262 Walnut Creek, CA 94596

122°45'
38°22'30"

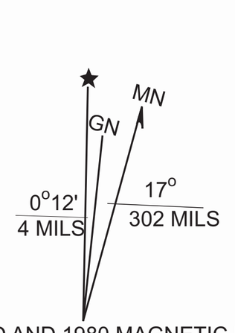
122°37'30"
38°22'30"



38°15'
122°45'

38°15'
122°37'30"

Topographic base from
the U.S. Geological Survey
UTM Projection



UTM GRID AND 1980 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

Scale 1:24,000

0 .5 1 2 Miles

0 .5 1 2 Kilometers

0 1 2 Thousand Feet

Contour Interval 20 feet

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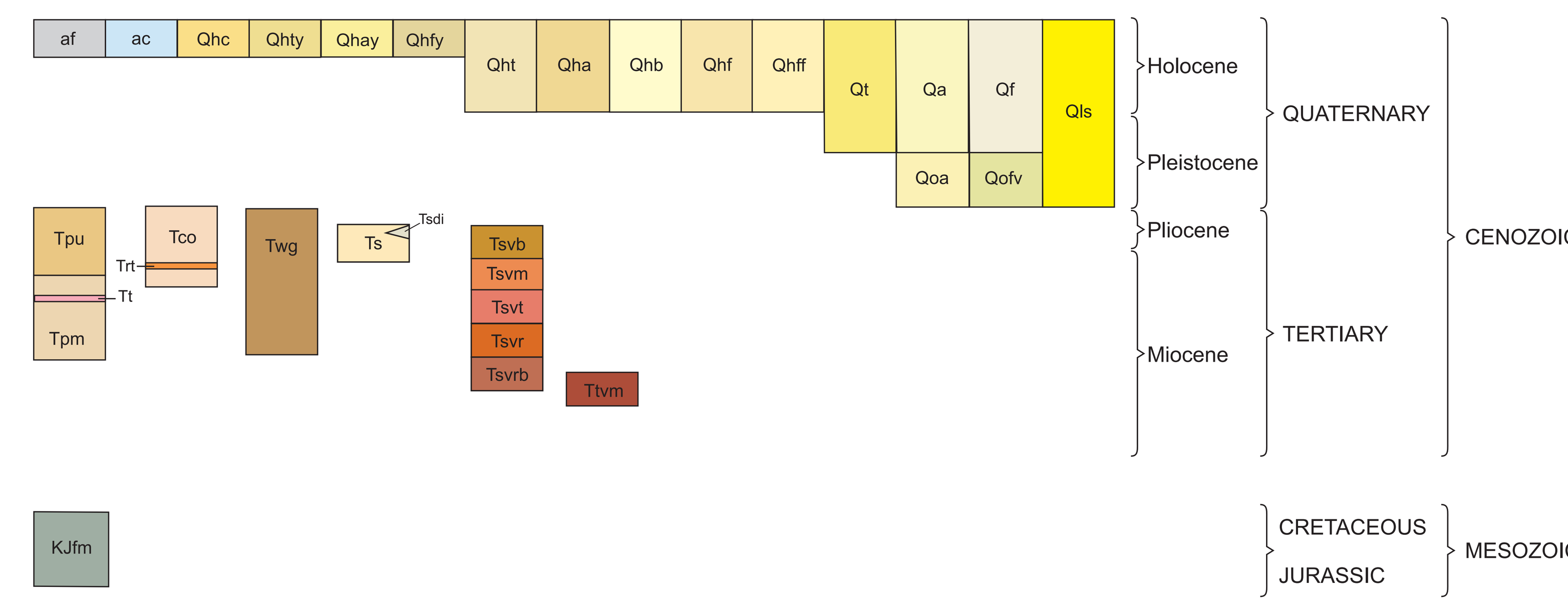
Unit Correlation



Unit Explanation

(See Knudsen and others (2000), for more information on Quaternary units).

af Artificial fill; may be engineered and/or non-engineered.

ac Artificial stream channel

Qhc Modern (<150 years) stream channel deposits in active, natural stream channels. Consists of loose alluvial sand, gravel, and silt.

Qhty Latest Holocene (<1,000 years) stream terrace deposits. Stream terraces deposited as point bar and overbank deposits along Lichau Creek; composed of moderately sorted clayey sand and sandy clay with gravel.

Qhay Latest Holocene alluvial deposits. Fluvial sediment deposited on the modern flood plain of Laguna de Santa Rosa and along Crane Creek; composed of loose sand, gravel, silt, and clay.

Qhfy Latest Holocene fan deposits. Alluvial fan sediment deposited by streams emanating from Copeland Creek drainage; composed of moderately to poorly sorted and bedded sand, gravel, silt, and clay.

Qht Holocene (<10,000 years) stream terrace deposits. Stream terraces deposited as point bar and overbank deposits along Lichau Creek; composed of moderately to well-sorted and bedded sand, gravel, silt, and minor clay.

Qha Holocene alluvium, undivided. Alluvium deposited on fans, terraces, or in basins; composed of sand, gravel, silt, and clay that are poorly sorted.

Qhb Holocene basin deposits. Fine-grained alluvium with horizontal stratification. May contain peat and lenses of coarser alluvium.

Qhf Holocene alluvial fan deposits. Alluvial fan sediment deposited by streams emanating from mountain drainages onto alluvial valleys; composed of moderately to poorly sorted sand, gravel, silt and clay.

Qhff Holocene alluvial fan deposits, fine facies. Fine-grained alluvial fan and floodplain overbank deposits on very gently sloping portions of the valley floor; composed of predominantly clay with interbedded lenses of coarser alluvium.

Qt Latest Pleistocene to Holocene stream terrace deposits. Sand, gravel, silt and minor clay. Relatively flat, undissected stream terraces where absolute age is uncertain.

Qa Latest Pleistocene to Holocene alluvium, undivided. Flat, relatively undissected fan, terrace, and basin deposits.

Qf Latest Pleistocene (<~30,000 years) to Holocene alluvial fan deposits. Sand, gravel, silt and clay mapped on gently sloping, fan-shaped, relatively undissected alluvial surfaces.

Qoa Early to late Pleistocene alluvial deposits, undivided. Alluvial fan, stream terrace, basin, and channel deposits. Topography is gently rolling with little or no original alluvial surfaces preserved; moderately to deeply dissected.

Qofv Early to late Pleistocene alluvial fan deposits. Alluvial fan sediment composed of weakly cemented conglomerate and sandstone. Clasts are volcanic, subrounded, and range up to 8 inches in diameter. Topography is moderately rolling with little or no original alluvial surfaces preserved; deeply dissected.

Qls Holocene and Pleistocene landslide deposits. Includes debris flows and block slides.

Ts (Tsdi) Sand and gravel, tuff and diatomite. Rich in both Franciscan and Sonoma Volcanic detritus. Contains tuff dated at 4.8±0.03 Ma (J. Allen, Written communication). Tsdi - Predominantly diatomite.

Tpu Tpu- Upper Petaluma Formation (Late Miocene to Pliocene). A fluvial and marine transitional deposit comprised of massive well-sorted sandstone, siltstone and conglomerate. Conglomerate locally contains laminated siliceous shale (Monterey Formation) clasts. Tertiary volcanics and Franciscan clasts located throughout unit.

Tco (Trt) Tco- Sand and gravel of Cotati (Late Miocene to Pliocene) . A predominantly marine transitional horizon comprised of massive, well-sorted estuarine and aeolian sandstone and nearshore marine and fluvial conglomerate. Conglomerate is locally rich in subrounded laminated siliceous shale (Monterey Formattion) clasts, Tertiary volcanics, and Franciscan clasts. The Roblar Tuff (Trt), dated at 6.26 Ma (Robert Fleck, written communication) is interbedded near or at the base of unit.

Tpm (Tt) Tpm- Middle Petaluma Formation (Late Miocene). A predominantly lacustrine and fluvial deposit with estuarine and marine transitional horizons. Is comprised of siltstone and sandstone with interbedded conglomerate with minor silicified tuff, chert, lignite, and limestone. Clasts in conglomerate are mostly pebbles derived from the Franciscan, but clasts of Cretaceous and Tertiary sandstone as well as Tertiary volcanics are present. An undifferentiated tuff (Tt) of unknown age is interbedded near the top of the Middle Petaluma Formation.

Twg Wilson Grove Formation (Late Miocene). Light gray to light yellow-brown marine sandstone. The sandstone is fine-grained, well-sorted and massive to poorly bedded. Well-rounded pebbles of chert and quartz occur in thin lenses of pebbly sandstone. Locally contains thin lenses of pebble conglomerate.

Tsvb Sonoma Volcanics (Late Miocene to Pliocene) - Basalt flows, and breccias. Olivine basalt flows dated from 4.26 to 6.32 Ma on the Cotati Quadrangle (Fox and others, 1985).

Tsvm Sonoma Volcanics (Late Miocene to Pliocene) - Mafic flow and breccias with interbedded tuff breccia. Andesite and basaltic andesite. The age range on the Cotati Quadrangle is 4.78 to 6.32 Ma (Fox and others, 1985).

Tsvt Sonoma Volcanics (Late Miocene to Pliocene) - Silicic tuff and interbedded tuffaceous sediments. Few interbedded sandstone, siltstone, and diatomite lenses similar to the Middle Petaluma Fm. The age range on the Cotati Quadrangle is 5.99 to 7.32 Ma (Fox and others, 1985).

Tsvr Sonoma Volcanics (Late Mioce to Pliocene) - Dacitic flows.

Tsvrb Sonoma Volcanics (Late Mioce to Pliocene) - Silicic breccia. Blocks of silicic (rhyolite to dacite) flow rock in a tuffaceous, sandy-gravelly matrix. Blocks are mostly angular though some are rounded, some a meter or more across with color ranging from pink, white, to brown. Blocks and fragments of perlite are common. Fluvial and debris flow deposits are present. There are occasional interbeds of Franciscan derived gravel similar to the Petaluma Formation. Dates on the blocks range from 7.36 to 8.11 Ma (Youngman, 1989; Fox and others, 1985). However, chemistry of trace elements of the tuffaceous matrix suggest affinities to approximately 6 Ma tuffs of the Zammaroni Quarry area near Santa Rosa suggesting the tuff deposit formed a little over six million years ago (Andrei Sarna and Elmira Wan, personal communication, 2005).

Ttvm Tolay Volcanics. Mafic volcanics including mafic flows and breccia. Mostly basalt and basaltic andesite flows and breccia.

KJfm Franciscan Complex melange - Tectonic mixture of masses of resistant rock including sandstone, altered mafic rocks (greenstone), an exotic metamorphic rocks embedded in a sheared shaley matrix. Blocks within melange large enough to be shown at this scale are denoted as: ss=sandstone and sch=schist and semischist.

Symbol Explanation

Contact between map units - solid where accurately located, dashed where approximately located; short dash where inferred; dotted where concealed.

Contact between similar map units of different relative age - generally approximately located.

Fault - solid where accurately located, dashed where approximately located; dotted where concealed; queried where uncertain. U = Upthrown block; D = Downthrown block.

Thrust fault - barbs on upper plate; solid where accurately located, dashed where approximately located; dotted where concealed; queried where uncertain.

Syncline - Dashed where approximately located; dotted where concealed; queried where questionable.

Anticline - Dashed where approximately located; dotted where concealed; queried where questionable.

Strike and dip of bedding plane.

Landslide - hachures indicate headscarp (source area); arrows indicate principal direction of movement. Queried where questionable.

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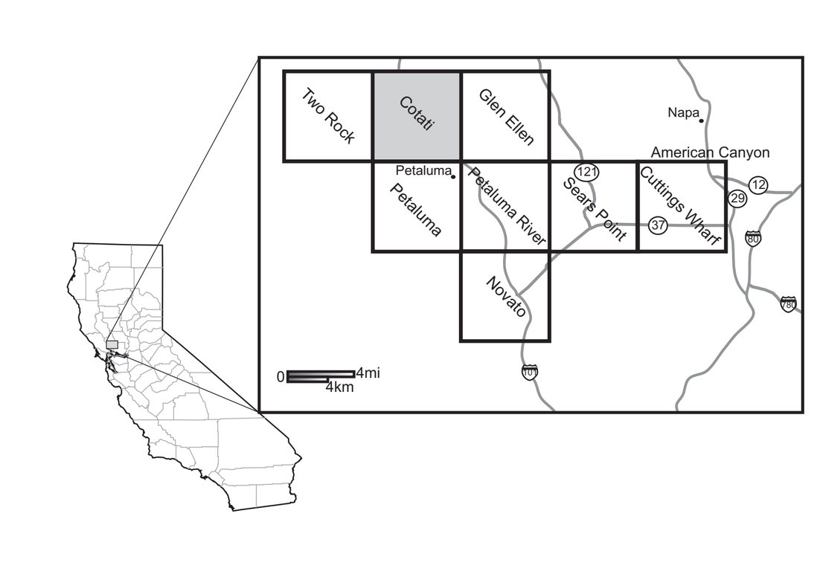

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