

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

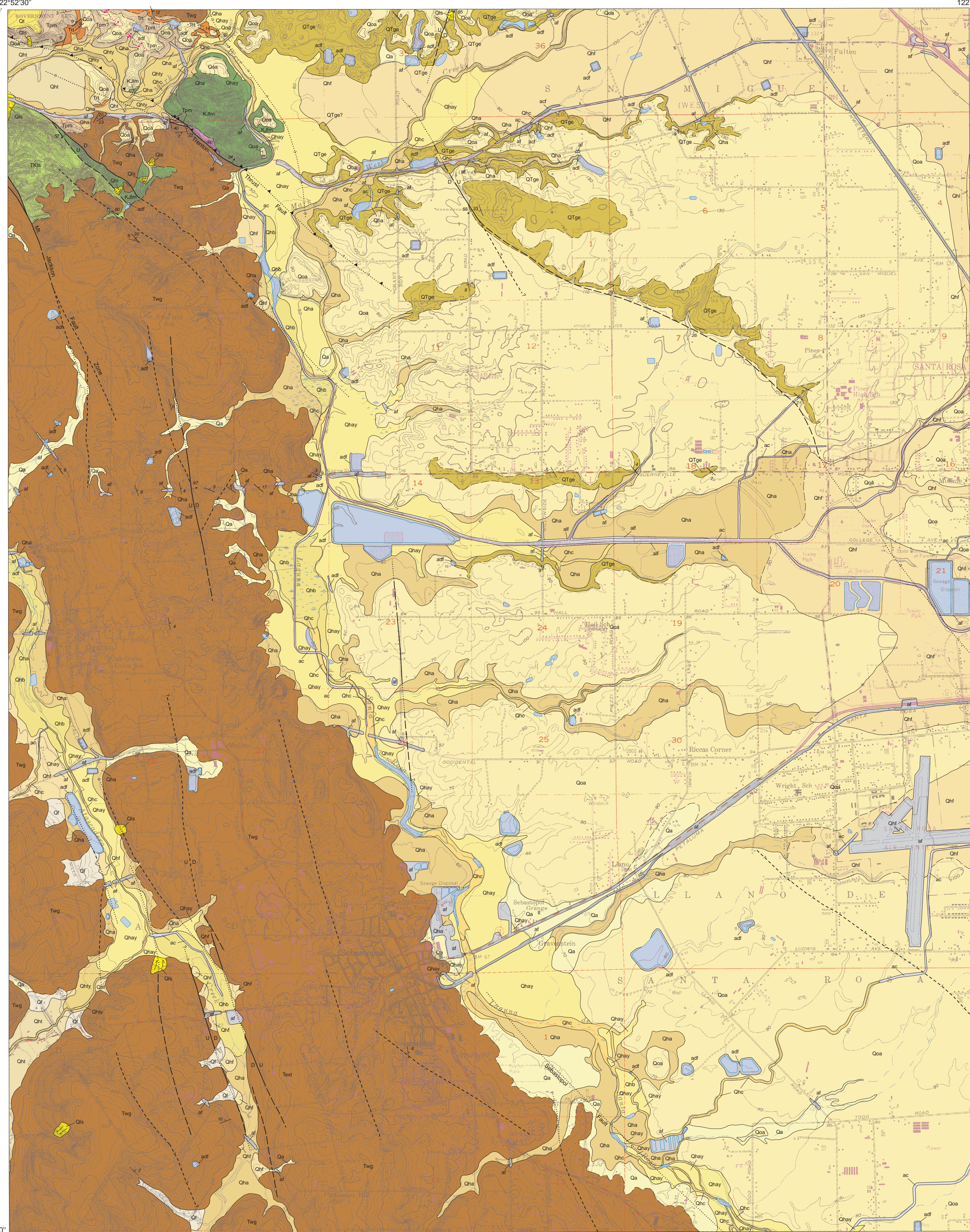
VERSION 1.0

By
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Digital Database

by
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2008

1. California Geological Survey
2. William Lettis & Associates, Inc., Walnut Creek, CA

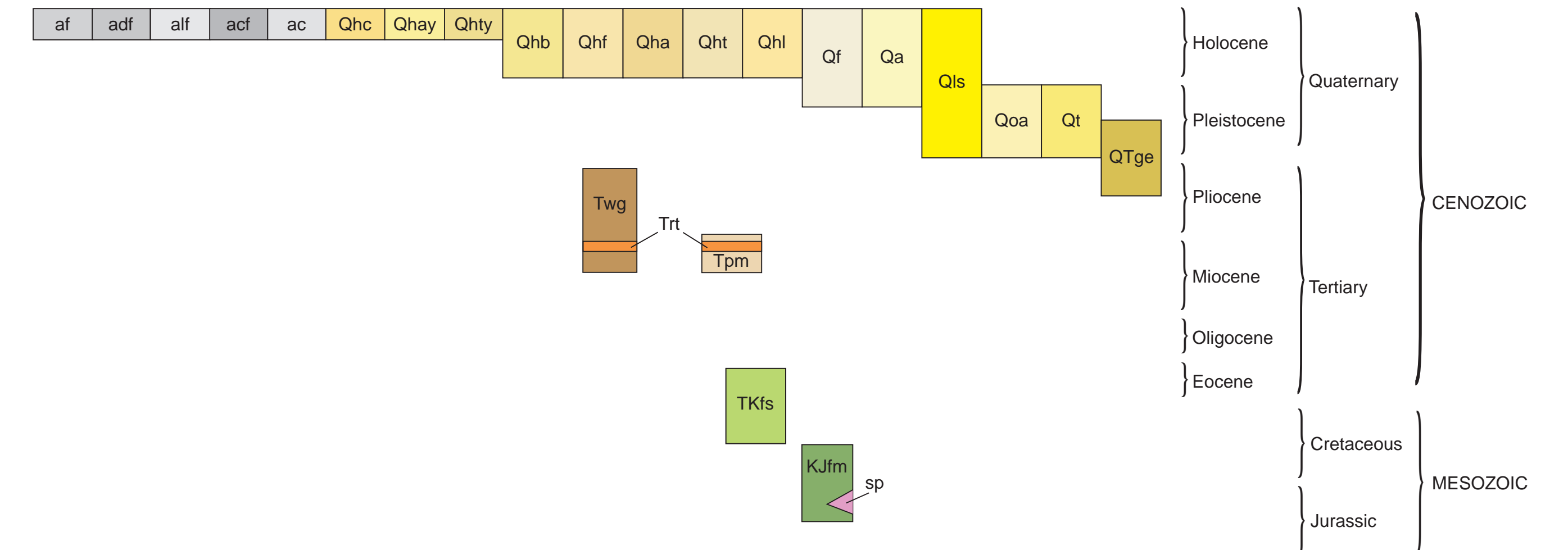


Unit Explanation

(See Witter and others (2006), for more information on Quaternary units.)

- af** Artificial fill (historical) – May be engineered and/or non-engineered.
- adf** Artificial dam fill (historical) – Earth dams, rock-fill dams, and embankments constructed to impound water.
- alf** Artificial levee fill (historical) – Levees constructed bordering streams and artificial channels.
- acf** Artificial channel fill (historical) – Artificial fill emplaced in historically active stream channels, where flow has been diverted to an artificial channel or pipe, and the landscape leveled for development or agricultural use.
- ac** Artificial stream channel (historical) – Modified stream channels, including straightened or realigned channels and flood control channels. Deposits within artificial channels consist of minimal to significant thicknesses of loose sand, silt, gravel and cobbles similar to natural channel deposits.
- Qhc** Stream channel deposits (latest Holocene to modern) – Fluvial deposits within active, natural stream channels composed of loose sand, silt and gravel.
- Qhay** Alluvial deposits, undivided (latest Holocene) – Fluvial sediment deposited on the modern flood plain.
- Qhty** Stream terrace deposits (latest Holocene) – Stream terrace deposits of sand, silt, gravel, and minor clay. Judged to be latest Holocene in age based on elevation and/or records of historical inundation.
- Qhb** Basin deposits (Holocene) – Sediment accumulated in topographic basins from slow moving or standing water. Deposits consist of horizontally stratified sand, silt, and clay, may be interbedded with lobes of coarser alluvial deposits.
- Qhf** Alluvial fan deposits (Holocene) – Sediment deposited by streams emanating from canyons onto alluvial valley floors. Sediments are typically moderately to poorly sorted and composed of sand, gravel, silt, and occasionally clay.
- Qha** Alluvial deposits, undivided (Holocene) – Alluvium deposited in fan, terrace, or basin environments that could not be readily separated for mapping. Deposits typically consist of poorly to moderately sorted sand, silt, and gravel that form smooth geomorphic surfaces with little to no dissection.
- Qht** Stream terrace deposits (Holocene) – Moderately well-sorted and bedded sand, gravel, silt, and minor clay deposited in overbank and point-bar settings along streams.
- Qhi** Alluvial fan levee deposits (Holocene) – Natural levee deposits of loose, moderately to well-sorted sand, silt, and clay.
- Qf** Alluvial fan deposits (latest Pleistocene to Holocene) – Moderately to poorly sorted deposits of sand, gravel, silt, and clay mapped on gently sloping, fan-shaped, relatively undisturbed, alluvial surfaces where age of deposits is unknown.
- Qa** Alluvial deposits, undifferentiated (latest Pleistocene to Holocene) – Sand, gravel, silt, and clay mapped in small valleys and where separate fan, basin, terrace, and active stream channel units could not be delineated at the scale of mapping.
- Qls** Landslide deposits (Pleistocene to historical) – Arrows indicate direction of movement; queried where landslide existence is questionable.
- Qoa** Older alluvium (early to late Pleistocene) – Undifferentiated alluvial fan, stream terrace, and basin deposits. Gray to brown, orange- to red-weathering, poorly sorted, sand, silt, and gravel composed of Franciscan basement material with conspicuous red and green chert, and lesser volcanic clasts. Includes moderately to deeply dissected older fan deposit that mantles the Glen Ellen Formation (QTge) over much of the Santa Rosa Plain, and isolated terrace remnants along Mark West Creek.
- Qt** Stream terrace deposits (Pleistocene?) – Red-brown sand, silt, clay, and gravel of uncertain age. Mapped on a relatively flat, uplifted surface at northwest corner of study area.
- QTge** Glen Ellen Formation (Pliocene to Pleistocene) – Light-brown to yellow-brown, interstratified gravel, sand, silt, clay, and reworked tuff. Sediments are mostly derived from volcanic sources, though pebbles of Franciscan basement are common. Sparse obsidian pebbles are characteristic of this unit. Largely covered by older alluvial deposits (Qoa) and younger deposits, except where exposed by erosion along drainages and some isolated patches at higher elevation across the Santa Rosa Plain.
- Tr** Wilson Grove Formation (late Miocene to late Pliocene) – Predominantly marine sandstone and pebbly sandstone. Light-gray to yellow-brown with orange and red iron-oxide staining, fine- to very fine-grained, well sorted, massive to poorly bedded, and locally fossiliferous. Well-rounded pebbles of chert and quartz occur in occasional stringers and matrix-supported lenses. Eastern and northern-most exposures of the unit include transitional marine to continental deposits that are coarser grained and more poorly sorted, planar- and cross-stratified, and locally tuffaceous. Pebbly sandstone is lithologically similar to the marine section, but more prevalent, and locally includes rounded pebbles of tuff and pumice. Along River Road, includes invertebrate taxa reflective of estuarine conditions (Powell and others, 2004), and separately, interbedded, red-stained, fissile, diatomaceous (?) shale with pockets of lignite.
- Twg** Middle Petaluma Formation (late Miocene) – Fluvial deposits interbedded with Wilson Grove Formation (Twg) and Roblar tuff (Trt) north of Trenton Road; previously mapped as part of the Wilson Grove Formation (Travis, 1952; Blake and others, 1971); assigned here to Tpm based on lithology and stratigraphic relationships described by Allen (2008). Light-gray, yellowish-brown-weathering, sandstone and conglomerate. Conglomerate is both clast- and matrix-supported, with sub-angular to sub-rounded clasts of graywacke and other Franciscan basement rocks, with subordinate volcanic material.
- Trt** Roblar Tuff (late Miocene) – Water-laid pumice lapilli tuff and tuff breccia with gray pumice clasts to 15 cm in diameter. White to yellow-gray color is frequently obscured by a thin, dark gray to black weathering rind on exposed surfaces. Informally named by Sama-Wojcicki (1992) and most reliably Ar/Ar dated at 6.26 Ma (McLaughlin and others, 2008). Interbedded with fluvial Petaluma Formation north of River Road, and with the marine Wilson Grove Formation outside the study area. Varies widely in thickness, up to approximately 15 meters.
- TKIs** Franciscan Complex, Coastal or Central Belt Sandstone (late Eocene to Late Cretaceous) – Composed chiefly of massive, white to greenish gray, brown- and orange-weathering sandstone. Unit also includes some argillite and shale with disrupted bedding. Sandstone is mostly feldspathic-lithic wacke with detrital biotite and muscovite (Blake and others, 2002).
- KJfm** Franciscan Complex, Central Belt mélangé (Late Cretaceous to Early Jurassic) – Tectonic mixture consisting largely of penetratively sheared argillite and graywacke that forms a matrix around more coherent rock masses of varied lithology including altered mafic volcanic rock (greenschist), chert, serpentinite, coherent graywacke, and exotic metamorphic rocks.
- sp** Serpentinite – Variably serpentinized ultramafic rock derived from the Coast Range Ophiolite. Within study area, limited to a fault-bounded body within Franciscan mélangé (KJfm).

Unit Correlation



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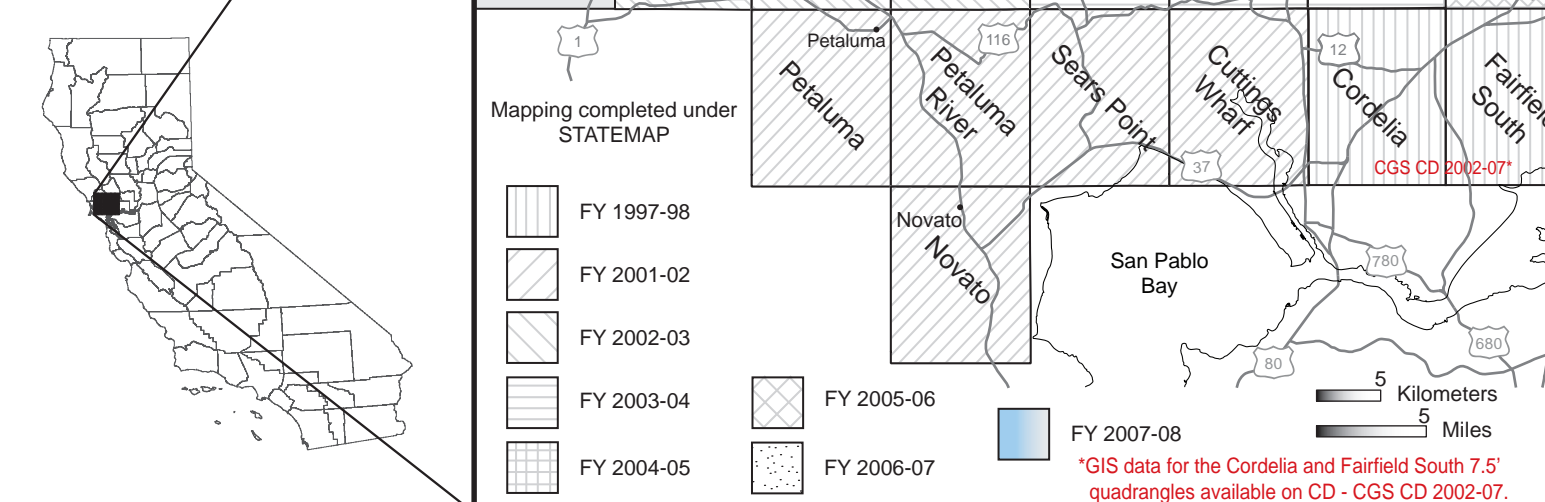
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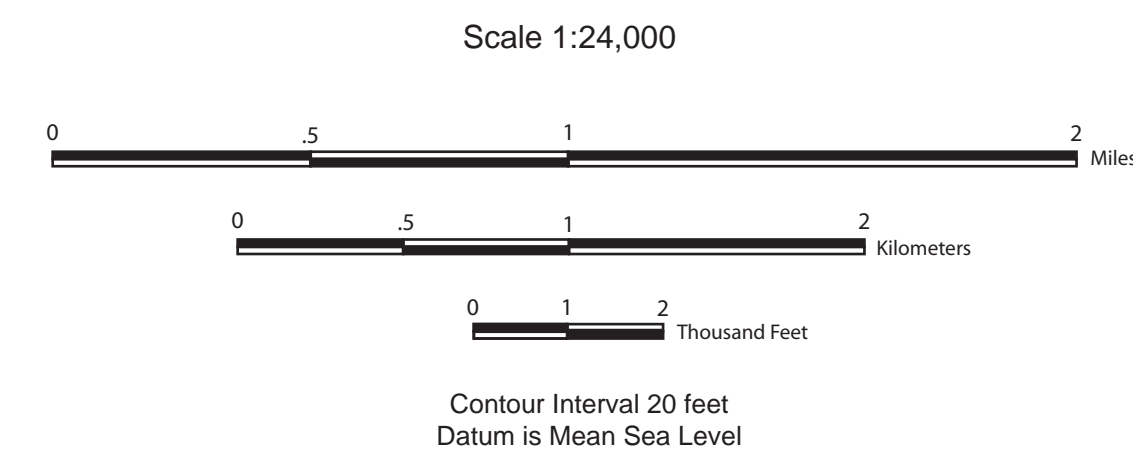
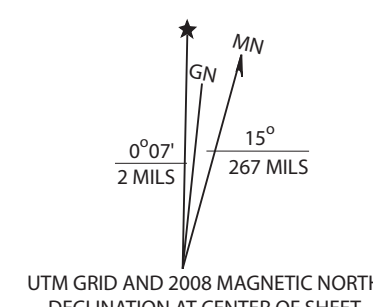
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Symbol Explanation

- Contact between map units - solid where accurately located; dashed where approximately located; short dash where inferred.
- Fault - solid where accurately located; dashed where approximately located; short dash where inferred; dotted where concealed; queried where uncertain. U = upthrown block, D = downthrown block. Arrow and number indicate direction and angle of dip of fault plane.
- Thrust fault - bars on upper plate; solid where accurately located; dashed where approximately located; dotted where concealed; queried where uncertain. Arrow and number indicate direction and angle of dip of fault plane.
- Anticline - Dashed where approximately located; dotted where concealed.
- Strike and dip of bedding plane
- Landslide - arrows indicate principal direction of movement.



Topographic base from U.S. Geological Survey
Sebastopol 7.5-minute Quadrangle, 1980
UTM projection, Zone 10, North American Datum 1927



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