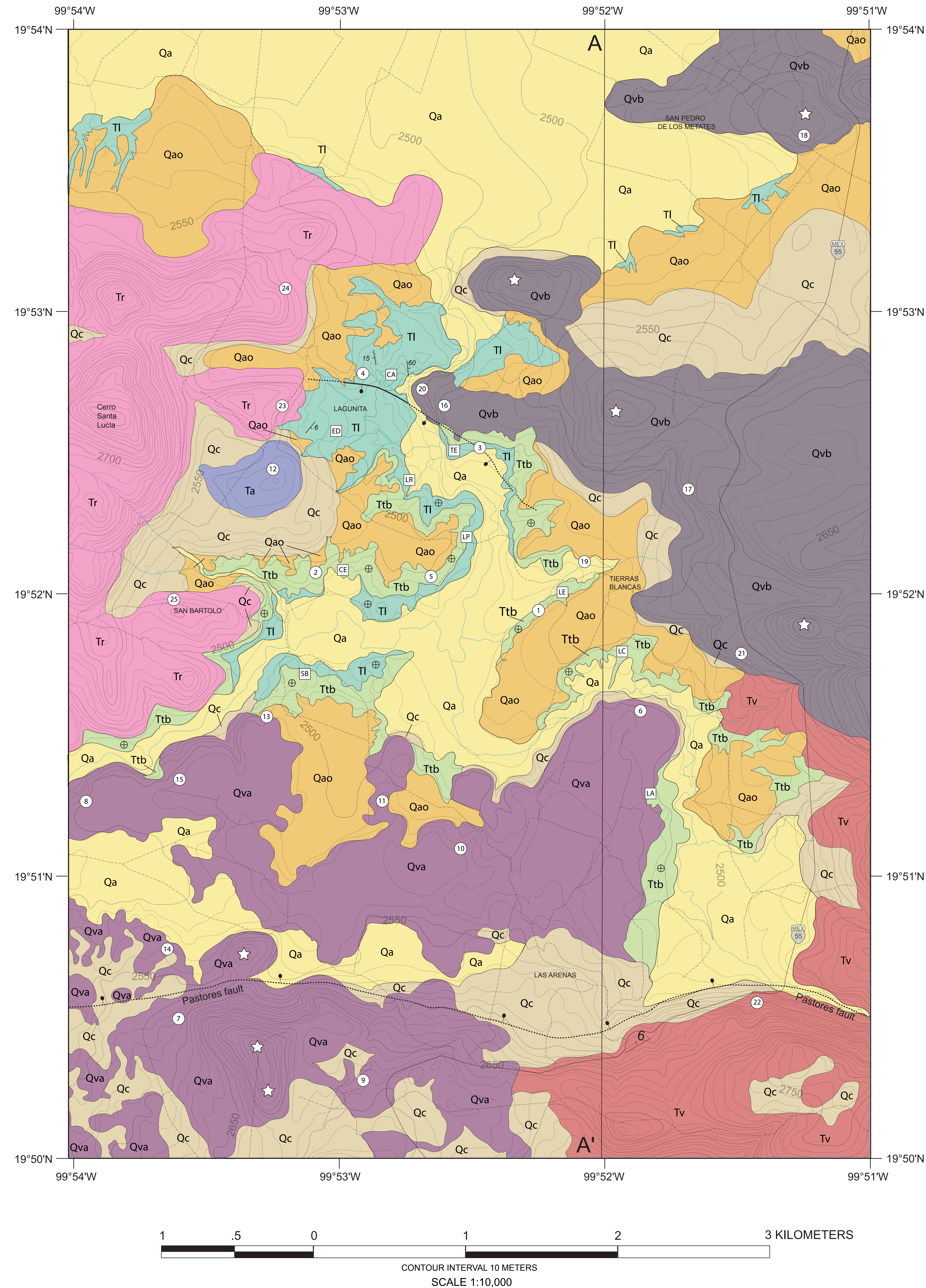


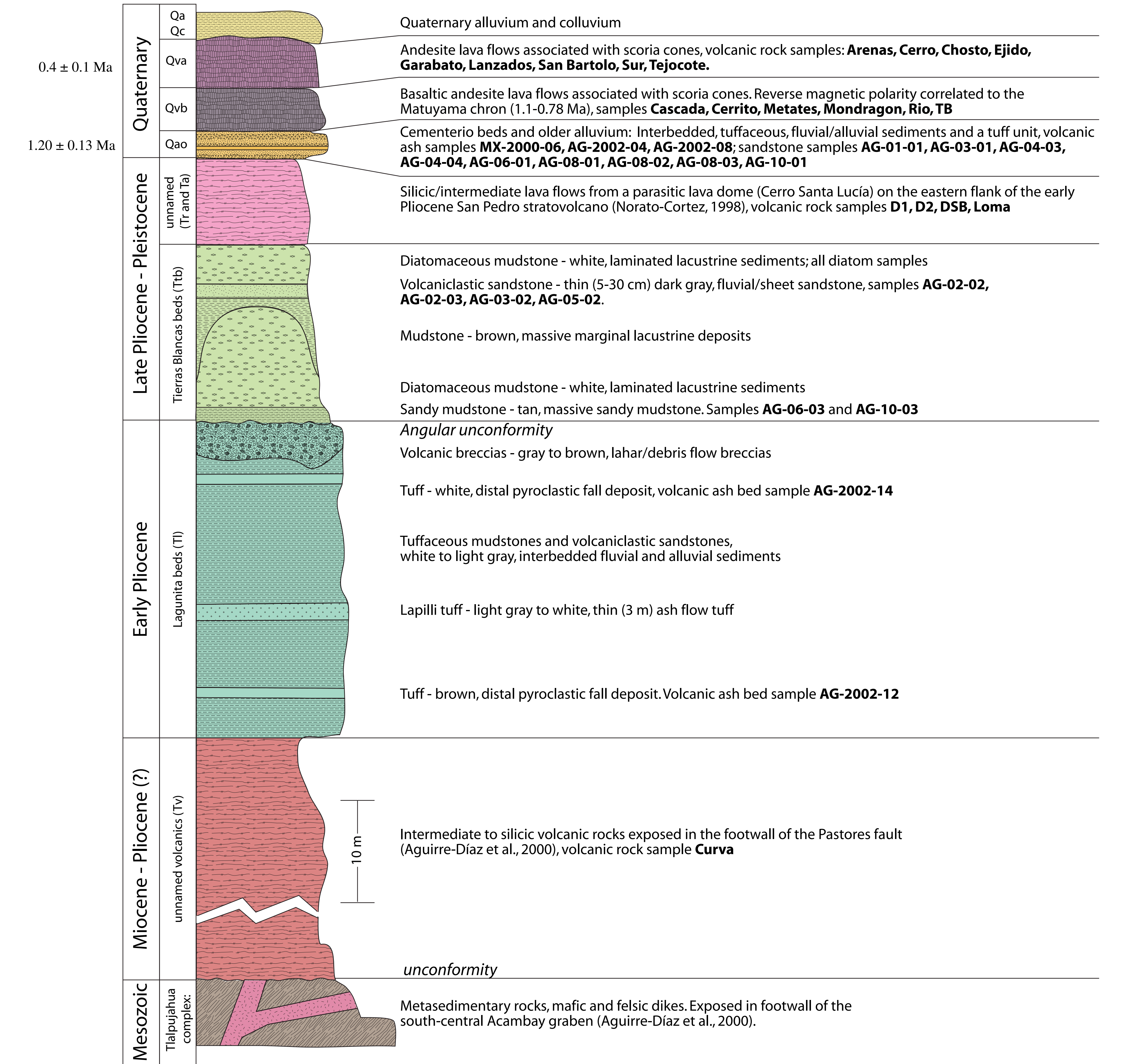
GEOLOGIC MAP OF THE TIERRAS BLANCAS AREA, ESTADO DE MEXICO

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Description of Map Units

- Quaternary**
- Qa** Alluvium, unconsolidated sand and gravel in drainages and main graben valley.
 - Qc** Colluvium, unconsolidated sand and gravel on slopes.
 - Qva** Andesite lava flows, high-K₂O; 0.4 ± 0.1 Ma; dark gray to black groundmasses with 5-10% plagioclase phenocrysts and sparse pyroxene; abundant xenocrysts of quartz and partially disaggregated clots of glassy feldspar, quartz, and biotite; felsic inclusions are medium grained and up to 1 cm across.
 - Qvb** Basaltic andesite lava flows and cinder cones, high-TiO₂; approx. 0.8 to 1.1 Ma; commonly have gray to dark gray groundmass with <5% plagioclase and pyroxene phenocrysts.
 - Qao** Older alluvium, at higher elevations than the current drainage; may include a package of semi-consolidated sand and tuff beds (1.20 ± 0.13 Ma) at the base of the unit (Cementerio Beds). The age of a fallout ash in this unit is older than the Qva and Qvb ages, but some of the alluvium in this unit is likely also younger than those flows.
- Tertiary**
- Ta** Andesite lava flow, geochemically distinct, medium-K₂O magnesian, undated but probably Late Pliocene to Early Pleistocene, no clear age relationship with Tierras Blancas and Lagunita beds, so it may be older or younger than they are.
 - Tr** Rhyolite and dacite lava flows of Cerro Santa Lucia, medium-K₂O, probably Late Pliocene to Early Pleistocene, light gray groundmass with phenocrysts of plagioclase, quartz, biotite, and amphibole.
 - Ttb** Tierras Blancas beds, mammal fossils indicate an age of Late Pliocene to Early Pleistocene; divided into four lithofacies: 1) sandy mudstone, 2) diatomaceous mudstone, 3) massive mudstone, and 4) volcaniclastic sandstone.
 - Tl** Lagunita beds, sparse mammal fossils indicate an Early Pliocene age; gray to brown volcanic breccias, very light brown tuffaceous mudstones, two thin distal pyroclastic fall layers, and a 3 m thick ash flow tuff; has five lithofacies: 1) tuffaceous mudstone, 2) volcaniclastic sandstone, 3) lapilli ash-flow tuff, 4) fallout tuff, and 5) volcanic breccia (debris flow/lahar).
 - Tv** Intermediate to silicic volcanic and volcaniclastic rocks, Miocene to Pliocene; one low-silica dacite lava flow with light tan to light gray groundmass and no prominent phenocrysts was analyzed from this group.



Map Symbols

	CONTACT -- Dashed where inferred or approximately located.
	FAULT -- Dashed where inferred or approximately located, dotted where covered; bar and ball on downthrown side.
	STRIKE AND DIP OF BEDS
	VOLCANIC VENT
	SAMPLE LOCALITY -- See map text for description of samples
	MEASURED SECTION LOCALITY

