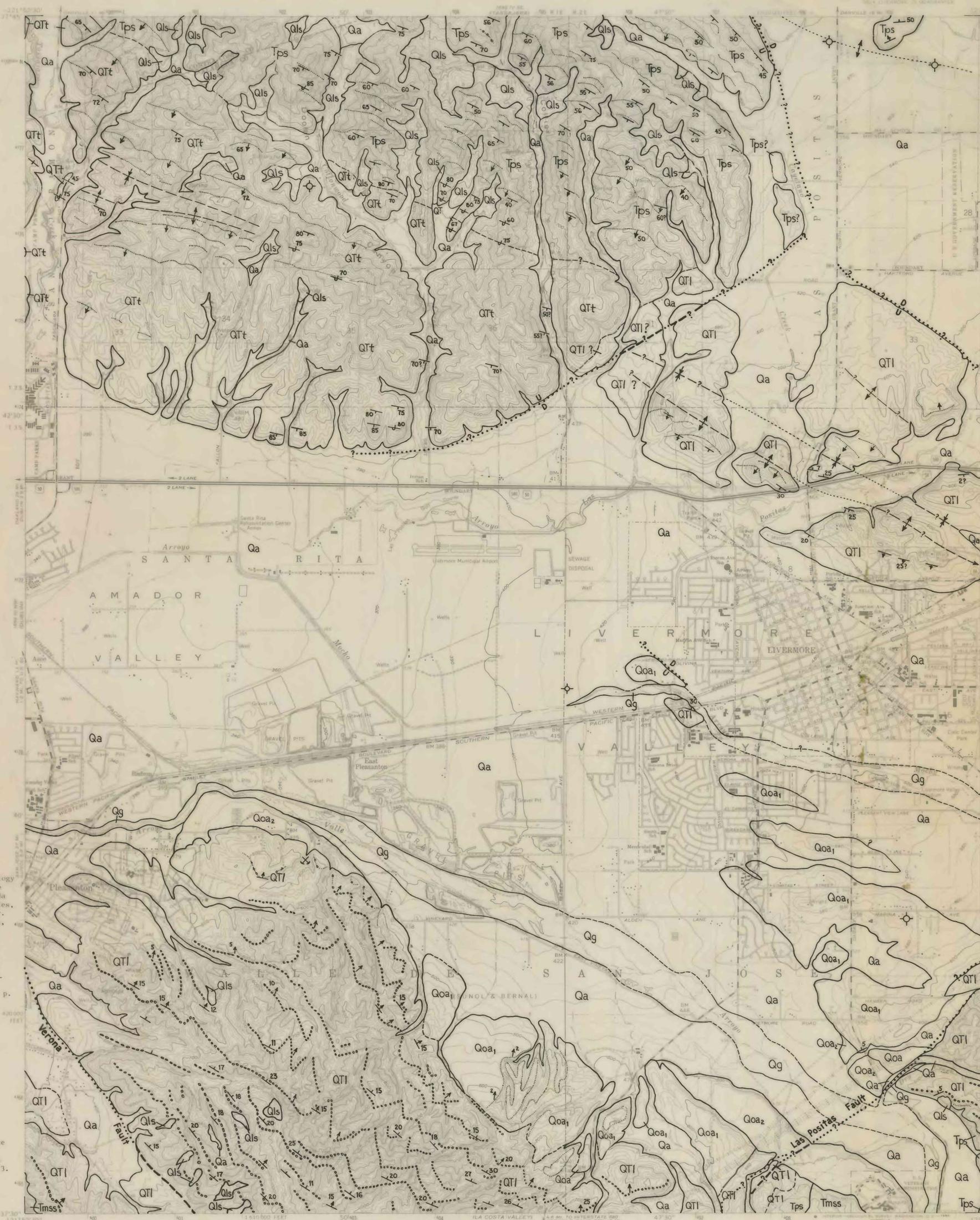


LIVERMORE QUADRANGLE
CALIFORNIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
1954 EDITION



- Surficial deposits**
- Qg: stream channel gravel and sand
- Qa: alluvium
- Qls: landslide debris
- UNCONFORMITY
- Older alluvium**
- Qoa2: younger terrace deposits
- Qoa1: older terrace deposits
- UNCONFORMITY
- Nonmarine sedimentary rocks**
- QT1: Livermore Gravel. Light reddish-gray cobble-pebble gravel containing debris from Franciscan rocks; pebbly sand, silt and clay. Proportionally more clay, silt and sand north of Livermore
- QTt: Tassajara Formation. Light greenish-gray clay, minor thin lenses of sand, pebble gravel, and a few local marl beds
- Nonmarine sedimentary rocks**
- Tps: Pebble conglomerate, sandstone and greenish gray mudstone; locally contains a few thin marl beds
- UNCONFORMITY
- Marine sedimentary rocks**
- Tmss: Light gray arkosic sandstone; includes Briones and Clerbo Sandstones
- Contact**
- dashed where gradational or approximately located
- Fault**
- dashed where inferred; dotted where concealed; queried where existence doubtful; double arrows indicate strike-slip movement; U - upthrown side; D - downthrown side relatively
- Axis of fold**
- arrow on axis indicates direction of plunge
- 30° inclined
- inclined (approximate)
- vertical
- 70° overturned
- Strike and dip of strata**
- sandstone bed
- gravel bed
- Abandoned test hole

References cited

Hall, C.A., Jr., 1958, Geology and paleontology of the Pleasanton area, Alameda and Contra Costa Counties, California: Calif. Univ. Puos. Geol. Sci., v. 34, no. 1 (scale 1:62,500).

Herd, D.G., 1977, Geologic map of the Las Positas, Greenville, and Verona faults, eastern Alameda County, California: U.S. Geological Survey Open-File Report 77-689, 25 p.

Nilsen, Tor H., 1973, Preliminary Photo-interpretation map of landslide and other surficial deposits of the Livermore and part of the Hayward 15-minute quadrangles, Alameda and Contra Costa Counties, California: U.S. Geological Survey Miscellaneous Field Studies Map MF-519

* Only a few landslides have been mapped. For a more complete map of landslide deposits, see Nilsen, 1973.

Aerial photograph interpretation and field checking by Thomas W. Dibblee, Jr., 1977, modified from C.A. Hall, Jr., 1958, and D.G., Herd, 1977.

SCALE 1:24,000

CONTOUR INTERVAL 20 FEET
DOTTED LINES REPRESENT 10-FOOT CONTOURS
DATUM IS MEAN SEA LEVEL

LIVERMORE, CALIF.
N44° LIVERMORE QUADRANGLE
N3737.5-W12345.7.5

PRELIMINARY GEOLOGIC MAP OF THE LIVERMORE QUADRANGLE, ALAMEDA AND CONTRA COSTA COUNTIES, CALIFORNIA
by
Thomas W. Dibblee, Jr.

U.S. Geological Survey
OPEN-FILE REPORT
This report is preliminary and has not been edited or reviewed for conformity with Geological Survey Standards and nomenclature