

BY

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1975

CONSISTING OF BOLINAS, DOUBLE POINT, DRAKES BAY,
INVERNESS, NOVATO, PETALUMA, PETALUMA RIVER, POINT REYES
NE, SAN Geronimo, SAN RAFAEL, SAN QUENTIN, AND TOMALES
7 1/2 MINUTE QUADRANGLES

PETALUMA RIVER

References Cited

Blake, M. C., Jr., Barrow, J. A., Frizzell, V. A., Jr., Schlocker,
J., Sore, D., Wentworth, C. M., and Wright, R. H., 1974, Pre-
liminary geologic map of Marin and San Francisco Counties and
parts of Alameda, Contra Costa and Sonoma Counties, California:
U.S. Geol. Survey Misc. Field Studies Map MF-574, scale 1:62,500.
Brabb, E. E., and Papey, E. H., 1972, Preliminary map of land-
slide deposits in San Mateo County, California: U.S. Geol.
Survey Misc. Field Studies Map MF-344, scale 1:62,500.
Nilsen, T. H., 1972, Preliminary photointerpretation map of land-
slide and other surficial deposits of the Mt. Hamilton quadrangle
and parts of the Mt. Boardman and San Jose quadrangles, Alameda
and Santa Clara Counties, California: U.S. Geol. Survey Misc.
Field Studies Map MF-339, scale 1:62,500.

This photo-reconnaissance map of landslide deposits in
parts of Marin and Sonoma Counties was prepared as part of an
ongoing USGS study in the San Francisco Bay Region to supply
information about slope stability, an aspect of the physical
environment that may be potentially hazardous to man or his
works. When combined with other data, such as bedrock geology,
slope steepness, and hydrology, the landslide information
presented herein may facilitate land-use decisions where slope
stability may be of concern.
The map was prepared exclusively through photointerpretative
methods (in a fashion similar to Nilsen (1972) and Brabb and
Papey (1972)) and has not been systematically checked by
examining the distribution of landslides observable in the field.
Overlapping vertical aerial photographs with a scale of 1:80,000,
1:30,000 and 1:20,000 were used. Landslides were identified by
the presence of specific topographic features including scarps,
closed depressions, and downslope bulges that contrast with
adjacent terrain lacking these features.
Blake and others (1974) includes numerous references to
publications concerning the geology of the map area.

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.

MAP SYMBOLS

LANDSLIDES



Landslide
identification confident to probable, except
uncertain where queried; inferred movement style
variable, including uncertain or indeterminate
styles

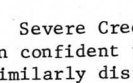
Small Landslide Deposits

arrows indicate direction of inferred down-
slope movement and are generally centered over
location of deposits; deposits generally larger
than 100 feet but smaller than 500 feet in
maximum dimension; confident to probable; queried
where uncertain



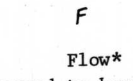
Block Slide

identification confident to probable, except
uncertain where queried; consists of those land-
slides inferred to have moved downslope as rel-
atively intact blocks

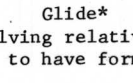


Severe Creep*

identification confident to probable, with
"wrinkled" or similarly distorted soil surface;
identifiable only on grassy or bare ground



possible landslide or block slide, arrow types
as above



Flow*

landslide inferred to have moved as a flow
well beyond the toe of the failure slope



Glide*

landslide involving relatively intact blocks
that is inferred to have formed by nearly hori-
zontal movement



Active Landslide*

containing evidence of recent movement



ANOMALOUS TOPOGRAPHIC FEATURES

Scarp of uncertain origin*
possibly landslide related (line at base of
scarp)

Sea Cliffs
cliffs backing beaches or facing open water,
may produce falling rock and debris (line at top
of cliff)

Anomalous Swale, Trench, or Small Valley*
possibly landslide related

Closed Depression
"X" located at bottom; line along rim

ROCK AND SEDIMENT

Young Sedimentary Deposits with
Constructional Topography
queried where identification uncertain; con-
sists of alluvium, alluvial fans and some terrace
deposits; east of and within the San Andreas Rift
Zone includes colluvium and some and beach sands
that are distinguished west of that zone

Colluvial Deposits
queried where identification uncertain

Dune and Beach Sand
queried where identification uncertain

Terrace Deposits
queried where identification uncertain;
distinguished only locally

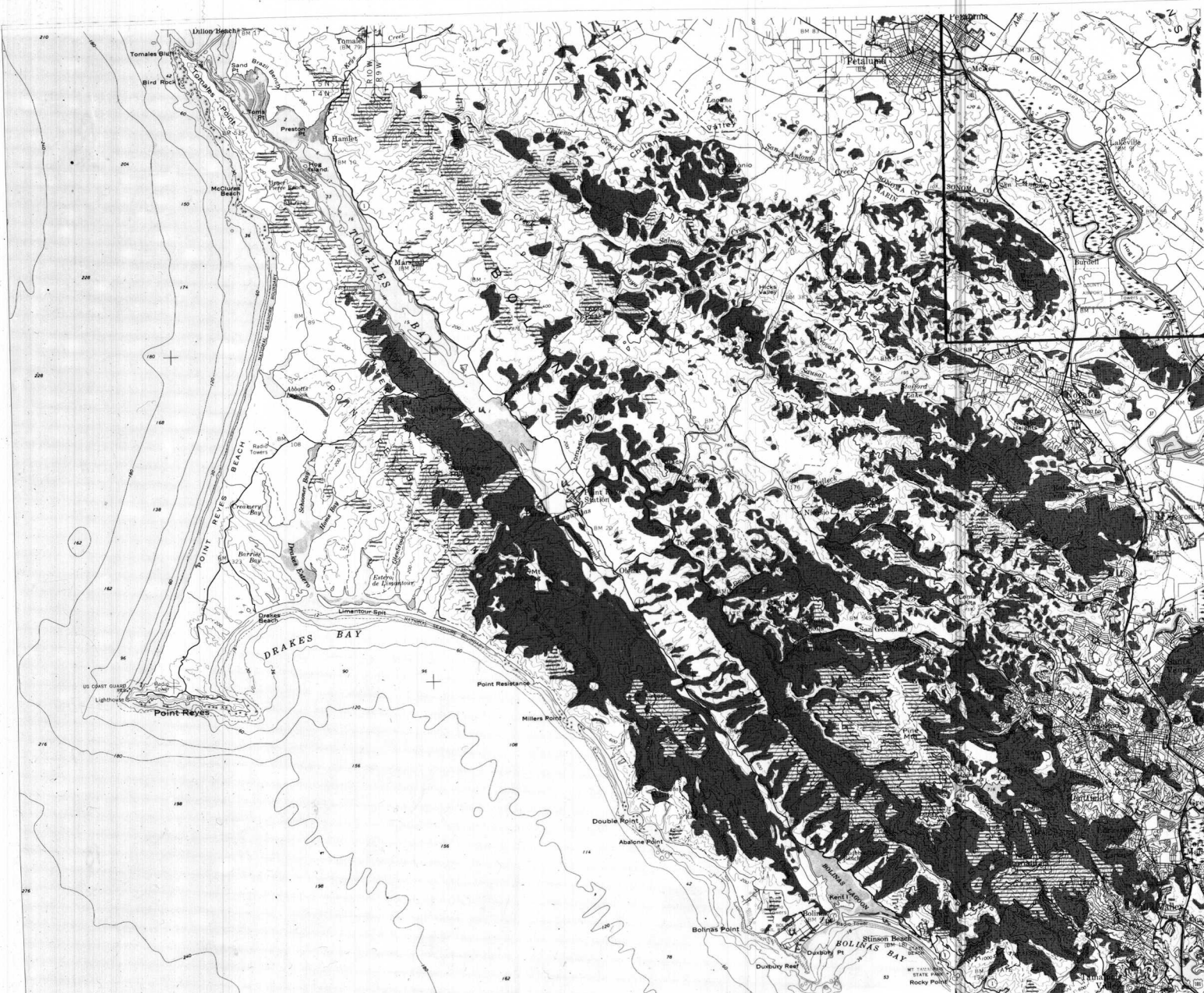
Bedrock with Erosional Topography
queried where identification uncertain; ranges
from semi-indurated sediment to hard rock, vari-
ably covered with soil, labeled only where iden-
tity not otherwise evident

Symbol used exclusively east of the San Andreas
Rift Zone

Quarry

Limit of Landslide Mapping
landslides are not mapped outside scratch
boundary

MAP SHOWING RELATIVE VISIBILITY OF GROUND SURFACE



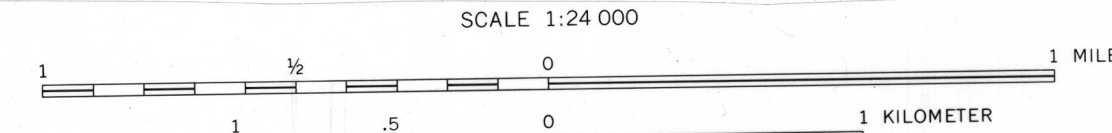
EXPLANATION OF MAP SHOWING RELATIVE VISIBILITY OF GROUND SURFACE

Ground surface least visible, with the ground surface and out-
line of the ground surface commonly obscured by trees or combi-
nations of trees and brush. Landslides most easily overlooked.

Ground surface usually obscured by brush, but outline of ground
surface is observable. Also locally contains areas of trees or
grass too small to be shown.

no pattern
Surface of the ground covered by grass and easily visible. In-
cludes some areas of trees or brush too small to be shown. Lan-
dslides most obvious.

The following aerial photographs were used
in the preparation of the Petaluma River Quad-
rangle: U.S. Department of Agriculture (ADCS)
Series DMI taken in 1952 including photographs
numbered 1K-162 to 165 and 2K-120 to 123
(1:20,000 scale) and Series CSH taken in 1961
including photographs 188-95 to 103, and 151 to
163, and 788-100 to 107 (1:20,000 scale).
In addition, photographs taken for the U.S.
Geological Survey in 1970 were used supplement-
arily. These included Series G-VN1, 1-82 and
3-119 to 120 (1:80,000 scale).



Mapped by Carl Wentworth