

U.S. Geological Survey
Open-File Report 2006-1037
Version 1.1

Maps of Quaternary Deposits and Liquefaction Susceptibility in the Central San Francisco Bay Region, California

In cooperation with the [California Geological Survey](#)

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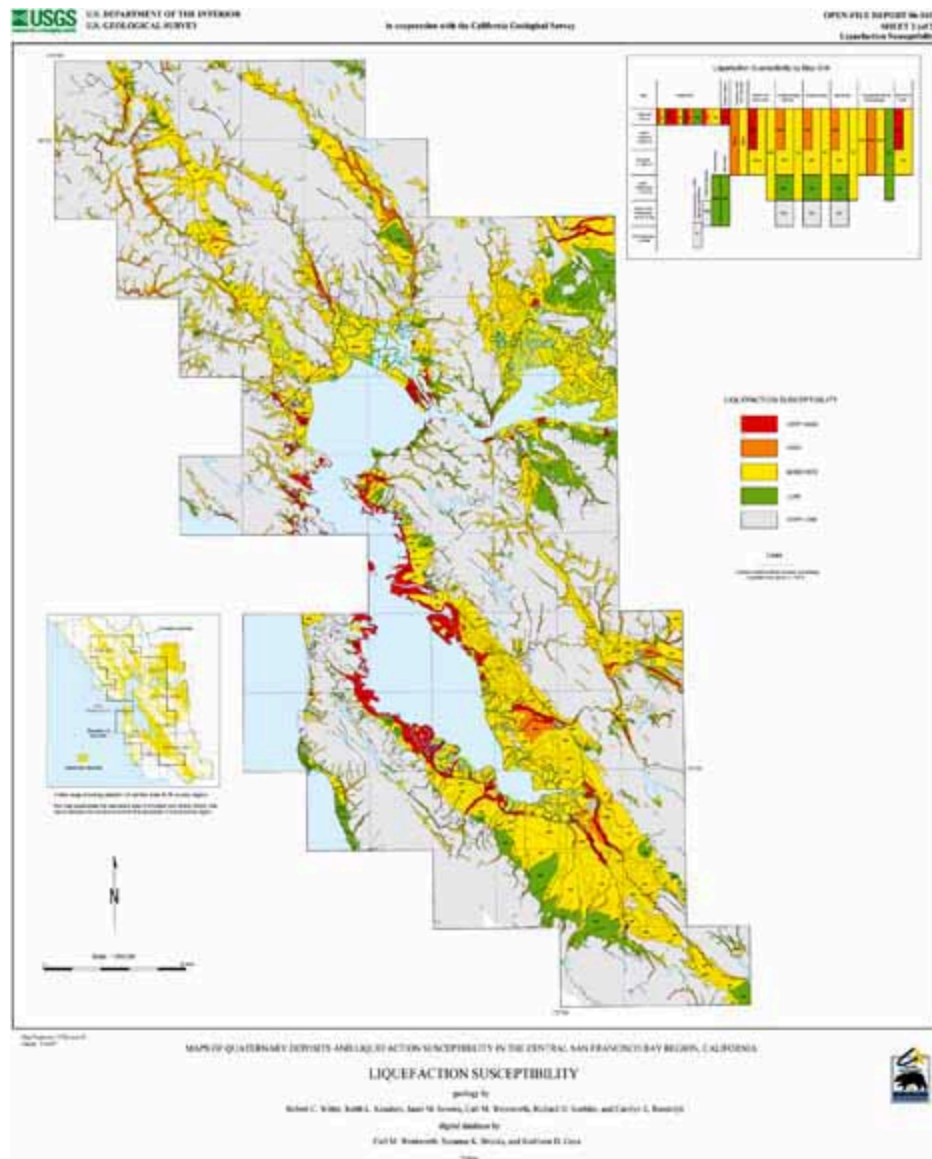
Digital database by Carl M. Wentworth³, Suzanna K. Brooks³, and Kathleen D. Gans³

2006

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² - California Geological Survey

³ - U.S. Geological Survey



This report presents a map and database of Quaternary deposits and liquefaction susceptibility for the urban core of the San Francisco Bay region. It supercedes the equivalent area of [U.S. Geological Survey Open-File Report 00-444](#) (Knudsen and others, 2000), which covers the larger 9-county San Francisco Bay region. The report consists of (1) a spatial database, (2) two small-scale colored maps (Quaternary deposits and liquefaction susceptibility), (3) a text describing the Quaternary map and liquefaction interpretation (part 3), and (4) a text introducing the report and describing the database (part 1). All parts of the report are digital; part 1 describes the database and digital files and how to obtain them by downloading across the internet. The nine counties surrounding San Francisco Bay straddle the San Andreas fault system, which exposes the region to serious earthquake hazard (Working Group on California Earthquake Probabilities, 1999). Much

of the land adjacent to the Bay and the major rivers and streams is underlain by unconsolidated deposits that are particularly vulnerable to earthquake shaking and liquefaction of water-saturated granular sediment. This new map provides a consistent detailed treatment of the central part of the 9-county region in which much of the mapping of Open-File Report 00-444 was either at smaller (less detailed) scale or represented only preliminary revision of earlier work. Like Open-File Report 00-444, the current mapping uses geomorphic expression, pedogenic soils, inferred depositional environments, and geologic age to define and distinguish the map units. Further scrutiny of the factors controlling liquefaction susceptibility has led to some changes relative to Open-File Report 00-444: particularly the reclassification of San Francisco Bay mud (Qhbm) to have only MODERATE susceptibility and the rating of artificial fills according to the Quaternary map units inferred to underlie them (other than dams ? adf). The two colored maps provide a regional summary of the new mapping at a scale of 1:200,000, a scale that is sufficient to show the general distribution and relationships of the map units but not to distinguish the more detailed elements that are present in the database. The report is the product of cooperative work by the National Earthquake Hazards Reduction Program (NEHRP) and National Cooperative Geologic Mapping Program of the U.S. Geological Survey, William Lettis and Associates, Inc. (WLA), and the California Geological Survey. An earlier version was submitted to the U.S. Geological Survey by WLA as a final report for a NEHRP grant (Witter and others, 2005). The mapping has been carried out by WLA geologists under contract to the NEHRP Earthquake Program (Grant 99-HQ-GR-0095) and by the California Geological Survey.

File name	Description	File size
1. Open-File Text		
of06-1037_1a.txt	ASCII file	72 KB
of06-1037_1b.eps	Postscript file	112 KB
of06-1037_1c.pdf	PDF file	84 KB
2. Revision List		
of06-1037_2a.txt	ASCII file	48 KB
3. Quaternary Deposits and Liquefaction Description		
of06-1037_3a.txt	ASCII file	124 KB
of06-1037_3b.eps	Postscript file	248 KB
of06-1037_3c.pdf	PDF file	3.2 MB
4. Quaternary Deposits Database		
of06-1037_4a.e00.zip	Quaternary deposits - compressed ArcInfo export coverage	9.6 MB

of06-1037_4b.shp.zip	Quaternary deposits - ArcMap line and polygon shape files bundled as one compressed zip file	16.5 MB
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5. Quaternary Deposits Map (image)

of06-1037_5a.eps.zip	Postscript file, compressed	11.9 MB
of06-1037_5b.pdf.zip	PDF file, compressed	12.1 MB

6. Liquefaction Susceptibility Map (image)

of06-1037_6a.eps.zip	Postscript file, compressed	11.8 MB
of06-1037_6b.pdf.zip	PDF file, compressed	12.1 MB

7. Database Package

of06-1037_7a.zip	ARC version: Assembled text (parts 1, 2, 3, 9), ArcInfo export databases (part 4), and import.aml, bundled as one compressed zip file	12.4 MB
of06-1037_7b.zip	ArcView version: Assembled text (parts 1, 2, 3, 9) and ArcMap database shape files (part 4), bundled as one compressed zip file	19.4 MB

8. Plotfile Package

of06-1037_8a.zip	Postscript version: plot files for the Quaternary deposits map (part 5) and the liquefaction susceptibility map (part 6) bundled as one compressed zip file	23.7 MB
of06-1037_8b.zip	PDF version: plot files for the the Quaternary deposits map (part 5) and the liquefaction susceptibility map (part 6) bundled as one compressed zip file	24.3 MB

9. Metadata for spatial database

of06-1037_9.meta.txt	ASCII file	52 KB
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