Exhibit E





GEOTECHNICAL | ENVIRONMENTAL | CHEMICAL | MATERIAL TESTING | SPECIAL INSPECTIONS

Revised November 15, 2024

Project No. 2383-M263-C24

Valentine Environmental Engineers Attention: Ms. Teresa Valentine 15845 South 46th Street, Suite 144 Phoenix, Arizona 85040

Subject: Preliminary Geological Letter

Rancho Fiesta Water Tanks Replacement Project

ERIK N. ZINN

No. 2139

ATE OF CALIFO

Carmel Valley, Monterey County, CA

Dear Ms. Valentine,

In accordance with your authorization, we have performed a preliminary geological investigation with respect to the potential surface fault ground rupture posed to the proposed water tank replacement project at the Rancho Fiesta subdivision located in Carmel Valley, California. This letter presents our preliminary findings and recommendations with respect to that hazard and the attendant risks.

ERIK N. ZINN No. 6854

OF CALIFO

Sincerely,

Erik N. Zinn Principal Geologist P.G. #6854, C.E.G. #2139

PACIFIC CREST ENGINEERING INC.

TABLE OF CONTENTS

INTRODUCTION	1
PURPOSE AND SCOPEPROJECT LOCATION	
PROPOSED IMPROVEMENTS	
ANALYSIS	2
REGIONAL GEOLOGIC SETTING	2
REGIONAL SEISMIC SETTING	2
Monterey Bay-Tularcitos Fault Zone	3
Laureles Fault	5
SITE GEOLOGIC SETTING	6
FINDINGS	7
RECOMMENDATIONS	7
LIMITATIONS AND UNIFORMITY OF CONDITIONS	8
APPENDIX A - FIGURES	9
Figure 1 – Topographic Index Map	10
Figure 2 – Regional Geological Map	11
Figure 3 – Regional Seismicity Map	12
Figure 4 – Local Geological Map	13
Figure 5 – County Fault Index Map	14

PRELIMINARY GEOLOGIC LETTER

Rancho Fiesta Water Tanks Replacement Carmel Valley, California

INTRODUCTION

PURPOSE AND SCOPE

This report describes preliminary geological investigation and presents our preliminary findings and recommendations for the proposed subterranean water tanks replacement project in the Rancho Fiesta subdivision in Carmel Valley, California.

Our scope of services for this project has consisted of:

- 1. Site reconnaissance to observe the existing conditions.
- 2. Review of the following published maps:
 - Geologic resources and constraints Monterey County, California A technical report for the Monterey County 21st Century General Plan Update Program, Rosenberg, L.I., 2001.
 - Geologic Map of the Monterey and Seaside Quadrangle, Monterey County, California. Dibblee Jr., 2007.
 - Geologic Map of Monterey County, California, Rosenberg, 2001.
 - Map Showing Relative Earthquake-Induced Landslide Susceptibility of Monterey County, California, Rosenberg, 2001.
 - Map Showing Liquefaction Susceptibility of Monterey County, California, Rosenberg, 2001.
 - Map Showing Relative Fault Hazards of Monterey County, California, Rosenberg, 2001.
 - U.S. Geological Survey (and the California Geologic Survey), 2018, Quaternary fault and fold database for the United States, accessed April 2021, from USGS web site: https://www.usgs.gov/natural-hazards/earthquake-hazards/hazards
- Preparation of this letter report documenting our findings and recommendations for the potential surface fault ground rupture and attendant risk posed to the project. This is in response to a request for supplemental information from the County of Monterey.



PROJECT LOCATION

Revised November 15, 2024

The project sites are currently comprised of two water storage facilities, an "upper tank site" and "lower tank site", both located on Oak Meadow Lane in the Rancho Fiesta Subdivision in Carmel Valley. Please refer to the Topographic Index Map, Figure No. 1, in Appendix A for the general vicinity of the project sites, which are approximately located by the following coordinates:

Lower Tank Site

Latitude = 36.51819444 Longitude = -121.7640611

Upper Tank Site

Latitude = 36.52406111 Longitude = -121.763275

PROPOSED IMPROVEMENTS

Based on our discussions with the project design team, it is our understanding that the existing subterranean water tanks are scheduled to be replaced. The new water storage tanks will be installed adjacent to the existing water storage tanks and will extend approximately 8 to 10 feet below the ground surface. The proposed water storage tanks are expected to consist of cast-in-place concrete walls supported on a structural mat foundation.

ANALYSIS

REGIONAL GEOLOGIC SETTING

The subject property is in the central Santa Lucia Range. The Santa Lucia Range is formed by a series of rugged, linear ridges and valleys following the pronounced northwest to southeast structural grain of central California geology. Underlying most of the Santa Lucia Range is a large, elongate prism of granitic and metamorphic basement rocks, known collectively as the Salinian Block (Figure 2). These rocks are separated from contrasting basement rock types to the northeast and southwest, respectively, by the San Andreas and San Gregorio strike-slip fault systems.

Throughout the Cenozoic Era, this portion of California has been dominated by tectonic forces associated with lateral or "transform" motion between the North American and Pacific lithospheric plates, producing long, northwest-trending faults such as the San Andreas and San Gregorio, with horizontal displacements measured in tens to hundreds of miles. Accompanying the horizontal (strike-slip) movement of the plates have been episodes of compressive stress, reflected by repeated uplift, deformation, erosion and deposition.

REGIONAL SEISMIC SETTING

California's broad system of strike-slip faulting has had a long and complex history. Some of these faults present a seismic hazard to the proposed development. The most important of these



are the Rinconada, San Andreas, and Monterey Bay-Tularcitos faults (Figures 2,3 and 4). These faults are either active or considered potentially active (Working Group On Northern California Earthquake Potential (WGONCEP), 1996; 1999 Working Group on California Earthquake Probabilities (WGOCEP), 1999; 2002 Working Group On California Earthquake Probabilities (WGOCEP), 2003; Cao et al., 2003).

For the purposes of this letter, which is focused on the attendant risk to the tanks with respect to the potential hazard related to surface fault ground rupture, we have only broken out a detailed discussion on the Monterey Bay Tularcito fault zone, since that is the closest and most germane of the aforementioned faults to the sites.

Monterey Bay-Tularcitos Fault Zone

The Monterey Bay-Tularcitos fault zone is 6 to 9 miles wide, about 25 miles long, and consists of many en échelon faults identified during shipboard seismic reflection surveys (Greene, 1977). The fault zone trends northwest-southeast and intersects the coast in the vicinity of Seaside and Ford Ord. At this point, several onshore fault traces have been tentatively correlated with offshore traces in the heart of the Monterey Bay-Tularcitos fault zone (Greene, 1977; Clark et al., 1974; Burkland and Associates, 1975). These onshore faults are, from southwest to northeast, the Tularcitos-Navy, Berwick Canyon, Chupines, Seaside, and Ord Terrace faults. Only the larger of these faults, the Tularcitos-Navy and Chupines, are shown on Figure 2. It must be emphasized that these correlations between onshore and offshore portions of the Monterey Bay-Tularcitos fault zone are only tentative; for example, no concrete geologic evidence for connecting the Navy and Tularcitos faults under the Carmel Valley alluvium has been observed, nor has a direct connection between these two faults and any offshore trace been found.

Outcrop evidence indicates a variety of strike-slip and dip-slip movement associated with onshore and offshore traces. Earthquake studies suggest the Monterey Bay-Tularcitos fault zone is predominantly right-lateral, strike-slip in character (Greene, 1977). Stratigraphically, both offshore and onshore fault traces in this zone have displaced Quaternary beds and, therefore, are considered potentially active (Buchanan-Banks et al., 1978). One offshore trace, which aligns with the trend of the Navy fault, has displaced Holocene beds and is therefore active by definition (Buchanan-Banks et al., 1978).

Seismically, the Monterey Bay-Tularcitos fault zone may be historically active. The largest historical earthquakes tentatively located in the Monterey Bay-Tularcitos fault zone are two events, estimated at 6.2 on the Richter Scale, in October 1926 (Greene, 1977). Because of possible inaccuracies in locating the epicenters of these earthquakes, it is possible that they actually occurred on the nearby San Gregorio fault zone (Greene, 1977).

Another earthquake in April 1890 might be attributed to the Monterey Bay-Tularcitos fault zone (Burkland and Associates, 1975); this earthquake had an estimated Modified Mercalli Intensity of VII (Table 1) for Monterey County on a whole.

The WGONCEP (1996) has assigned an earthquake of Mw 7.1 with an effective recurrence interval of 2,600 years to the Monterey Bay-Tularcitos fault zone, based on Holocene offshore offsets. Petersen et al. (1996) have a similar earthquake magnitude, but for a recurrence interval



Revised November 15, 2024

of 2,841 years. Their earthquake is based on a composite slip rate of 0.5 millimeters per year (after Rosenberg and Clark, 1995).

Cao et al. (2003) has developed a model for the Monterey Bay fault zone that combines slip rates of the different segments, resulting in a composite slip rate of 0.5 mm per year and a forecasted earthquake of Mw 7.3, with no stated recurrence interval. The Cao et al. (2003) model adopted implicitly assumes that all the assessed segments in the Monterey Bay fault zone each have an independent slip rate of 0.1 mm per year (based upon the one slip rate developed by Rosenberg and Clark, 1995 for the Tularcitos segment), and essentially assigns the composite slip rate to the Tularcitos trace of the Monterey Bay fault zone.

Rosenberg considers the Tularcitos fault to be active (i.e. movement within the last 11,000 years). He noted that the fault is mostly buried beneath Quaternary alluvium and landslide deposits in the upper Carmel Valley, but is delineated in select locations by upthrown granitic basement rock on the southwest and Tertiary sedimentary rock on the northeast. He noted that "geomorphic features such as deflected drainages and linear closed depressions, visible in the field and on aerial photographs, delineate this part of the Tularcitos fault."

The following passages were excerpted from Rosenberg's (2001) description of evidence for the fault's location and activity:

A branch of the Tularcitos fault extends along the foothills south of the Carmel River near the southeastern boundary of the Seaside quadrangle. This branch is marked by a zone of crushed granodiorite thrust over the unnamed sandstone of middle Miocene age and appears on aerial photographs as a series of topographic benches and saddles.

Near mid-Carmel Valley, alluvium conceals the main trace of the Tularcitos fault. This portion of the fault was located by plotting bedrock lithology as interpreted by Logan (1983) from water well logs. Water well logs and seismic refraction data also suggest a buried granitic bedrock high near the mouth of Juan de Matte Canyon. From Laureles Grade westward to Tomasini Canyon, a branch of the Tularcitos fault aligns with and cuts the edge of the broad fluvial terrace. On Rancho Fiesta Road, a fluvial terrace is tilted 18 degrees toward the Tularcitos fault.

Total post-Miocene vertical displacement of the Tularcitos fault is about 1,250 feet (Fiedler, 1944, p. 237). Graham (1976) postulated that at least 2 miles and possibly as much as 10 miles of right-lateral displacement may have taken place on the Tularcitos fault, based on the apparent offset of distinctive facies of the Monterey Formation. Additionally, distinct basaltic andesites that crop out at Hastings Reserve north of the Tularcitos fault may have been offset by at least 10 miles and possibly as much as 25 miles of right slip from similar volcanic rocks of lower Carmel Valley and Carmel Bay that were dated at 27.0±0.8 Ma (Clark and others, 1984). Comparison of rare earth element composition shows that these volcanic rocks are chemically very similar and thus supports their correlation and the possibility of more than 10 miles of right slip (Clark and Rosenberg, 1999). Other evidence of strike-slip displacement on the Tularcitos fault includes two earthquake focal mechanisms with right-reverse-oblique-slip movement.



Radiocarbon dating of offset colluvium in upper Carmel Valley (Rosenberg and Clark, 1994) together with the offset of the seafloor in Monterey Bay (Greene and others, 1973) confirms Holocene activity along this trend. The CDMG/USGS Probabilistic Seismic Hazards Assessment assigned a slip rate of 0.1 mm/yr and a maximum magnitude of 7.1 to the combined Monterey Bay fault zone/Navy/Tularcitos fault system (Petersen and others, 1996, p. A-7).

Laureles Fault

Rosenberg considers the Laureles fault to be potentially active (i.e. movement between 11,000 and 1,600,000 years). There is no evidence that this fault cuts Holocene age deposits anywhere and Rosenberg did not recommend it for zonation with respect to surface fault ground rupture in his 2001 report.

The following passages were excerpted from Rosenberg's (2001) description of evidence for the fault's location and activity:

This fault was first mapped by Herold (1935) in the southwest corner of the Spreckels 7.5-minute quadrangle. Fiedler (1944) extended the Laureles fault southeast into the Carmel Valley quadrangle, and renamed it the Del Monte fault for an exposure near Rancho Del Monte (now the Los Laureles Lodge). In this report, the original name "Laureles" is retained to avoid confusion with faults near the Del Monte district of Monterey.

Faults in the zone strike northwest and are nearly vertical, separating Cretaceous granitic rock and Miocene marine sandstones. Steep to near-vertical dipping Monterey shale locally offset against Pleistocene terrace deposits characterizes the Laureles fault zone from Tomasini Canyon to Laureles Grade. From Laureles Grade southeastward to Carmel Valley Village, the fault zone separates Salinian basement on the north from steeply dipping middle Miocene sandstone. Northeast of Carmel Valley Village, the Laureles fault zone continues eastward into a large landslide deposit and dies out. Fiedler (1944) showed the Laureles fault zone truncated by a cross-fault; but field evidence and analysis of aerial photographs do not support this interpretation.

Estimates of vertical displacement on the Laureles fault zone range from about 600 feet (Fiedler, 1944) to 1,000 feet (Herold, 1935). Clearly offset Quaternary deposits are rare along the Laureles fault zone, although Clark and others (1997) interpreted a scarp east of Juan de Matte Canyon as tectonic in origin rather than the erosional edge of the terrace deposit, as mapped by Dupré (1990). On a spur ridge approximately 400 feet west of Juan de Matte Canyon, an en echelon segment of the Laureles fault offsets a small patch of Pleistocene fluvial terrace gravel. This limited exposure suggests that the latest movement on the Laureles fault zone is probably post middle(?) Pleistocene (Clark and others, 1997).

The Laureles fault is currently zoned by the County of Monterey for surface fault ground rupture hazard in spite of Rosenberg's 2001 report recommendation to NOT zone it. The way the fault is currently zoned, it is weighted to be the same level of hazard as the active Tularcitos fault for example. This is puzzling from our perspective as geologists. The zonation of a fault should be tied to its level of activity and potential to rupture again. In our opinion, a fault that does not



display evidence of rupturing in the last 11,000 years has a lower probability of rupturing than a fault that demonstrates activity in the last 11,000.

SITE GEOLOGIC SETTING

Lower Tank Site

The lower tank site lies near the top of a ridge crest above a narrow steep-sided canyon. The flank of the ridge rolls over steeply approximately 80 feet east of the development area. Rosenberg (2001) has portrayed the site as being underlain by Monterey Formation siliceous shale bedrock dipping about 36 degrees to the southwest (see Figure 4), which is inconsistent with our observations at the site and of the aerial photographs. We noted that the site sits just slightly west of a landslide escarpment (80 feet east of the development site) and we measured bedding within the Monterey Formation bedrock to be dipping 60 degrees to the northwest (into the hillside) right across the street in a road cut along Oak Meadows Lane. Absolute knowledge regarding the structure within the rock under the water tank site is unknown, although it appears that the bedrock is intensely folded and faulted in this area. The site also appears to lie 200 feet southwest of a mapped trace of the Laureles Fault and 2500 feet northwest of the nearest mapped trace of the Tularcitos Faut (see Figure 4). The Laureles Fault is not considered to be active and was not recommended for surface fault ground rupture zonation by Rosenberg (2001). It appears that the County of Monterey did not follow that recommendation and has zoned an area of 300 feet to either side of the Laureles Fault as being a surface fault ground rupture hazard. Conversely, the Tularcitos Fault is considered to be active by Rosenberg (2001) and was recommended for surface fault ground rupture zonation. Both the Laureles and Tularcitos Faults appear to be zoned with the same level of potential hazard by the County of Monterey, which should not be the case in our professional opinion.

No groundwater was encountered in the small-diameter borings advanced by our firm to a depth of 21 ½ feet below the ground surface. No evidence of anoxic mottling or gleyed bedrock colors were encountered in the borings which were almost entirely advanced through weathered and fractured siliceous shale. We did not observe any evidence of springs or seeps on the hillside below the tank site, which one would expect if groundwater was present and moving through the fractured bedrock (i.e. fracture porosity) in steep terrain. In summary, there is no evidence whatsoever of shallow groundwater that could potentially impact the tank design.

Upper Tank Site

The upper tank site also lies near the top of a ridge crest above a narrow steep-sided canyon. The flank of the ridge rolls over steeply approximately 120 feet west-southwest of the site. Rosenberg (2001) has portrayed the site as being underlain by Monterey Formation siliceous shale bedrock dipping about 15 degrees to the west (see Figure 4), which we neither verify nor refute directly at the site. As with the lower tank site, absolute knowledge regarding the structure within the rock under the site is unknown, although the upper site lies at least 1370 feet northeast of the nearest mapped trace of the Laureles Fault and 4590 feet northeast of the nearest segment of the Tularcitos Fault.

Similar to the lower tank site, no groundwater was encountered in the small-diameter borings advanced by our firm to a depth of $21 \frac{1}{2}$ feet below the ground surface. No evidence of anoxic



Project No. 2838-M263-C24

mottling or gleyed bedrock colors were encountered in the borings which were almost entirely advanced through weathered fractured siliceous shale. We did not observe any evidence of springs or seeps on the hillside below the tank site, which one would expect if groundwater was present and moving through the fractured bedrock (i.e. fracture porosity) in steep terrain. In summary, there is also no evidence whatsoever of shallow groundwater that could potentially impact the tank design for the upper tank site.

Surface Fault Ground Rupture Hazard

Neither site lies within any fault zone defined by the State of California Alquist-Priolo Special Studies Zone Act and the lower tank and upper tank sites respectively lie 2500 and 4590 feet northeast of the nearest mapped trace of an active fault (i.e. the Tularcitos Fault). They also lie respectively 200 feet southwest and 1370 feet northeast of the potentially active Laureles Fault. We did not observe surface evidence of active faulting such as fault-related geomorphology or photo lineaments at either site. Therefore, it is our opinion that both tank sites are NOT underlain by an active fault, corresponding to a low potential for surface ground fault rupture to occur within the design life of the tanks.

FINDINGS

- 1. Neither site lies within any fault zone defined by the State of California Alquist-Priolo Special Studies Zone Act and the lower tank and upper tank sites respectively lie 2500 and 4590 feet northeast of the nearest mapped trace of an active fault (i.e. the Tularcitos Fault). We did not observe surface evidence of active faulting such as fault-related geomorphology or photo lineaments at either site. Therefore, it is our opinion that both tank sites are NOT underlain by an active fault, corresponding to a low potential for surface ground fault rupture to occur within the design life of the tanks.
- 2. No groundwater was encountered in the small-diameter borings advanced by our firm to a depth of 21 ½ feet below the ground surface at both tank sites. No evidence of anoxic mottling or gleyed bedrock colors were encountered in the borings which were almost entirely advanced through weathered fractured siliceous shale. We did not observe any evidence of springs or seeps on the hillside below the tank sites, which one would expect if groundwater was present and moving through the fractured bedrock (i.e. fracture porosity) in steep terrain. In our opinion, there is no evidence whatsoever that shallow groundwater is present on either tank site, correlating to a low potential for groundwater to impact the proposed tank design.

RECOMMENDATIONS

- 1. We have no further geological recommendations for either tank site, given that both sites appear to have a low potential for surface fault ground rupture and neither site appears to have issues related to shallow groundwater. In our opinion, no further geological investigation is warranted for both of the tank sites.
- 2. The reader should refer to the Geotechnical Investigation report issued by our firm for the tank sites, since there are geotechnical engineering design considerations that need to be taken into account for the tank designs and construction.



LIMITATIONS AND UNIFORMITY OF CONDITIONS

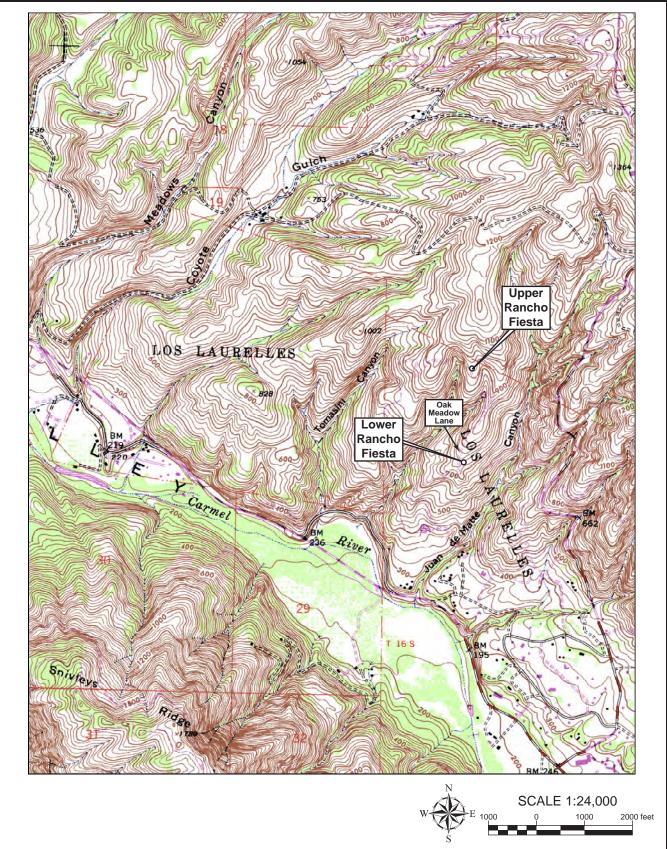
- 1. This preliminary geology investigation letter was prepared specifically for Valentine Environmental Engineers and for the specific project and location described in the body of this report. This report and the recommendations included herein should be utilized for this specific project and location exclusively. The results of this preliminary geological investigation should not be applied to nor utilized on any other project or project site.
- 2. The recommendations of this report are based upon the assumption that the geological conditions do not deviate from our findings. If any variations or undesirable conditions are encountered during construction, or if the proposed construction will differ from that planned at the time, our firm should be notified so that supplemental recommendations can be provided.
- 3. This report is issued with the understanding that it is the responsibility of the owner, or their representative, to ensure that the information and recommendations contained herein are called to the attention of the Architects and Engineers for the project and incorporated into the plans, and that the necessary steps are taken to ensure that the Contractors and Subcontractors carry out such recommendations in the field.
- 4. The findings of this report are valid as of the present date. However, changes in the conditions of a property can occur with the passage of time, whether they are due to natural process or the works of man, on this or adjacent properties. In addition, changes in applicable or appropriate standards occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated, wholly or partially, by changes outside of our control. This report should therefore be reviewed in light of future planned construction and then current applicable codes. This report should not be considered valid after a period of two (2) years without our review.
- 5. This report was prepared upon your request for our services in accordance with currently accepted standards of professional geological practice. No warranty as to the contents of this report is intended, and none shall be inferred from the statements or opinions expressed.
- 6. The scope of our services mutually agreed upon for this project did not include any environmental assessment or study for the presence of hazardous or toxic materials in the soil, surface water, groundwater, or air, on or below or around this site.



APPENDIX A - FIGURES

Topographic Index Map Regional Geological Map Regional Seismicity Map Local Geological Map County Fault Index Map

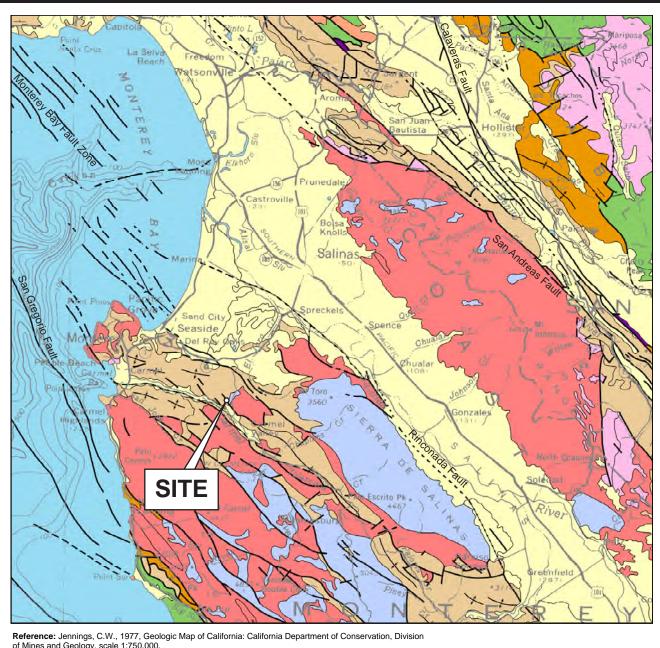




BASE MAP: U.S. Geological Survey, 1947 (photorevised 1983), Seaside quadrangle, California, 7.5' topographic series, scale 1:24,000.

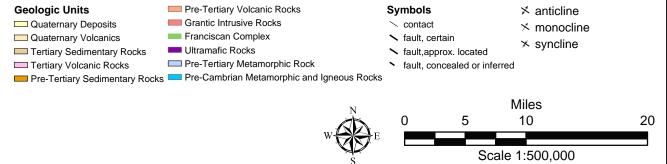


Topographic Index Map Rancho Fiesta Water Tanks Replacement Oak Meadows Lane Carmel Valley, California FIGURE # 1 JOB # 2383



of Mines and Geology, scale 1:750,000. **Digital Data:** Saucedo, G.J., Bedford, D.R., Raines, G.L., Miller, R.J., and Wentworth, C.M., 2000, GIS Data for the Geologic Map of California: California Department of Conservation, Division of Mines and Geology, CD-ROM 2000-007, ver. 2.0.

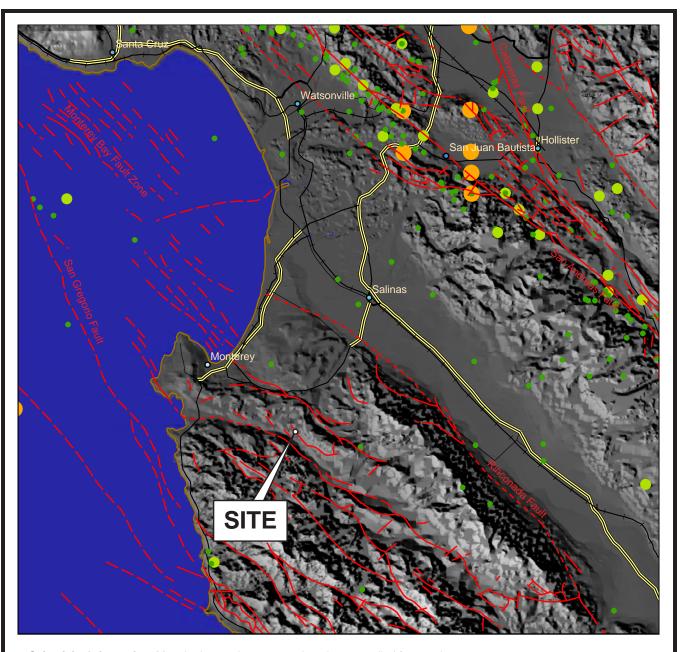
Legend





Regional Geologic Map Rancho Fiesta Water Tanks Replacement Oak Meadows Lane Carmel Valley, California

FIGURE# JOB# 2383



Seismicity Information: Magnitude 4 and greater earthquakes, compiled from various sources, 1769 to 2000; available at www.consrv.cagov/CGS/rghm/quakes/cgs2000_fnl.txt **Fault Information:** Jennings, C.W., 1977, Geologic map of California: California Department of Conservation, Division of Mines and Geology, scale 1:750,000

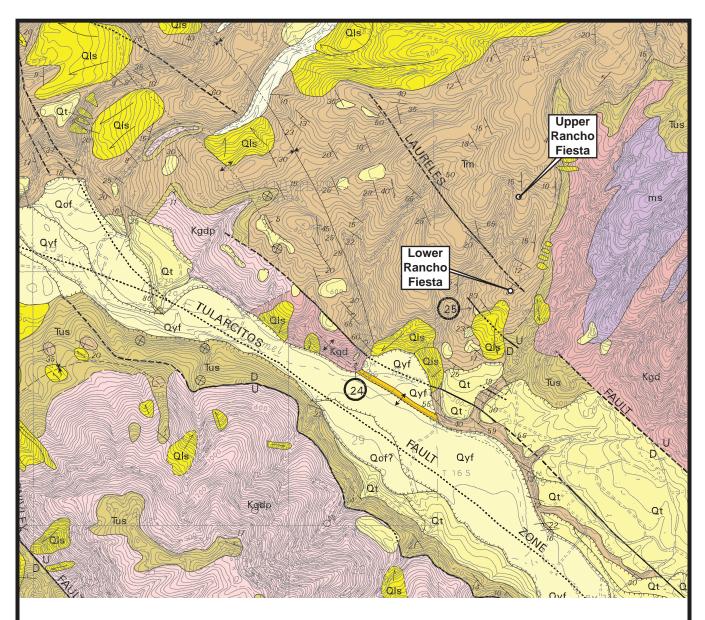
EXPLANATION

Symbols Earthquake Magnitude — fault, certain ● 4.0 to 4.99 — fault, approx. located ● 5.0 to 5.99 — fault, concealed or inferred ● 6.0 to 6.99 Miles 0 5 10 20 Scale 1:500,000



Regional Seismicity Map
Rancho Fiesta Water Tanks Replacement
Oak Meadows Lane
Carmel Valley, California

FIGURE # 3 JOB # 2383



EARTH MATERIALS

Qyf Younger flood-plain depositsQof Older flood-plain deposits

Qls Landslide deposits

Qt Terrace deposits - undivididedTm Monterey Formation - porcelanite

Ts Unnamed sandstone

Kgdp Porphyritic granodiorite of Monterey of Ross (1976)

Kgd Granodiorite of Cachagua of Rosss (1976)ms Schist of Sierra De Salinas of Ross (1976)

SYMBOLS

Earth material contact

Fault - dashed where approximately located, dotted

where concealed

Bedding attitude - inclined

Bedding attitude - flat

Anticlinal fold axis

Synclinal fold axis





Topographic Index Map
Rancho Fiesta Water Tanks Replacement
Oak Meadows Lane
Carmel Valley, California

 \otimes

FIGURE # 4 JOB # 2383

ArcGIS Web Map

