REPORT OF GEOLOGIC RECONNAISSANCE
Island Construction Multi-Residential Site Purchase
Grand Avenue and Harness Street
Spring Valley, California

JOB NO. 02-8331
23 October 2002

Prepared for:

Ms. Pat Goins, Project Manager
ISLAND CONSTRUCTION, INC.

Rec'd 10/29/02 pg

GEOTECHNICAL EXPLORATION, INC.

SOIL & FOUNDATION ENGINEERING • GROUNDWATER
HAZARDOUS MATERIALS MANAGEMENT • ENGINEERING GEOLOGY

23 October 2002

ISLAND CONSTRUCTION, INC.
c/o Ms. Pat Goins, Project Manager
15428 110th Avenue NE
Bothell, WA 98011

Job No. 02-8331

Subject: **Preliminary Geologic Reconnaissance Summary**
Island Construction Multi-Residential Site Purchase
Grand Avenue and Harness Street
Spring Valley, California

Dear Ms. Goins:

At your request and per our proposal of October 18, 2002, ***Geotechnical Exploration, Inc.*** is providing this summary of our recent preliminary geologic reconnaissance and research concerning the subject site. A brief visit was made to the site on October 16, 2002, by our Senior Project Geologist to observe the property and surrounding vicinity.

We understand that Island Construction, Inc. is considering purchase of the approximately 7.0-acre site. Following purchase, four existing single-family residences on the site are to be demolished. These currently exist on the lower-elevation southwest portion of the property. Approximately 100 multi-family units and associated parking, recreational facilities, and utilities would then be constructed, as well as relocation of an existing public sewer line that currently runs diagonally across the property from northeast to southwest.

Our preliminary research included available published geologic maps, topographic maps and reports, as well as proprietary records of prior investigations in the Dictionary Hill and La Presa communities of the Spring Valley area of San Diego County, California. We understand further that, at this time, you are gathering general geologic information that will assist you in assessing the degree of difficulty and costs with respect to grading development of the site. The purpose of this letter is to provide summary geologic information for your use.

I. SITE PROJECT DESCRIPTION AND BACKGROUND

The property consists of 11 tax parcels known as: Assessor's Parcel No. 578-160-5, 40, 41,42, 57, 58, 61, 62, 63, 66 and 69, within Section 5, Township 17, South Range 1 West, in the Spring Valley area of the County of San Diego, State of California.

The approximately 7.0-acre site is located northwest of the intersection of Grand Avenue and Harness Street, in the La Presa/Dictionary Hill area of Spring Valley. Refer to Figure No. I. The property is located on the southwest flank of Dictionary Hill, a rocky western outcropping of the relatively rugged peninsula ranges that form this portion of San Diego County. Based on review of the USGS Jamul Mountains, California 15' quadrangle, elevations across the site range from approximately 540 feet above mean sea level (MSL) at the north and northeastern portions, to approximately 420 feet above MSL near the southwest property corner. In general, elevations are higher along the eastern and northern property lines and lower along the western and southern property lines. The site is a portion of a subsidiary canyon that drains from northeast to southwest through the site. The aforementioned sewer line appears to trend along the canyon centerline (based on review of sketch maps you have provided). The drainage canyon does not have an active flowing stream and is considered to be an intermittently draining, erosional feature.

Grand Avenue bounds the site to the east. Harness Street bounds the site to the south. Grand Avenue ascends steeply along the southern portion of the eastern property line and descends steeply along the northern portion of the east property line. Single-family residential homes and scattered vacant lots exist along the east side of Grand Avenue. Harness Street is relatively level to gently sloping along the southern property line. Single-family homes exist along the north and south sides of Harness Street, however, the road is not continuous along the southern property line.

The site is bounded to the north by an undeveloped, open-space easement for habitat consisting of undeveloped rocky scrub and chaparral. Three acres of the subject site are included within this easement. Lower-elevation, single-family home properties and multi-residential properties bound the site to the west.

II. GENERAL GEOLOGIC DESCRIPTION

In describing the general geology of the site herein, we have relied on our observations of rock and soil exposures/outcrops at the site, review of "Geology of National City, Imperial Beach and Otay Mesa Quadrangles, Southern San Diego Metropolitan Area, California," prepared by Michael P. Kennedy and Siang S. Tan (California Division of Mines and Geology Map Sheet 29, 1977) (refer to Figure No. II), and a review of our in-house files of soil and geotechnical investigations we have performed in the area. In the immediate vicinity of the site we have performed over 30 investigations since 1976.

Review of Map Sheet 29 indicates that the area of the site is underlain by the Santiago Peak Volcanics (Jsp). These rocks are of Jurassic age and are mostly metavolcanic. They range in composition from basalt to rhyolite, but are primarily dacite and andesite. Various other types of metamorphosed volcanic rocks also occur within the unit. These rocks are exposed as outcrop along the east and north sides of the site and as road cut along the east side of Grand Avenue. They are very dense and highly fractured. They break up, where rippable, as blocky, angular gravel- to boulder-size fragments. Soil and slopewash horizons developed on these materials appear to range from less than 1 foot deep to 4 to 5 feet deep and more. Excavation of these materials with conventional equipment would be difficult beyond depths of several feet. Blasting may be required. An assessment of site rippability at the proposed project could be made to estimate grading versus blasting quantities. Relocating the aforementioned sewer line to the easternmost alternate location would require excavation and/or blasting to significant depths to keep the required gravity fall of the existing sewer line and may not be practical.

The central northeast-to-southwest-draining, lower-elevation portion of the site appears to consist of an accumulation of alluvial and colluvial materials (i.e., rock, sand, silt and clay) derived from higher elevations to the northeast. While it is assumed that these materials can be readily excavated, they may require recompaction to be utilized as bearing materials for new multi-story structures. A soil investigation utilizing a backhoe and/or drill rig would be required to assess removal and recompaction depths (as well as bearing soil suitability) but it is estimated that these depths may range from several feet to several tens of feet.

Based on our experience in this area of San Diego County, the southwesternmost portion of the site (and some southern areas) may also be underlain by fine-grained formational soils consisting of siltstone/claystone/mudstone. These soils can have adequate bearing capacity, however, they can also be highly expansive, requiring special reinforcement for concrete improvements. An alternative to their use as bearing soils would be to utilize them only in deep fill areas or export them from the site and replace them with non-expansive imported soils. The extent of these soils would have to be determined during soil investigation.

Other soil types on the site would include some clayey topsoils developed on the hillside areas (most likely only 1 to 2 feet thick) and scattered, end-dumped fill soils that may contain debris. Since the site appears to have been primarily rural during historic time, it would not be unreasonable to expect abandoned leach fields, wells and/or silage pits.

III. PRELIMINARY GEOLOGIC HAZARD INFORMATION

The San Diego area is part of a seismically active region of California. It is on the eastern boundary of the Southern California Continental Borderland, part of the Peninsular Ranges Geomorphic Province. This region is part of a broad tectonic boundary between the North American and Pacific Plates. The actual plate boundary is characterized by a complex system of active, major, right-lateral strike-slip faults, trending northwest/southeast. This fault system extends eastward to the San Andreas Fault (approximately 70 miles from San Diego) and westward to the San Clemente Fault (approximately 50 miles off-shore from San Diego) (Berger and Schug, 1991).

During recent history, the San Diego County area has been relatively quiet seismically. No fault ruptures or major earthquakes have been experienced in historic time within the San Diego area. Since earthquakes have been recorded by instruments (since the 1930s), the San Diego area has experienced scattered seismic events with Richter magnitudes generally less than 4.0. During June 1985, a series of small earthquakes occurred beneath San Diego Bay; three of these earthquakes had recorded magnitudes of 4.0 to 4.2. In addition, the Oceanside earthquake of July 13, 1986, resulted in a magnitude of 5.3 (Hauksson and Jones, 1988) located approximately 26 miles offshore of the City of Oceanside.

In California, major earthquakes can generally be correlated with movement on active faults. As defined by the California Division of Mines and Geology (Hart, E.W., 1980), an "active" fault is one which has had ground surface displacement within Holocene time (about the last 11,000 years). Additionally, faults along which major historical earthquakes have occurred (about the last 210 years in California) are also considered to be active (Association of Engineering Geologist, 1973). The California Division of Mines and Geology defines a "potentially active" fault as one that has had ground surface displacement during Quaternary time, that is, during the past 11,000 to 1.6 million years (Hart, E.W., 1980).

<u>Local and Regional Faults (see Figure No. III)</u>

Based on a review of geologic maps prepared by Kennedy and Tan (1977), no faults are shown to cross the site or adjacent properties. A listing of active earthquake faults and their distance from the site is included here as Appendix A. This list was generated from a computer program, *EQFAULT,* by Thomas Blake (2000). The closest active faults are discussed below.

<u>La Nacion Fault:</u> The La Nacion Fault Zone is mapped to the west within 5 miles of the site. The La Nacion Fault Zone consists of several strands that trend generally north-south to northwest-southeast (although the southernmost strands trend slightly northeast-southwest) from Mission Valley, southward through National City and Chula Vista to the Mexican border (Kennedy, Tan, Chapman, Chase, 1975). These en echelon fault strands are mostly of Quaternary-age and dip-slip in nature. They offset Tertiary and Quaternary units. These faults are regarded as potentially active by the City of San Diego.

<u>Rose Canyon Fault</u>: The site is located approximately 8 miles east and southeast of the mapped Rose Canyon Fault. The Rose Canyon Fault Zone is mapped trending north-south from Oceanside to downtown San Diego, from where it appears to head southward into San Diego Bay, through Coronado and offshore. The Rose Canyon Fault Zone is considered to be a complex zone of onshore and offshore, en echelon strike slip, oblique reverse, and oblique normal faults. The Rose Canyon Fault is considered to be capable of causing a 7.5-magnitude earthquake and considered microseismically active, although no significant recent earthquake is known to have

occurred on the fault. Investigations in the Rose Canyon Fault Zone, at the Police Administration and Technical Center in downtown San Diego, in San Diego Bay, at the SDG&E facility in Rose Canyon, and elsewhere, have encountered offsets in Holocene (geologically recent) sediments. These findings confirm Holocene displacement on the Rose Canyon Fault and this fault was upgraded to an "active" fault in November 1991 (California Division of Mines and Geology -- Fault Rupture Hazard Zones in California, 1994).

Coronado Bank Fault: The Coronado Bank Fault is located approximately 21.4 miles west of the site. Evidence for this fault is based upon geophysical data (acoustic profiles) and the general alignment of epicenters of recorded seismic activity (Greene, 1979). An earthquake of 5.3 magnitude, recorded July 13, 1986, is known to have been centered on the fault or within the Coronado Bank Fault Zone. Although this fault is considered active, due to the seismicity within the fault zone, it is significantly less active seismically than the Elsinore Fault (Hileman, 1973). It is postulated that the Coronado Bank Fault is capable of generating a 7.0-magnitude earthquake and is of great interest due to its close proximity to the greater San Diego metropolitan area.

Elsinore Fault: The Elsinore Fault is located approximately 36 to 67 miles east and northeast of the site. The Elsinore Fault extends approximately 200 km (125 miles) from the Mexican border to the northern end of the Santa Ana Mountains. The Elsinore Fault zone is a 1- to 4-mile-wide, northwest-southeast-trending zone of discontinuous and en echelon faults extending through portions of Orange, Riverside, San Diego, and Imperial Counties. Individual faults within the Elsinore Fault Zone range from less than 1 mile to 16 miles in length. The trend, length and geomorphic expression of the Elsinore Fault Zone identified it as being a part of the highly active San Andreas Fault system.

Like the other faults in the San Andreas system, the Elsinore Fault is a transverse fault showing predominantly right-lateral movement. According to Hart, et al. (1979), this movement averages less than 1 centimeter per year. Along most of its length, the Elsinore Fault Zone is marked by a bold topographic expression consisting of linearly aligned ridges, swales and hallows. Faulted Holocene alluvial deposits (believed to be less than 11,000 years old) found along several segments of the fault zone suggest that at least part of the zone is currently active.

Although the Elsinore Fault Zone belongs to the San Andreas set of active, northwest-trending, right-slip faults in the southern California area (Crowell, 1962), it has not been the site of a major earthquake in historic time, other than a 6.0-magnitude quake near the town of Elsinore in 1910 (Richter, 1958; Toppozada and Parke, 1982). However, based on length and evidence of late-Pleistocene or Holocene displacement, Greensfelder (1974) has estimated that the Elsinore Fault Zone is reasonably capable of generating an earthquake with a magnitude as large as 7.5. Recent study and logging of exposures in trenches in Glen Ivy Marsh across the Glen Ivy North Fault (a strand of the Elsinore Fault Zone between Corona and Lake Elsinore), suggest a maximum earthquake recurrence interval of 300 years, and when combined with previous estimates of the long-term horizontal slip rate of 0.8 to 7.0 mm/year, suggest typical earthquake magnitudes of 6 to 7 (Rockwell, 1985).

<u>Other Geologic Hazards</u>

Evaluation of other geologic hazards at the site (such as ground rupture or liquefaction potential, ground shaking, slope stability, etc.) would require exploration and field and laboratory soil analyses. These evaluations are beyond the scope of this assignment.

IV. SUMMARY

In our opinion, the site would require grading to prepare it for development as a 100-unit multi-residential project. Depending on the planned extent of the improvements, grading development may include the following:

-- Removal and recompaction of alluvial and colluvial materials that occupy most of the lower-elevation, central northeast-southwest portion of the site;

-- Removal and use in deep fill areas or export of expansive clay soils (including possible formational soils to the southwest) and import of select, non-expansive soils ***or*** additional site soil processing and foundation/improvement reinforcement;

-- Blasting of rocky native ground areas to achieve design elevations along the eastern portion of the lot (if planned);

Relocation of the existing sewer line to the proposed alternative routes (per map information you have provided to us) will require significant excavation to re-establish gravity flow gradients. This excavation will take place through thicknesses of topsoil/slopewash, weathered and fractured formational (Jsp) rock and fresh/non-weathered rock. As currently proposed, relocation costs may be prohibitive. We recommend additional alternatives be explored such as structural spanning of the existing sewer line or relocation to the north and west (if access to these areas is permitted).

This opportunity to be of service is sincerely appreciated. Should any questions arise concerning this report, please feel free to contact the Project Coordinator. Reference to our **Job No. 02-8331** will expedite a reply to your inquiries.

Respectfully submitted,

GEOTECHNICAL EXPLORATION, INC.

Donald Vaughn
Senior Project Geologist

Leslie D. Reed, President
C.E.G. 999[exp. 3-31-03]/R.G. 3391

REGISTERED GEOLOGIST
LESLIE D. REED
NO. 999
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

DV/LDR/pj

REFERENCES
JOB NO. 02-8331
OCTOBER 2002

Association of Engineering Geologists, 1973, Geology and Earthquake Hazards, Planners Guide to the Seismic Safety Element, Southern California Section, Association of Engineering Geologists, Special Publication, Published July 1973, p. 44.

Berger & Schug, 1991, Probabilistic Evaluation of Seismic Hazard in the San Diego-Tijuana Metropolitan Region, Environmental Perils, San Diego Region, San Diego Association of Geologists.

Blake, Thomas, 2002, EQFault and EQSearch Computer Programs.

California Division of Mines and Geology - Alquist-Priolo Special Studies Zones Map, November 1, 1991.

Crowell, J.C., 1962, Displacement along the San Andreas Fault, California; Geologic Society of America Special Paper 71, 61 p.

Greene, H.G., 1979, Implication of Fault Patterns in the Inner California Continental Borderland between San Pedro and San Diego, in "Earthquakes and Other Perils, San Diego Region," P.L. Abbott and W.J. Elliott, editors.

Greensfelder, R.W., 1974, Maximum Credible Rock Acceleration from Earthquakes in California; California Division of Mines and Geology, Map Sheet 23.

Hart, E.W., D.P. Smith and R.B. Saul, 1979, Summary Report: Fault Evaluation Program, 1978 Area (Peninsular Ranges-Salton Trough Region), Calif. Div. of Mines and Geology, OFR 79-10 SF, 10.

Hart E.W., 1980, Fault-Rupture Hazard Zones in California, Calif. Div. of Mines and Geology, Special Publication 42, Rev. March 1980, p. 25.

Hauksson, E. and L. Jones, 1988, The July 1988 Oceanside (M_L=5.3) Earthquake Sequence in the Continental Borderland, Southern California Bulletin of the Seismological Society of America, v. 78, p. 1885-1906.

Hileman, J.A., C.R. Allen and J.M. Nordquist, 1973, Seismicity of the Southern California Region, January 1, 1932 to December 31, 1972; Seismological Laboratory, Cal-Tech, Pasadena, Calif.

Kennedy, M.P., 1975, Geology of the San Diego Metropolitan Area, California; Bulletin 200, Calif. Div. of Mines and Geology, 1975.

Kennedy, M.P. and Tan, S.S., 1977, Geology of National City, Imperial Beach, and Otay Mesa Quadrangles, Southern San Diego Metropolitan Area, California, Map Sheet 29, California Division of Mines and Geology, 1977.

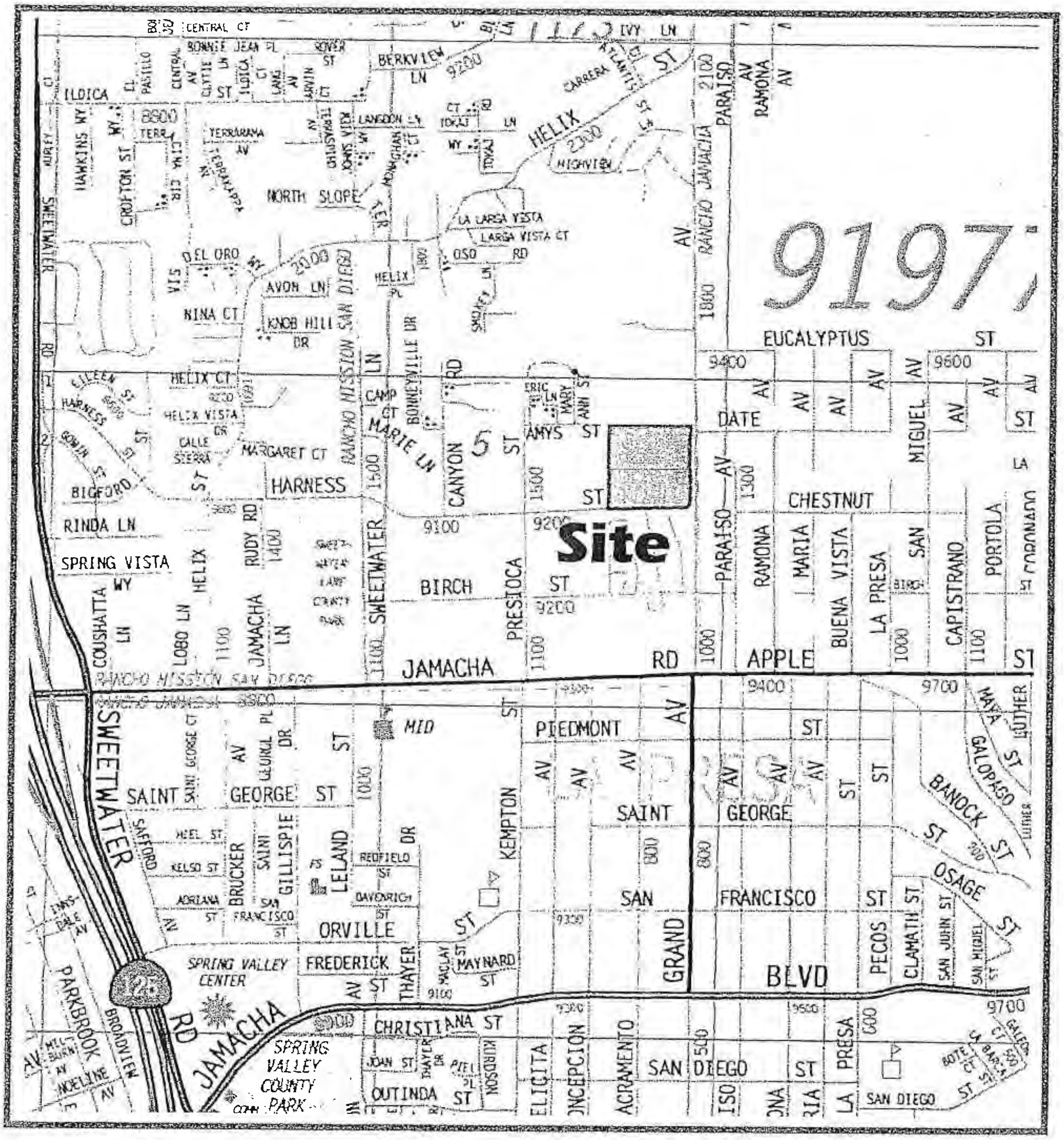
McEuen, R.B. and C.J. Pinckney, 1972, Seismic Risk in San Diego; Transactions of the San Diego Society of Natural History, Vol. 17, No. 4, 19 July 1972.

Richter, C.G., 1958, Elementary Seismology, W.H. Freeman and Company, San Francisco, Calif.

Rockwell, T.K., D.E. Millman, R.S. McElwain, and D.L. Lamar, 1985, Study of Seismic Activity by Trenching Along the Glen Ivy North Fault, Elsinore Fault Zone, Southern California: Lamar-Merifield Technical Report 85-1, U.S.G.S. Contract 14-08-0001-21376, 19 p.

Toppozada, T.R. and D.L. Parke, 1982, Areas Damaged by California Earthquakes, 1900-1949; Calif. Div. of Mines and Geology, Open-file Report 82-17, Sacramento, Calif.

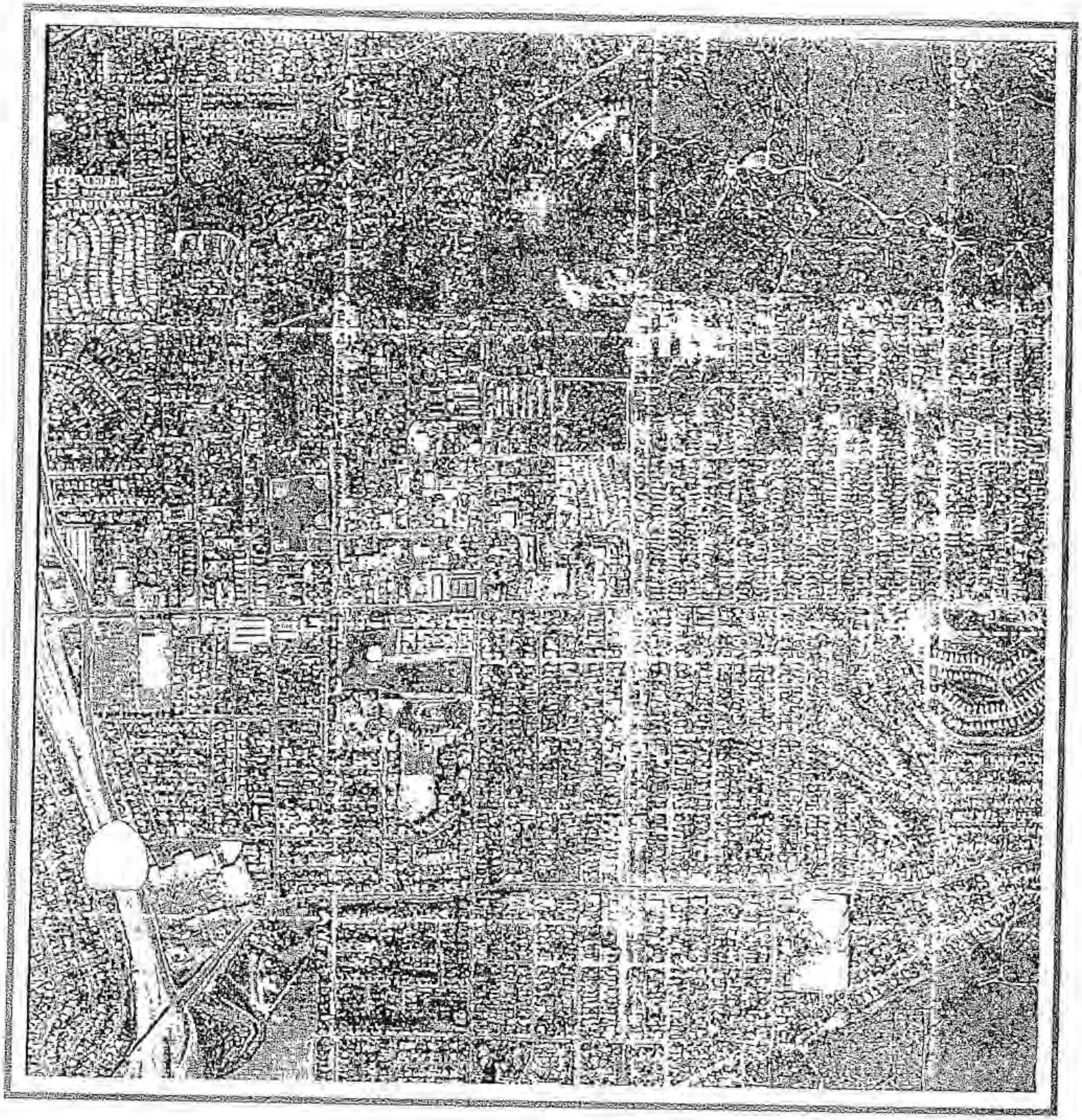
VICINITY MAP



Island Construction
Potential Multi-Residential Site
Grand Avenue and Harness Street
Spring Valley, CA.

Figure No. Ia
Job No. 02-8331

AERIAL VICINITY MAP

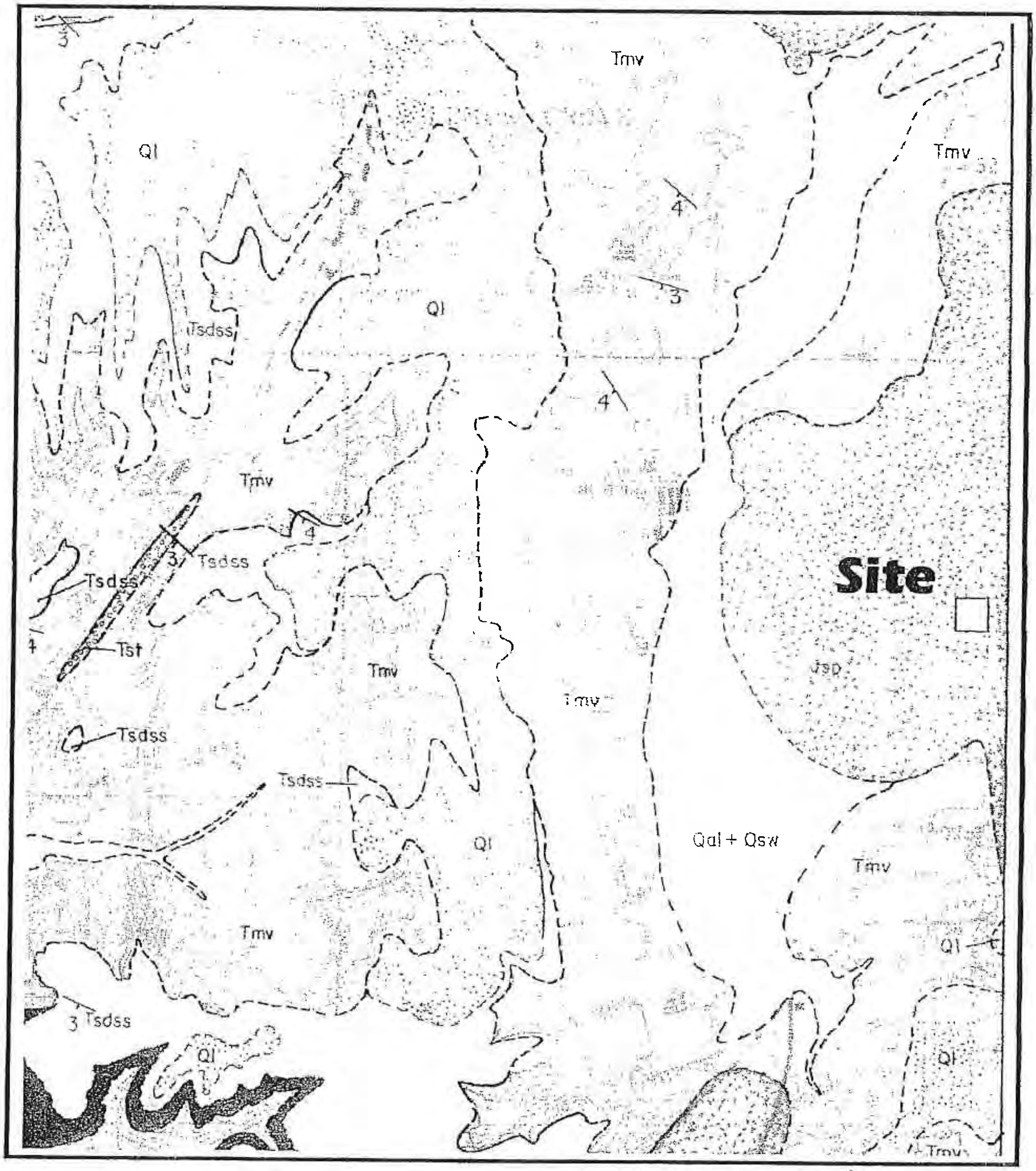


Island Construction
Potential Multi-Residential Site
Grand Avenue and Harness Street
Spring Valley, CA.

Figure No. Ib
Job No. 02-8331

1977

by Michael P. Kennedy and Siang S. Tan



Island Construction
Potential Multi-Residential Site
Grand Avenue and Harness Street
Spring Valley, CA.

Figure No. IIa
Job No. 02-8331

October 2002

AND OTAY MESA QUADRANGLES,
SOUTHERN SAN DIEGO METROPOLITAN AREA, CALIFORNIA

By Michael P. Kennedy and Siang S. Tan
1977

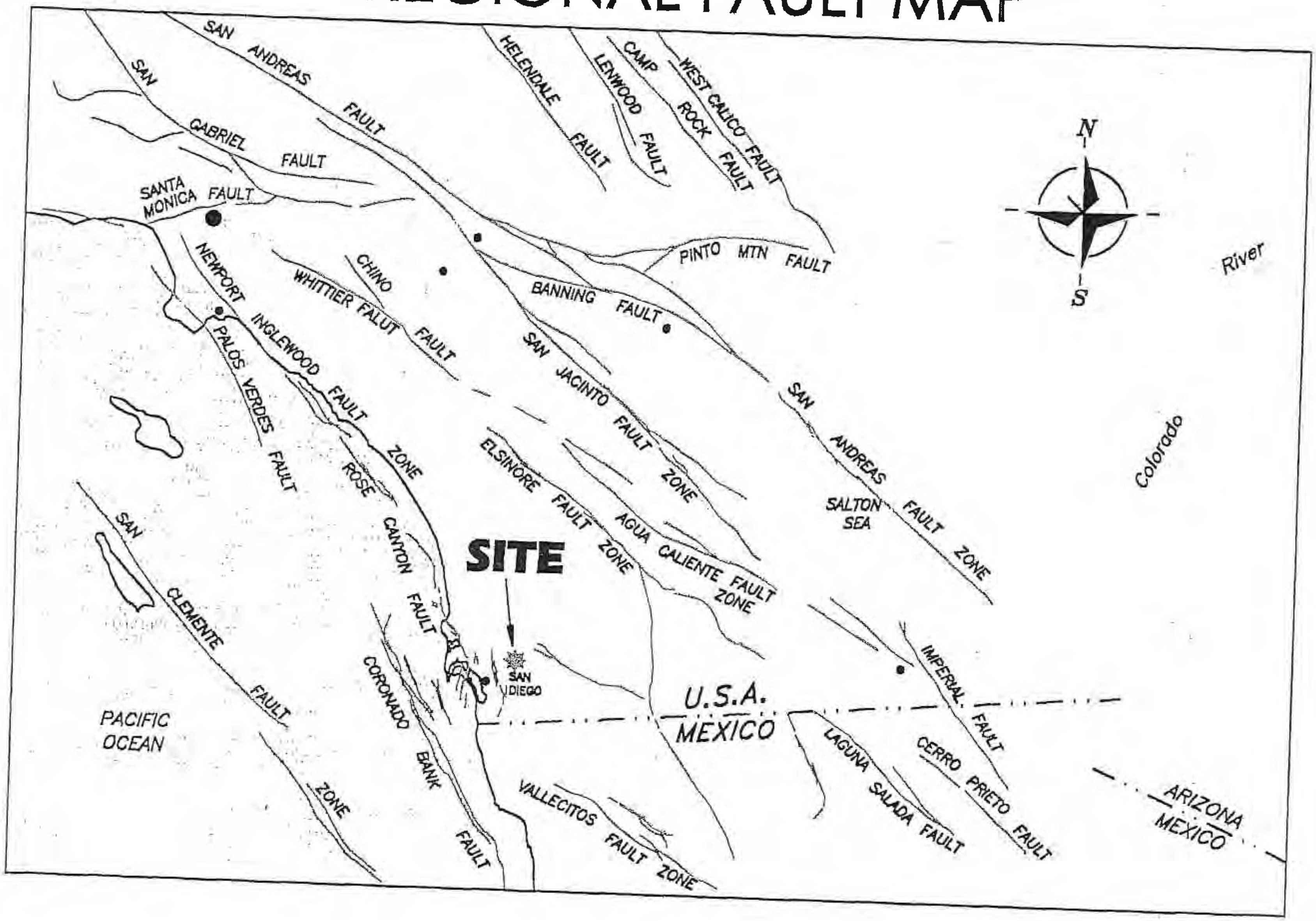
EXPLANATION

CENOZOIC	QUATERNARY	*Holocene*	Qaf	Artificial fill
				Beach deposits
		?	Qal+Qsw	Alluvium and slope wash undifferentiated
		?	Qls	Landslide deposit
		Pleistocene	Qt	Stream-terrace deposits
			Qbp, Qn, Qbp+Qn	Bay Point Formation and unnamed, nearshore, marine sandstone Qbp, *Bay Point Formation,* Qn, *unnamed, nearshore, marine sandstone;* Qbp+Qn, *Bay Point Formation and unnamed, nearshore marine sandstone undifferentiated.*
			Ql	Lindavista Formation
	TERTIARY	*Pliocene*	Tsdcg / Tsdss	San Diego Formation Tsdcg, *conglomerate part;* Tsdss, *sandstone part.*
		?		Otay Formation
		?	Tfg	Unnamed fanglomerate deposits
		? / *Eocene*	Tp	Pomerado Conglomerate
			Tmv	Mission Valley Formation
			Tst	Stadium Conglomerate
MESOZOIC	JURASSIC	*Upper Jurassic*	Jsp	Santiago Peak Volcanics

Figure No. IIb
Job No. 02-8331

October 2002

REGIONAL FAULT MAP



COMPILED FROM CDMG AND UCSD MAPS
Fault Map of southern California.

STAN-2

Figure No. IIIa
Job No. 02-8331

Geotechnical Exploration, Inc.

LOCAL FAULT MAP

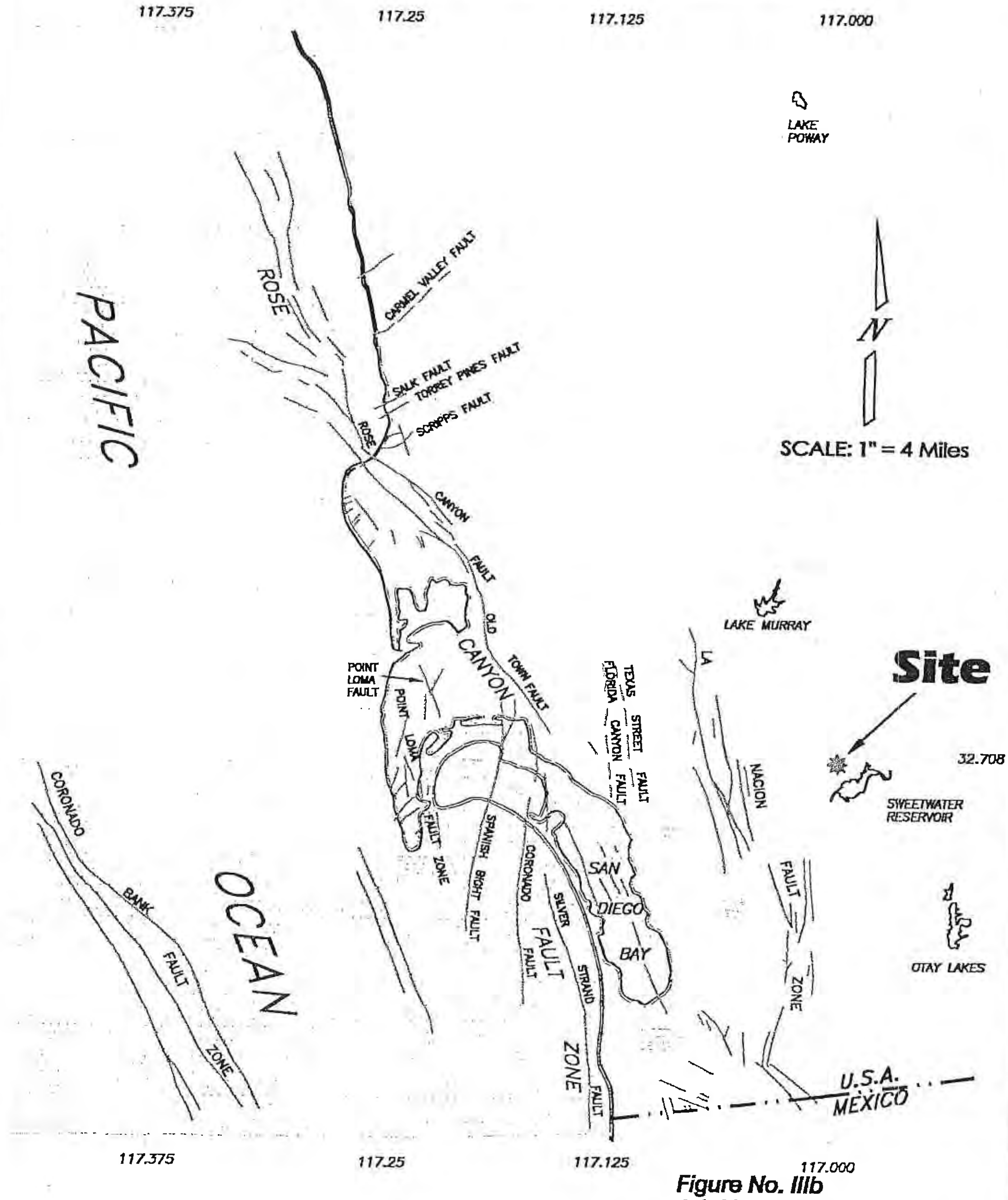


Figure No. IIIb
Job No. 02-8331

COMPILED FROM C.D.M.G. MAPS

STAN-3

Geotechnical Exploration, Inc.

APPENDIX A

EQ FAULT TABLES

DETERMINISTIC SITE PARAMETERS

Page 1

ABBREVIATED FAULT NAME	APPROXIMATE DISTANCE mi (km)	ESTIMATED MAX. EARTHQUAKE EVENT: MAXIMUM EARTHQUAKE MAG. (Mw)	RHGA SITE ACCEL. g	EST. SITE INTENSITY MOD.MERC.
ROSE CANYON	8.0(12.9)	6.9	0.158	VIII
CORONADO BANK	21.4(34.5)	7.4	0.129	VIII
ELSINORE-JULIAN	35.9(57.7)	7.1	0.061	VI
NEWPORT-INGLEWOOD (Offshore)	39.2(63.1)	6.9	0.048	VI
EARTHQUAKE VALLEY	39.8(64.1)	6.5	0.036	V
ELSINORE-COYOTE MOUNTAIN	40.8(65.6)	6.8	0.043	VI
ELSINORE-TEMECULA	45.5(73.2)	6.8	0.039	V
SAN JACINTO-COYOTE CREEK	56.4(90.8)	6.8	0.031	V
SAN JACINTO - BORREGO	57.4(92.4)	6.6	0.026	V
SAN JACINTO-ANZA	58.7(94.4)	7.2	0.039	V
LAGUNA SALADA	64.9(104.5)	7.0	0.030	V
SUPERSTITION MTN. (San Jacinto)	65.4(105.3)	6.6	0.023	IV
ELSINORE-GLEN IVY	67.0(107.8)	6.8	0.026	V
PALOS VERDES	67.1(108.0)	7.1	0.032	V
ELMORE RANCH	69.9(112.5)	6.6	0.021	IV
SUPERSTITION HILLS (San Jacinto)	70.5(113.4)	6.6	0.021	IV
SAN JACINTO-SAN JACINTO VALLEY	70.7(113.8)	6.9	0.026	V
NEWPORT-INGLEWOOD (L.A.Basin)	81.6(131.3)	6.9	0.022	IV
CHINO-CENTRAL AVE. (Elsinore)	83.1(133.7)	6.7	0.027	V
SAN ANDREAS - Coachella	83.4(134.3)	7.1	0.025	V
SAN ANDREAS - Southern	83.4(134.3)	7.4	0.031	V
IMPERIAL	84.3(135.7)	7.0	0.023	IV
BRAWLEY SEISMIC ZONE	86.1(138.6)	6.4	0.015	IV
WHITTIER	86.7(139.6)	6.8	0.020	IV
SAN ANDREAS - San Bernardino	88.0(141.6)	7.3	0.027	V
SAN JACINTO-SAN BERNARDINO	90.7(146.0)	6.7	0.017	IV
COMPTON THRUST	91.2(146.7)	6.8	0.026	V
BURNT MTN.	92.1(148.2)	6.4	0.014	IV
PINTO MOUNTAIN	93.9(151.1)	7.0	0.021	IV
EUREKA PEAK	94.5(152.1)	6.4	0.014	III
ELYSIAN PARK THRUST	94.7(152.4)	6.7	0.024	IV

-END OF SEARCH- 31 FAULTS FOUND WITHIN THE SPECIFIED SEARCH RADIUS.

THE ROSE CANYON FAULT IS CLOSEST TO THE SITE.
IT IS ABOUT 8.0 MILES (12.9 km) AWAY.

LARGEST MAXIMUM-EARTHQUAKE SITE ACCELERATION: 0.1582 g

```
************************
*                      *
*    E Q F A U L T     *
*                      *
*    Version 3.00      *
*                      *
************************
```

DETERMINISTIC ESTIMATION OF
PEAK ACCELERATION FROM DIGITIZED FAULTS

JOB NUMBER: 02-8331

DATE: 10-22-2002

JOB NAME: Island Const. eqf Test Run

CALCULATION NAME: Island Const. eqf Test Run Analysis

FAULT-DATA-FILE NAME: CDMGFLTE.DAT

SITE COORDINATES:
   SITE LATITUDE: 32.7194
   SITE LONGITUDE: 116.9986

SEARCH RADIUS: 100 mi

ATTENUATION RELATION: 13) Bozorgnia Campbell Niazi (1999) Hor.-Hard Rock-Cor.
   UNCERTAINTY (M=Median, S=Sigma): M   Number of Sigmas: 0.0
   DISTANCE MEASURE: cdist
   SCOND: 1
   Basement Depth: 5.00 km   Campbell SSR: 0   Campbell SHR: 1
   COMPUTE RHGA HORIZ. ACCEL. (FACTOR: 0.65   DISTANCE: 20 miles)

FAULT-DATA FILE USED: CDMGFLTE.DAT

MINIMUM DEPTH VALUE (km): 3.0

EQFAULT SUMMARY

```
***********************
*                     *
*    E Q F A U L T    *
*                     *
*    Version 3.00     *
*                     *
***********************
```

DETERMINISTIC ESTIMATION OF
PEAK ACCELERATION FROM DIGITIZED FAULTS

JOB NUMBER: 02-8331

DATE: 10-22-2002

JOB NAME: Island Const. eqf Test Run

CALCULATION NAME: Island Const. eqf Test Run Analysis

FAULT-DATA-FILE NAME: CDMGFLTE.DAT

SITE COORDINATES:
SITE LATITUDE: 32.7194
SITE LONGITUDE: 116.9986

SEARCH RADIUS: 100 mi

ATTENUATION RELATION: 13) Bozorgnia Campbell Niazi (1999) Hor.-Hard Rock-Cor.
UNCERTAINTY (M=Median, S=Sigma): M Number of Sigmas: 0.0
DISTANCE MEASURE: cdist
SCOND: 1
Basement Depth: 5.00 km Campbell SSR: 0 Campbell SHR: 1
COMPUTE PEAK HORIZONTAL ACCELERATION

FAULT-DATA FILE USED: CDMGFLTE.DAT

MINIMUM DEPTH VALUE (km): 3.0

EQFAULT SUMMARY

DETERMINISTIC SITE PARAMETERS

Page 1

ABBREVIATED FAULT NAME	APPROXIMATE DISTANCE mi (km)	ESTIMATED MAX. EARTHQUAKE EVENT: MAXIMUM EARTHQUAKE MAG.(Mw)	PEAK SITE ACCEL. g	EST. SITE INTENSITY MOD.MERC.
ROSE CANYON	8.0(12.9)	6.9	0.243	IX
CORONADO BANK	21.4(34.5)	7.4	0.129	VIII
ELSINORE-JULIAN	35.9(57.7)	7.1	0.061	VI
NEWPORT-INGLEWOOD (Offshore)	39.2(63.1)	6.9	0.048	VI
EARTHQUAKE VALLEY	39.8(64.1)	6.5	0.036	V
ELSINORE-COYOTE MOUNTAIN	40.8(65.6)	6.8	0.043	VI
ELSINORE-TEMECULA	45.5(73.2)	6.8	0.039	V
SAN JACINTO-COYOTE CREEK	56.4(90.8)	6.8	0.031	V
SAN JACINTO - BORREGO	57.4(92.4)	6.6	0.026	V
SAN JACINTO-ANZA	58.7(94.4)	7.2	0.039	V
LAGUNA SALADA	64.9(104.5)	7.0	0.030	V
SUPERSTITION MTN. (San Jacinto)	65.4(105.3)	6.6	0.023	IV
ELSINORE-GLEN IVY	67.0(107.8)	6.8	0.026	V
PALOS VERDES	67.1(108.0)	7.1	0.032	V
ELMORE RANCH	69.9(112.5)	6.6	0.021	IV
SUPERSTITION HILLS (San Jacinto)	70.5(113.4)	6.6	0.021	IV
SAN JACINTO-SAN JACINTO VALLEY	70.7(113.8)	6.9	0.026	V
NEWPORT-INGLEWOOD (L.A.Basin)	81.6(131.3)	6.9	0.022	IV
CHINO-CENTRAL AVE. (Elsinore)	83.1(133.7)	6.7	0.027	V
SAN ANDREAS - Coachella	83.4(134.3)	7.1	0.025	V
SAN ANDREAS - Southern	83.4(134.3)	7.4	0.031	V
IMPERIAL	84.3(135.7)	7.0	0.023	IV
BRAWLEY SEISMIC ZONE	86.1(138.6)	6.4	0.015	IV
WHITTIER	86.7(139.6)	6.8	0.020	IV
SAN ANDREAS - San Bernardino	88.0(141.6)	7.3	0.027	V
SAN JACINTO-SAN BERNARDINO	90.7(146.0)	6.7	0.017	IV
COMPTON THRUST	91.2(146.7)	6.8	0.026	V
BURNT MTN.	92.1(148.2)	6.4	0.014	IV
PINTO MOUNTAIN	93.9(151.1)	7.0	0.021	IV
EUREKA PEAK	94.5(152.1)	6.4	0.014	III
ELYSIAN PARK THRUST	94.7(152.4)	6.7	0.024	IV

****

-END OF SEARCH- 31 FAULTS FOUND WITHIN THE SPECIFIED SEARCH RADIUS.

THE ROSE CANYON FAULT IS CLOSEST TO THE SITE.
IT IS ABOUT 8.0 MILES (12.9 km) AWAY.

LARGEST MAXIMUM-EARTHQUAKE SITE ACCELERATION: 0.2434 g

CALIFORNIA FAULT MAP

Island Const. eqf Test Run