

Seismic Risk Assessment



Office Building

1234 Due Diligence Lane Any City, Any State 12345 NDDS Project No.: 13-0456 Date Issued: August 1, 2013

Prepared For:

Property Investments, LLC

Attn: Mr. John Smith, Director 2013 Assessments Avenue, Suite 200 Mountain View, Florida 45678



August 1, 2013

Mr. John Smith, Director **Property Investments, LLC** 2013 Assessments Avenue, Suite 200 Mountain View, Florida 45678

RE: Office Building

1234 Due Diligence Lane Any City, Any State 12345 NDDS File No 13-0456

Dear Mr. Smith:

National Due Diligence Services (NDDS), a division of American Surveying & Mapping, Inc. (ASM) has completed a Seismic Risk Assessment or a Probable Maximum Loss (PML) Report of the above referenced property. The assessment was conducted in accordance with the scope of work described in the engagement/proposal letter dated June 14, 2013 and executed on June 19, 2013.

This report was prepared solely for the use of The **Property Investments, LLC** (Client) and any party specifically referenced in the report under User Reliance. No other party shall use or rely on this report or the findings herein, without the prior written consent of NDDS.

Please do not hesitate to contact us at 877-439-2582 if you have any questions or if we can be of further service to you.

Sincerely,

Gregory A. Tan Vice-President



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1.0 FINDINGS

As per the Standards governing this evaluation, PML is a user-defined term. A 475-year return period was used to identify expected ground shaking at the property. In accordance with client-determined protocols, the PML has been defined as the Scenario Expected Loss in the event of ground shaking with a 10% chance of exceedance in 50 years, the Design Basis Earthquake.

PML (SEL)	9%
Seismic Zone (UBC 1997)	Zone 4
Alquist Priolo Special Study Zone	No
Nearest Fault:	Chino-Central Ave (Elsinore)
Return Period:	475
Magnitude (Richter):	6.7
Distance to Site:	1.2 miles
Local Intensity (MMI ¹):	X
Peak Ground Acceleration (pga):	Average "a": 0.39 (g)
Damage Ratio:	d = 0.554 (b ms)a ^{0.630}
Scenario Expected Loss (PML50)	9%
b = 0.24; ms = 1.25	

¹MMI refers to the Modified Mercalli Scale, a commonly accepted method of characterizing ground shaking intensity. A copy of the MMI scale is provided in the appendix.

2.0 INTRODUCTION

National Due Diligence Services (NDDS), a division of American Surveying & Mapping, Inc. (ASM) was engaged to provide a Probable Maximum Loss (PML) assessment of the Office Building located at 1234 Due Diligence Lane, Any City, Any State 12345 (Property).

Site reconnaissance was conducted at the property by Mike Stewart, NDDS Project Manager on June 26, 2013. This work was performed in accordance with ASTM Standard E2026-07 Standard Guide for the Estimation of Building Damageability in Earthquakes. This report was prepared and written by Peter D. Chang, S.E. and reviewed by Gregory A. Tan Vice President of NDDS.

Purpose

This assessment is intended to provide an evaluation of potential damage to the identified structures to facilitate consideration of related risks by the client. The assessment is a statistical study which is not intended to conclusively determine the maximum possible ground shaking or damage which may occur at the property.

Scope of Work

An assessment of Scenario Expected Loss (SEL) was conducted in accordance with ASTM E2026-07¹ and ASTM E2557-07², the PML Standards. The assessment is based upon site reconnaissance conducted by

¹ ASTM E2026-07, Standard Guide for Seismic Risk Assessment of Buildings, Approved May 1, 2007.

² ASTM E2557-07, Standard Practice for Probable Maximum Loss (PML) Evaluations for Earthquake Due-Diligence Assessments, Approved May 1, 2007.



Peter Chang, structural engineer of California. No review of building code compliance, calculation or verification of the structural design or assessment of concealed conditions has been performed.

Damage estimates include the result of potential liquefaction at the property, but exclude damages to building finishes, contents and equipment as well as damages which may result from fire, flooding and other events which may occur as a result of seismic activity.

Evaluation Criteria

In accordance with the Standards governing this work, Probable Maximum Loss (PML) is a user-defined term. There is no one method of calculating PML and no universally accepted value for certain variables. The intensity of ground shaking and resulting damage to the structures are determined statistically.

Using commonly available software, we have identified a scenario which will result in an intensity of ground shaking consistent with a Design Basis Earthquake, DBE - ground motion with a 10 % probability of exceedance in 50 years - equivalent to a 475-year return period for exceedance. Based upon this estimate of ground shaking, the damage to buildings at the property is typically evaluated using the Scenario Expected Loss (SEL).

Scenario Expected Loss represents an estimate of damage at the mean value of a normal distribution curve describing damage to a large population of buildings similar to that being assessed. In a portfolio of similar buildings, approximately 50% are likely to experience less than the estimated damage, while the balance are likely to experience more than the estimated damage.

Per ASTM E2557-07, Section 6.5.1.4, for commercial mortgage backed securities the PML is defined as the SEL_{DBE} .

Limitations

This report is the intellectual property of NDDS, and may not be used without NDDS's express written authorization. Unauthorized use of this report is a violation of NDDS's legal rights. Any unauthorized use of this report shall be subject to civil and criminal penalties and shall be responsible to indemnify, defend and hold NDDS harmless from any and all losses, damages and claims arising from such use.

The conclusions of this assessment are strictly limited by the agreed scope of services. It is important to understand that the estimate of Probable Maximum Loss is not intended to guarantee the performance of any structure or to represent the maximum possible damage to the structure in the event of an earthquake – neither the maximum credible ground shaking nor the maximum possible building damage has been used in estimating the PML. The estimate is a calculation intended to help the client understand and manage business risks; and considers two factors derived from statistical information, ground shaking intensity and damageability of the structure. The value for each of these factors depends upon a targeted confidence level defined separately in this report. For example, the intensity of ground shaking used in the PML calculation generally assumes a 10% chance of exceedance in 50 years. It is critical to understand that ground shaking and building damage can occur at levels in excess of the estimates developed here.

Not only is there a statistical probability that the estimated ground shaking and damage will be exceeded, but there is no certainty as to when the estimated ground shaking may occur. Though the estimate assumes a 10% chance of exceedance in 50 years, ground shaking at or higher than the estimate could occur today or may not occur for thousands of years.

Damageability has been estimated utilizing the damage prediction method developed by Messrs. Charles C. Thiel, Jr. and Theodore C. Zsutty, (see "Earthquake Spectra" Vol. 3, No. 4: Nov. 1987 titled



Earthquake Characteristics and Damage Statistics), CGS and USGS web sites and other sources as determined appropriate by the engineer. In the absence of information to the contrary, buildings present at the property are assumed to have been constructed in accordance with building codes in common use at the time of construction or, when applicable, subsequent significant modification. Except as specifically identified herein, this assessment does not include the review or completion of plans, structural calculations, geotechnical investigations, or collection or analysis of soil samples. As a result, conclusions of this assessment are subject to a high degree of uncertainty.

This Report represents our opinion based on professional experience and judgment as exercised within the agreed scope of services. Documents and data provided for our consideration are assumed to be true, correct and complete, and have been reviewed for informational purposes only – neither the design nor functionality of improvements has been considered critically, and no evaluation of life-safety or specific damage expected as a result of the identified seismic activity has been performed.

Reliance

This report was conducted on behalf of and for the exclusive use of **Property Investments, LLC**, its successor's and assigns. **Property Investments, LLC**, its successor's and assigns may distribute the reports to other parties without limitation; however it is acknowledged that the reports provided to third parties are for informational purposes only. NDDS will issue a reliance letter if requested.

3.0 DESCRIPTION OF IMPROVEMENTS

The subject Office Building is located at 1234 Due Diligence Lane, Any City, Any State 12345. The Property is located in a commercial area of Any, Any State, and consists of one parcel of land that totals approximately 1.21 acres. The Property is improved with one 8-story commercial office building totaling 196,688 square feet (SF). The building was constructed in 1991 of slab-on-grade steel frame construction. Exterior walls consist of pre-cast concrete panels. The surrounding grounds consist of asphalt-paved driveways, parking areas, cast in-place concrete sidewalks, and landscaped areas.

Structural drawings were not provided for our review. Therefore, based on our limited site assessment, the structural components of the building appear to be as follows:

Foundations

Foundation appears to consist of cast-in-place reinforced concrete slabs-on-grade with integral conventional perimeter concrete grade beams and intermediate reinforced concrete spread footings beneath steel columns.

Building Frames

The subject building is of steel framed construction throughout. The exterior walls are pre-cast concrete panels and fixed grass windows. Each floor level consists of concrete topping placed on thin gauge corrugated steel and act compositely with the steel framing. The roofing is a low-slope system with corrugated metal decking and wide flange bolted steel structural supports.

Lateral Load Resisting System

The primary lateral load resisting elements of the building appear to be ductile steel moment resisting frames and horizontal floor and roof diaphragms. Each floor level consists of concrete topping placed on thin gauge corrugated steel and act compositely with the steel framing.



Property Type Office/commercial

Property Name Office Building

Property Address 1234 Due Diligence Lane, Any City, Any State 12345

Jurisdiction City of Any

Site Area 1.21 Acres

Buildings One

Structural System: Steel framed construction

Primary Lateral The primary lateral load resisting elements of the building appear to be

ductile steel moment resisting frames and horizontal floor and roof

diaphragms.

Load-bearing Elements Steel framing and columns

Number of Stories: 8-story

Year Constructed: 1991

Design Code 1988 UBC

Occupancy Type: Office

Configuration: Irregular shape in plan

Vertical Irregularities: Minor

Redundancy: Assumed average

Torsion: Low

Building Exterior: Concrete panel walls and fixed glass windows

Seismic Ties: Assumed standard for date of reported construction

Structural Upgrade: None

Engineered Foundation: Reinforced concrete continuous and spread footings and concrete slab

on grade

Construction Quality: Assumed good

Hazardous Exposure: The site is not located in an Alquist-Priolo Special Studies Zone.

Site Characteristics

Detailed soil and liquefaction information was not provided for this site. However, soil data was obtained from the Geologic Map of the State of California and the Riverside County Land Information System web site is shown below:

A site specific geotechnical investigation is recommended if a more accurate assessment is required.

Site Soil Type: Alluvium

Liquefaction Potential: Low



Landslide Potential: Low

Low (The Chino-Central Ave (Elsinore) Fault is closest known active fault Fault Rupture Potential:

to the site and is located 1.2 miles from the site.





4.0 SEISMICITY

The Richter magnitude scale is used to represent the total seismic energy released at the epicenter of an earthquake. It is a base-10 logarithmic scale, meaning, for example, that an earthquake measuring 5.0 on the Richter scale has release 10 times the energy of one that measures 4.0. In general, energy generated by seismic activity decreases with distance from the epicenter, however preferential pathways can result in inconsistent transfer of energy, resulting in wide disparity in ground shaking and damage to similar buildings in close proximity to each other.

Though the Richter scale provides a measurement of ground shaking, it fails to translate seismic energy in terms of resulting damage. The Modified Mercalli Intensity Scale described the effects of ground shaking in more understandable terms. For example, ground shaking with an MMI of VII would be considered to be very strong and would make it difficult to stand, damage to buildings of good design and construction would be expected to be negligible, slight damage might be expected to result in well-built ordinary structures, and considerable damage would be expected at poorly built or badly designed structures.

Information obtained from a commercially available program, EQFault, was used to identify the maximum earthquake magnitude of earthquakes within a 50-mile radius of the property.

Regional Seismicity					
Fault or Source Name	Approx. Distance miles (km)	Maximum Earthquake Magnitude (Mw) Richter	Site Peak Horizontal Ground Acceleration (g)	Estimated Site MMI	
CHINO-CENTRAL AVE. (Chino-Central Ave (Elsinore))	1.2 (2.0)	6.7	0.465	Х	
WHITTIER	1.8 (2.9)	6.8	0.385	Χ	
ELSINORE (GLEN IVY)	3.3 (5.3)	6.8	0.329	IX	
SAN JOSE	16.1 (25.9)	6.4	0.124	VII	
PUENTE HILLS BLIND THRUST	16.2 (26.1)	7.1	0.178	VIII	
SAN JOAQUIN HILLS	18.3 (29.5)	6.6	0.125	VII	
CUCAMONGA	18.5 (29.8)	6.9	0.145	VIII	
SIERRA MADRE	18.7 (30.1)	7.2	0.169	VIII	
SAN JACINTO-SAN BERNARDINO	20.9 (33.6)	6.7	0.098	VII	
ELSINORE (TEMECULA)	21.6 (34.8)	6.8	0.101	VII	
SAN JACINTO-SAN JACINTO VALLEY	22.4 (36.1)	6.9	0.103	VII	
SAN ANDREAS - SB-Coach. M-1b-2	26.6 (42.8)	7.7	0.138	VIII	
SAN ANDREAS - SB-Coach. M-2b	26.6 (42.8)	7.7	0.138	VIII	
SAN ANDREAS - San Bernardino M-1	26.6 (42.8)	7.5	0.124	VII	
SAN ANDREAS - Whole M-1a	26.6 (42.8)	8.0	0.162	VIII	
NEWPORT-INGLEWOOD (L.A.Basin)	27.0 (43.4)	7.1	0.100	VII	
NEWPORT-INGLEWOOD (Offshore)	27.5 (44.2)	7.1	0.098	VII	
SAN ANDREAS - Cho-Moj M-1b-1	28.5 (45.9)	7.8	0.138	VIII	
SAN ANDREAS - 1857 Rupture M-2a	28.5 (45.9)	7.8	0.138	VIII	
SAN ANDREAS - Mojave M-1c-3	28.5 (45.9)	7.4	0.112	VII	
CLAMSHELL-SAWPIT	28.7 (46.2)	6.5	0.084	VII	
RAYMOND	30.0 (48.3)	6.5	0.081	VII	



Regional Seismicity					
Fault or Source Name	Approx. Distance miles (km)	Maximum Earthquake Magnitude (Mw) Richter	Site Peak Horizontal Ground Acceleration (g)	Estimated Site MMI	
CLEGHORN	30.1 (48.5)	6.5	0.067	VI	
UPPER ELYSIAN PARK BLIND THRUST	31.9 (51.4)	6.4	0.074	VII	
NORTH FRONTAL FAULT ZONE (West)	33.3 (53.6)	7.2	0.109	VII	
VERDUGO	36.4 (58.6)	6.9	0.087	VII	
PALOS VERDES	38.0 (61.2)	7.3	0.085	VII	
SAN JACINTO-ANZA	39.8 (64.1)	7.2	0.078	VII	
HOLLYWOOD	40.2 (64.7)	6.4	0.062	VI	
CORONADO BANK	46.7 (75.1)	7.6	0.085	VII	
ELSINORE (JULIAN)	48.2 (77.5)	7.1	0.064	VI	
SIERRA MADRE (San Fernando)	48.8 (78.5)	6.7	0.062	VI	
SANTA MONICA	49.1 (79.0)	6.6	0.059	VI	
SAN GABRIEL	49.7 (80.0)	7.2	0.066	VI	

Notes:

- 1. Data source: EQFault software by Thomas Blake.
- 2. Km = kilometers.
- 3. Mw = moment magnitude.
- g = gravity (the peak horizontal ground motion is expressed as a percentage of gravity).

 MMI = Modified Mercalli Intensity Scale. Definitions are provided in Appendix A.

The effect of historical earthquakes with magnitude greater than 5.5 (Richter) since 1900 and within a 100-mile radius of the property are summarized below:

Historic Earthquakes						
North Latitude	West Longitude	Date	Richter Magnitude	Peak Horizontal Site Acceleration (g)	Site MMI	Approx. Distance to Site in miles (km)
33.6990	117.5110	05/31/1938	5.50	0.088	VII	13.5 (21.7)
33.7000	117.4000	05/15/1910	6.00	0.098	VII	16.7 (26.8)
34.0000	117.2500	07/23/1923	6.25	0.093	VII	21.1 (33.9)
33.6170	117.9670	03/11/1933	6.30	0.076	VII	28.4 (45.7)
33.6830	118.0500	03/11/1933	5.50	0.048	VI	29.8 (48.0)
34.0610	118.0790	10/01/1987	5.90	0.058	VI	30.6 (49.2)
33.7500	117.0000	04/21/1918	6.80	0.085	VII	35.0 (56.4)
34.2000	117.1000	09/20/1907	6.00	0.055	VI	35.5 (57.2)
34.2670	116.9670	08/29/1943	5.50	0.036	V	44.4 (71.4)
34.2030	116.8270	06/28/1992	6.70	0.062	VI	48.9 (78.7)
33.9980	116.6060	07/08/1986	5.60	0.031	V	56.9 (91.6)
34.2130	118.5370	01/17/1994	6.70	0.054	VI	58.8 (94.6)
34.4110	118.4010	02/09/1971	5.80	0.033	V	59.0 (94.9)
34.4110	118.4010	02/09/1971	5.80	0.033	V	59.0 (94.9)
34.4110	118.4010	02/09/1971	6.40	0.046	VI	59.0 (94.9)
34.0170	116.5000	07/24/1947	5.50	0.027	V	63.1 (101.5)



Historic Earthquakes						
North Latitude	West Longitude	Date	Richter Magnitude	Peak Horizontal Site Acceleration (g)	Site MMI	Approx. Distance to Site in miles (km)
33.5010	116.5130	02/25/1980	5.50	0.026	V	67.2 (108.2)
33.9330	116.3830	12/04/1948	6.50	0.043	VI	69.2 (111.4)
34.2010	116.4360	06/28/1992	7.60	0.076	VII	69.5 (111.9)
34.3260	118.6980	01/17/1994	5.60	0.026	V	70.4 (113.2)
34.3790	118.7110	01/19/1994	5.50	0.024	V	72.7 (116.9)
33.9610	116.3180	04/23/1992	6.10	0.033	V	73.0 (117.6)
33.3430	116.3460	04/28/1969	5.80	0.026	V	80.6 (129.8)
34.0000	119.0000	12/14/1912	5.70	0.025	V	81.2 (130.6)
33.4080	116.2610	03/25/1937	6.00	0.028	V	83.1 (133.8)
34.0650	119.0350	02/21/1973	5.90	0.027	V	83.7 (134.7)
32.8170	118.3500	12/26/1951	5.90	0.026	V	85.7 (137.9)
34.4420	116.2480	10/16/1999	5.70	0.024	IV	85.8 (138.1)
34.5940	116.2710	10/16/1999	7.10	0.048	VI	89.8 (144.6)
33.2830	116.1830	03/19/1954	5.50	0.020	IV	90.9 (146.3)
33.2830	116.1830	03/19/1954	6.20	0.029	V	90.9 (146.3)
34.0000	116.0000	04/03/1926	5.50	0.020	IV	91.4 (147.1)
34.6800	116.2800	10/16/1999	5.80	0.023	IV	92.8 (149.3)
35.2100	118.0660	07/11/1992	5.70	0.022	IV	95.5 (153.7)
33.2170	116.1330	08/15/1945	5.70	0.022	IV	95.6 (153.9)
34.9830	116.5500	04/10/1947	6.20	0.028	V	96.3 (154.9)
33.1900	116.1290	04/09/1968	6.40	0.031	V	96.7 (155.7)
34.7000	119.0000	10/23/1916	5.50	0.019	IV	98.2 (158.1)

Notes:

- 1. Data source: EQSearch software by Thomas Blake.
- 2. Km = kilometers.
- 3. Mw = moment magnitude.
- 4. g = gravity (the peak horizontal ground motion is expressed as a percentage of gravity).
- 5. MMI = Modified Mercalli Intensity Scale. Definitions are provided in Appendix A.



5.0 CERTIFICATION

This assessment was conducted on behalf of and for the exclusive use and benefit of **The PRES Companies** (Client), its successors, and assignees. **The PRES Companies** may distribute the report to other parties without limitation; however it is acknowledged that the report provided to third parties is for informational purposes only. NDDS will issue a reliance letter if requested.

NDDS has completed this assessment in accordance with the agreed scope of services. The work was performed as an independent contractor, without undue influence of the Client or owner of the Property. To the best of our knowledge and belief, the undersigned have no personal relationship with or interest in any party involved in this transaction.

Peter D. Chang PE, SE Structural Engineer

Gregory A. Tan Vice President

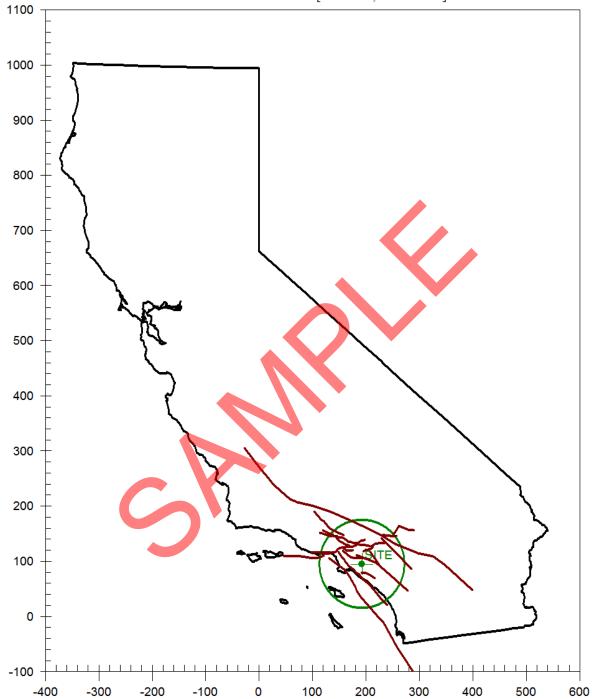


Modified Mercalli Intensity Scale Fault Map Historical Earthquakes Map Peak Ground Acceleration Chart Seismic Zone Map

	MODIFIED MERCALLI INTENSITY SCALE (1931 ABRIDGED)				
l.	Not felt except by a very few under especially favorable circumstances				
II.	Felt only by a few persons at rest, especially on upper floors of buildings. Delicately suspended objects may swing				
III.	Felt noticeably indoors, especially on upper floors of buildings, but many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibration likes passing of truck. Duration estimated				
IV.	During the day felt by many, felt outdoors by few. At night some awakened. Dishes, windows, doors disturbed; walls make creaking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably				
V.	Felt by nearly everyone; many awakened. Some dishes, windows, etc. broken; a few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles, and other tall objects sometimes noticed. Pendulum clocks may stop				
VI.	VI. Felt by all; many frightened and run outdoors. Some heavy furniture moved; a few instances of fallen plaster or damaged chimneys. Damage slight				
VII.	VII. Everybody runs outdoors. Damage negligible in buildings of ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving motor cars				
VIII.	Damage slight in specially designed structures; considerable in ordinary substantial buildings with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimney, factory stacks, columns, monuments, and walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Disturbs persons driving motor cars				
IX.	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb; damage great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken				
X.	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from riverbanks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks				
XI.	Few, if any, (masonry) structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipe lines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly				
XII.	Damage total. Waves seen on ground surfaces. Lines of sight and level distorted. Objects thrown upward into the air				

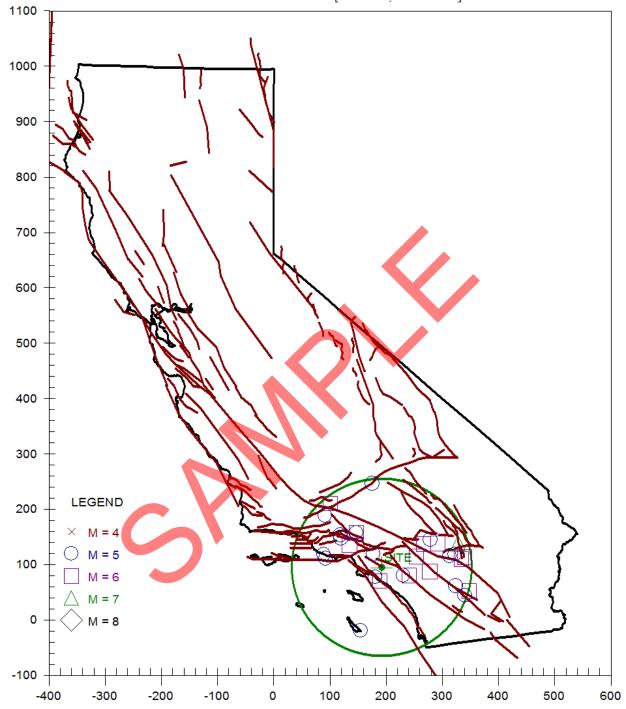
CALIFORNIA FAULT MAP

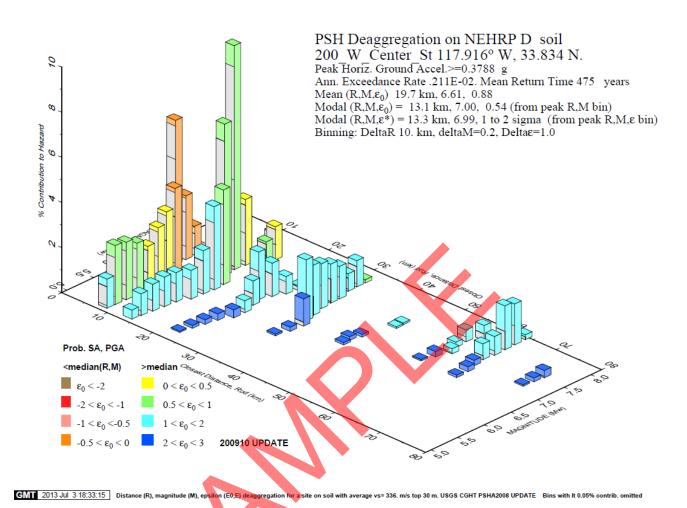
200 W Center St Promenade [N33.834, W117.916]



EARTHQUAKE EPICENTER MAP

200 W Center St Promenade [N33.834, W117.916]





Ground Motion	Firm Rock	Soft Rock	Alluvium
Pga	0.343	0.356	0.389
Sa 0.2 sec	0.825	0.862	0.942
Sa 1 O sec	0.312	0.389	0.476

NEHRP Soil Corrections were used to calculate Soft Rock and Alluvium.

PGA = 0.39g

SEISMIC ZONE MAP OF THE UNITED STATES

UNIFORM BUILDING CODE 1997 VOLUME 2 TABLE 16.2

