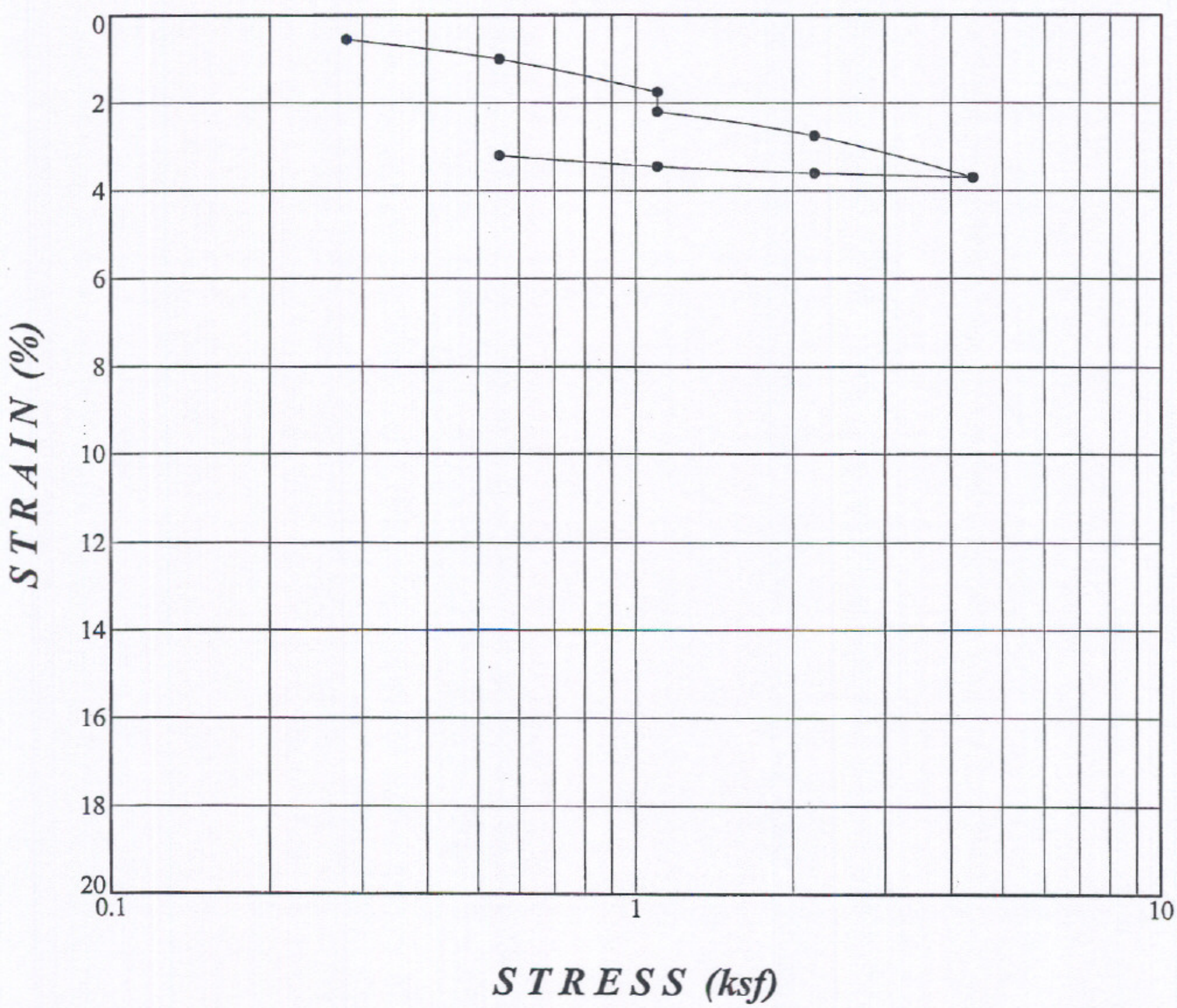
CONSOLIDATION TEST

PROJECT NAME: *Sierra Canyon School*	SAMPLE ID: *AH 02 @ 6.00*
PROJECT NUMBER: *PIN 3614B*	MATERIAL DESCRIPTION: *Older Alluvium (Qoa)*

Load (psf) water added to test at: 1100



MOISTURE CONTENT (%)		DRY DENSITY (pcf)		RESULTS	
In Situ:	*17.6*	Before Test:	*101.9*	Initial Void Ratio:	*0.6655*

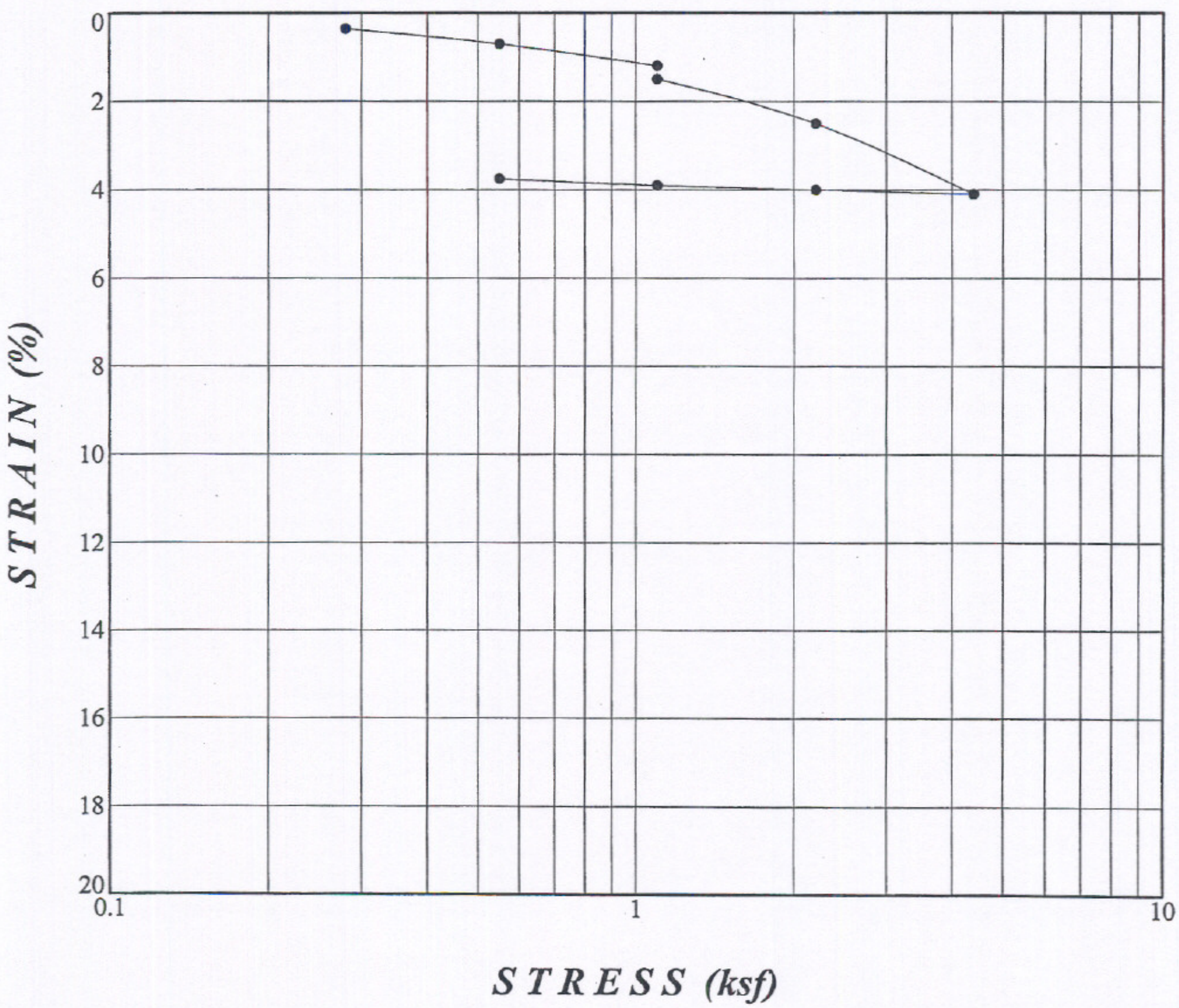
SubSurface Designs, Inc.

GEOTECHNICAL ENGINEERS & ENGINEERING GEOLOGISTS

CONSOLIDATION TEST

PROJECT NAME: *Sierra Canyon School*	SAMPLE ID: *AH 02 @ 10.00*
PROJECT NUMBER: *PIN 3614B*	MATERIAL DESCRIPTION: *Older Alluvium (Qoa)*

Load (psf) water added to test at: 1100



MOISTURE CONTENT (%)		DRY DENSITY (pcf)		RESULTS	
In Situ:	*7.6*	Before Test:	*108.3*	Initial Void Ratio:	*0.7983*

SubSurface Designs, Inc.

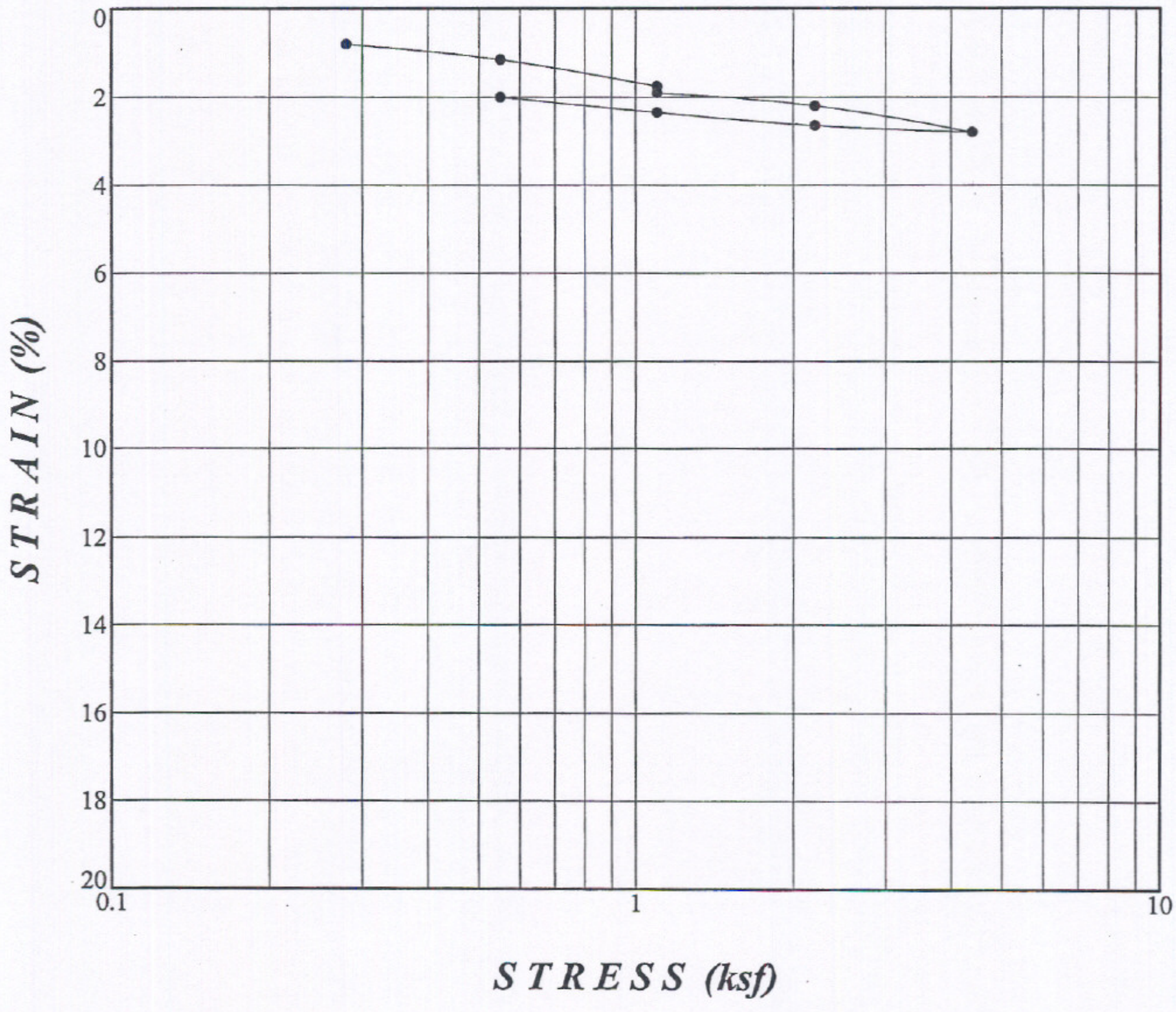
GEOTECHNICAL ENGINEERS & ENGINEERING GEOLOGISTS

Figure C.3

CONSOLIDATION TEST

PROJECT NAME: *Sierra Canyon School*	SAMPLE ID: *AH 02 @ 20.00*
PROJECT NUMBER: *PIN 3614B*	MATERIAL DESCRIPTION: *Older Alluvium (Qoa)*

Load (psf) water added to test at: 1100



MOISTURE CONTENT (%)		DRY DENSITY (pcf)		RESULTS	
In Situ:	*14.8*	Before Test:	*111.6*	Initial Void Ratio:	*0.5576*

SubSurface Designs, Inc.

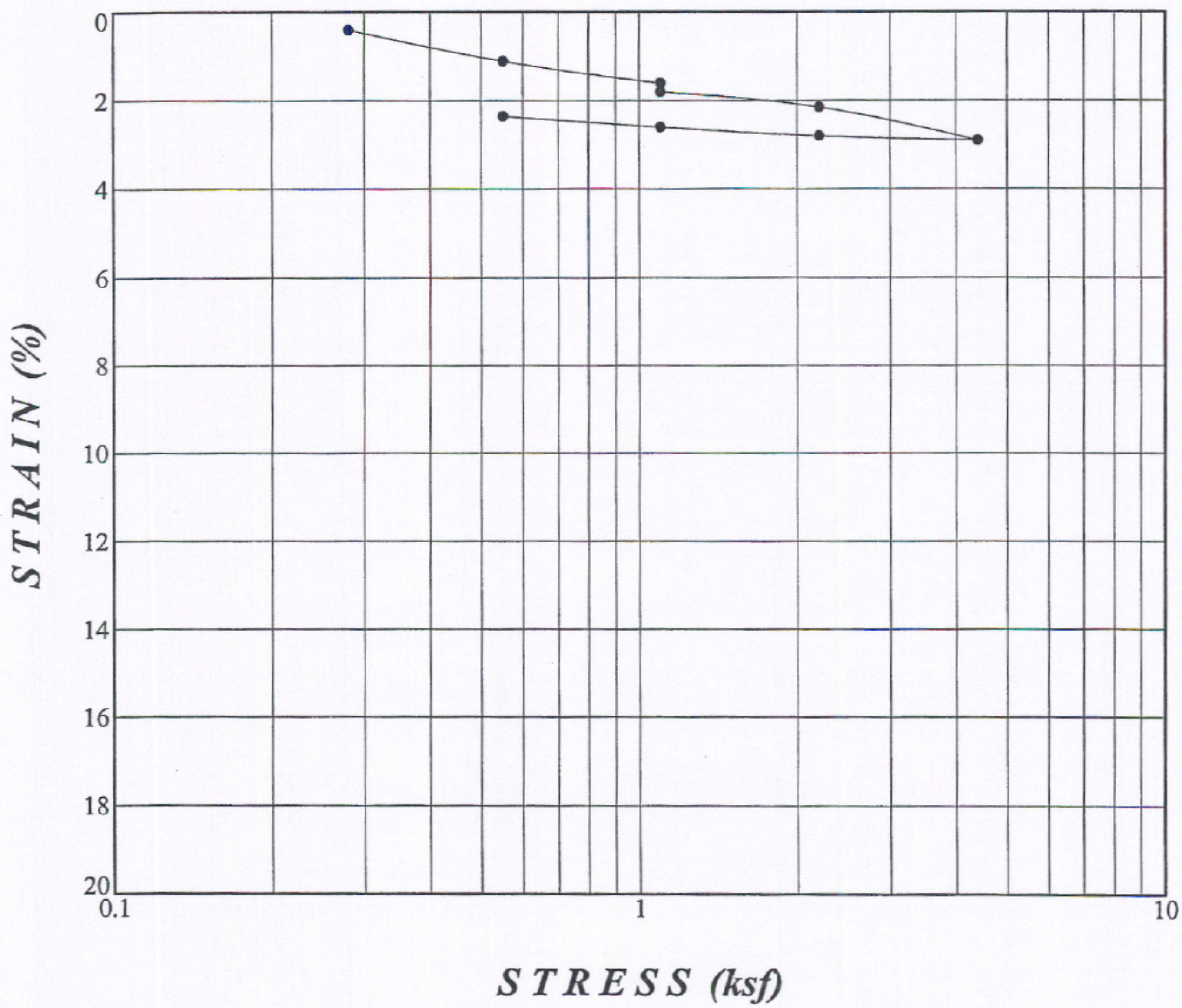
GEOTECHNICAL ENGINEERS & ENGINEERING GEOLOGISTS

Figure C.4

CONSOLIDATION TEST

PROJECT NAME: *Sierra Canyon School*	SAMPLE ID: *AH 03 @ 3.00*
PROJECT NUMBER: *PIN 3614B*	MATERIAL DESCRIPTION: *Older Alluvium (Qoa)*

Load (psf) water added to test at: 1100



MOISTURE CONTENT (%)		DRY DENSITY (pcf)		RESULTS	
In Situ:	*12.0*	Before Test:	*119.9*	Initial Void Ratio:	*0.3499*

SubSurface Designs, Inc.

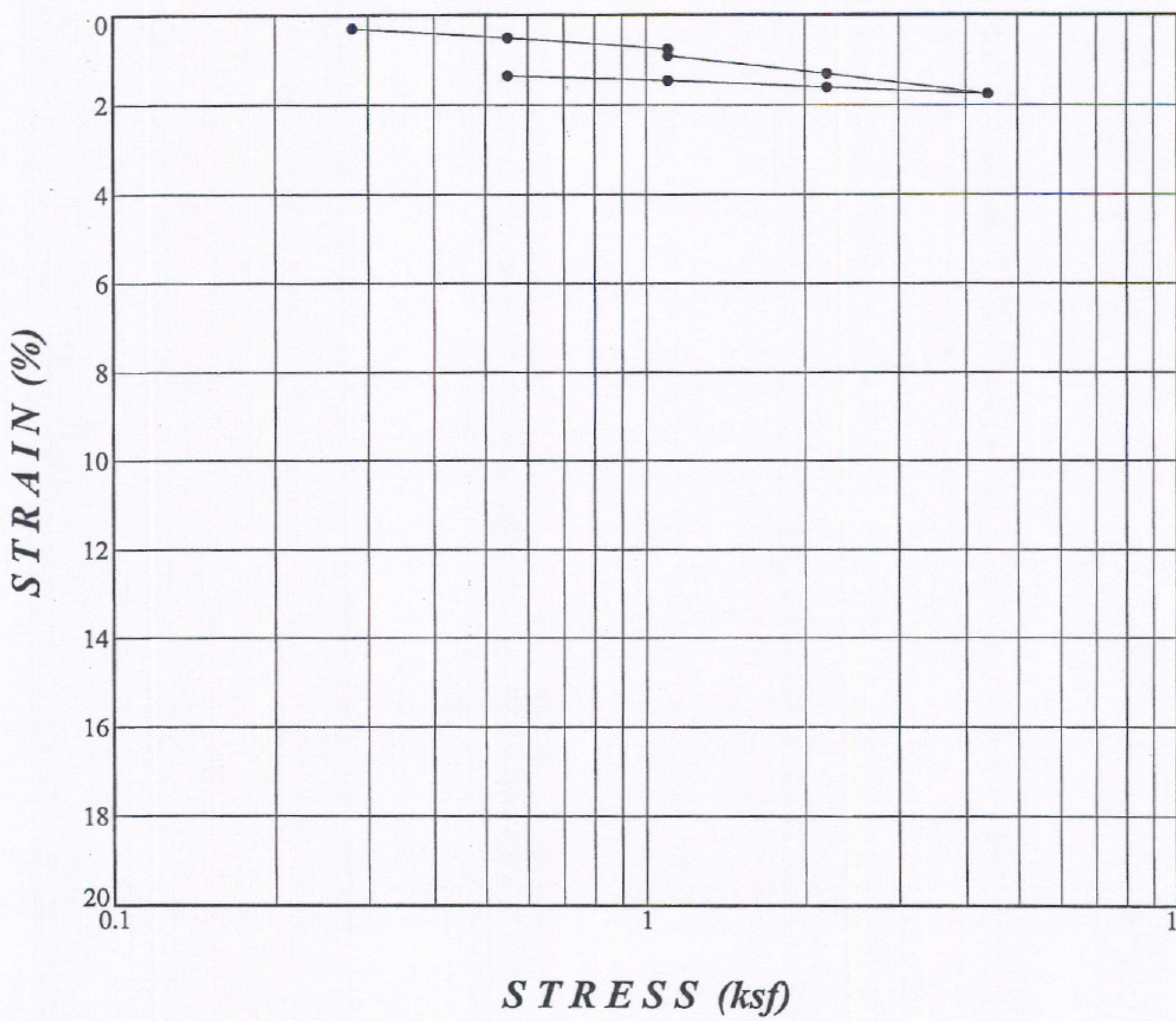
GEOTECHNICAL ENGINEERS & ENGINEERING GEOLOGISTS

Figure C.5

CONSOLIDATION TEST

PROJECT NAME: *Sierra Canyon School*	SAMPLE ID: *AH 03 @ 6.00*
PROJECT NUMBER: *PIN 3614B*	MATERIAL DESCRIPTION: *Older Alluvium (Qoa)*

Load (psf) water added to test at: 1100



MOISTURE CONTENT (%)		DRY DENSITY (pcf)		RESULTS	
In Situ:	*8.2*	Before Test:	*124.5*	Initial Void Ratio:	*0.4324*

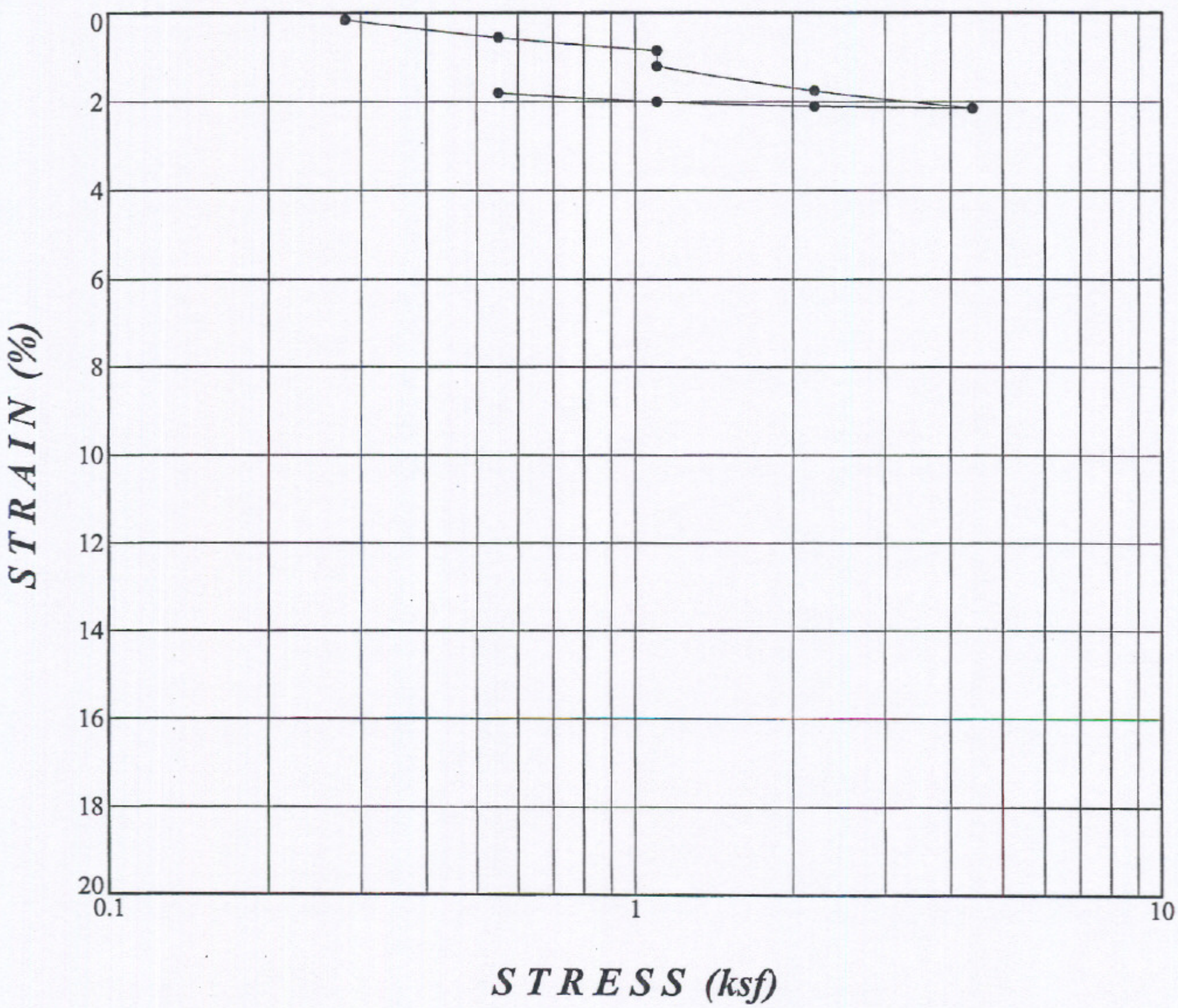
SubSurface Designs, Inc.

GEOTECHNICAL ENGINEERS & ENGINEERING GEOLOGISTS

CONSOLIDATION TEST

PROJECT NAME: *Sierra Canyon School*		SAMPLE ID: *AH 03 @ 9.00*
PROJECT NUMBER: *PIN 3614B*	MATERIAL DESCRIPTION: *Older Alluvium (Qoa)*	

Load (psf) water added to test at: 1100



MOISTURE CONTENT (%)		DRY DENSITY (pcf)		RESULTS	
In Situ:	*7.0*	Before Test:	*120.2*	Initial Void Ratio:	*0.4837*

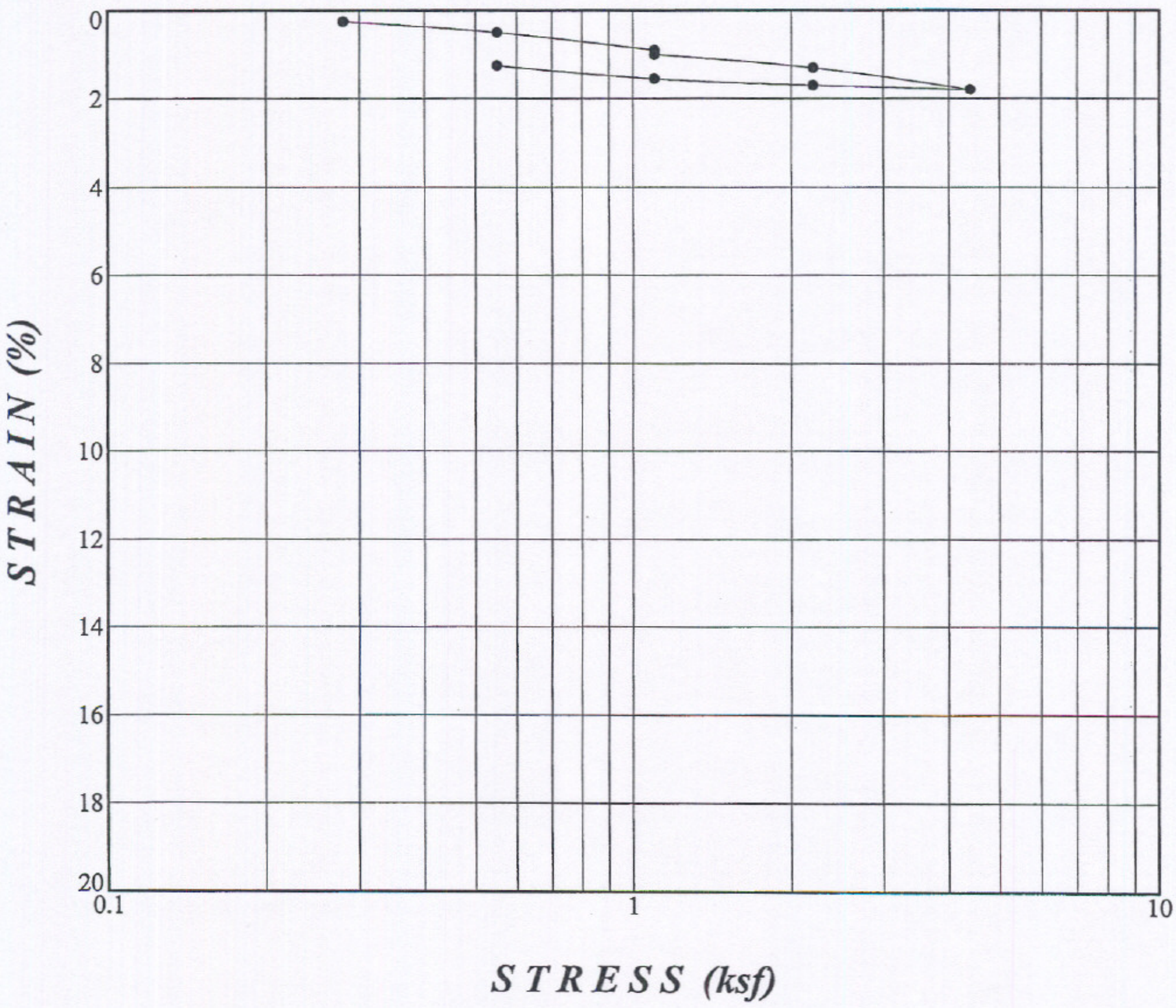
SubSurface Designs, Inc.

GEOTECHNICAL ENGINEERS & ENGINEERING GEOLOGISTS

CONSOLIDATION TEST

PROJECT NAME: *Sierra Canyon School*	SAMPLE ID: *AH 03 @ 12.00*
PROJECT NUMBER: *PIN 3614B*	MATERIAL DESCRIPTION: *Older Alluvium (Qoa)*

Load (psf) water added to test at: 1100



MOISTURE CONTENT (%)		DRY DENSITY (pcf)		RESULTS	
In Situ:	*9.0*	Before Test:	*124.3*	Initial Void Ratio:	*0.4081*

SubSurface Designs, Inc.

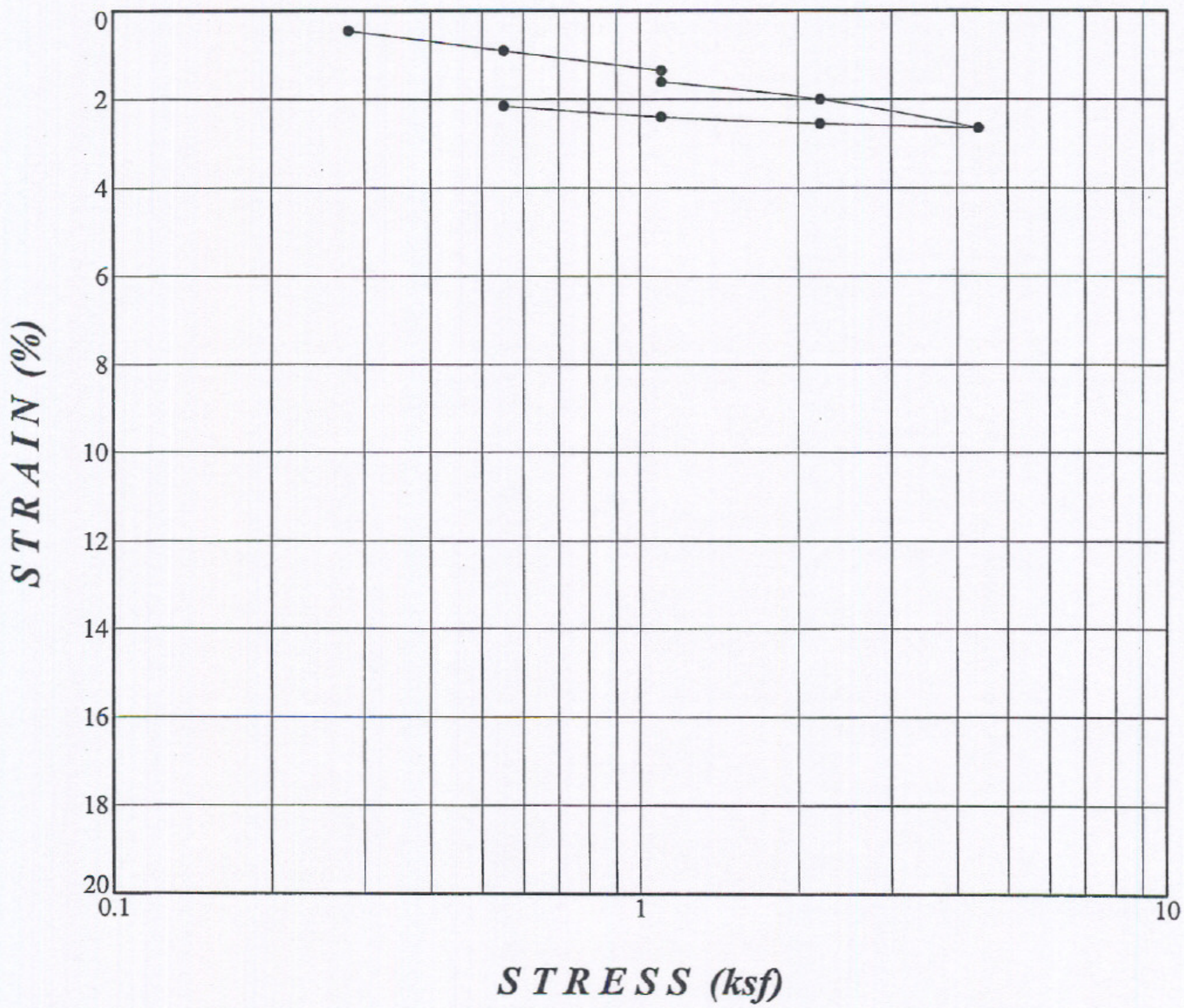
GEOTECHNICAL ENGINEERS & ENGINEERING GEOLOGISTS

Figure C.8

CONSOLIDATION TEST

PROJECT NAME: *Sierra Canyon School*	SAMPLE ID: *AH 03 @ 15.00*
PROJECT NUMBER: *PIN 3614B*	MATERIAL DESCRIPTION: *Older Alluvium (Qoa)*

Load (psf) water added to test at: 1100



MOISTURE CONTENT (%)		DRY DENSITY (pcf)		RESULTS	
In Situ:	*14.6*	Before Test:	*116.8*	Initial Void Ratio:	*0.4275*

SubSurface Designs, Inc.

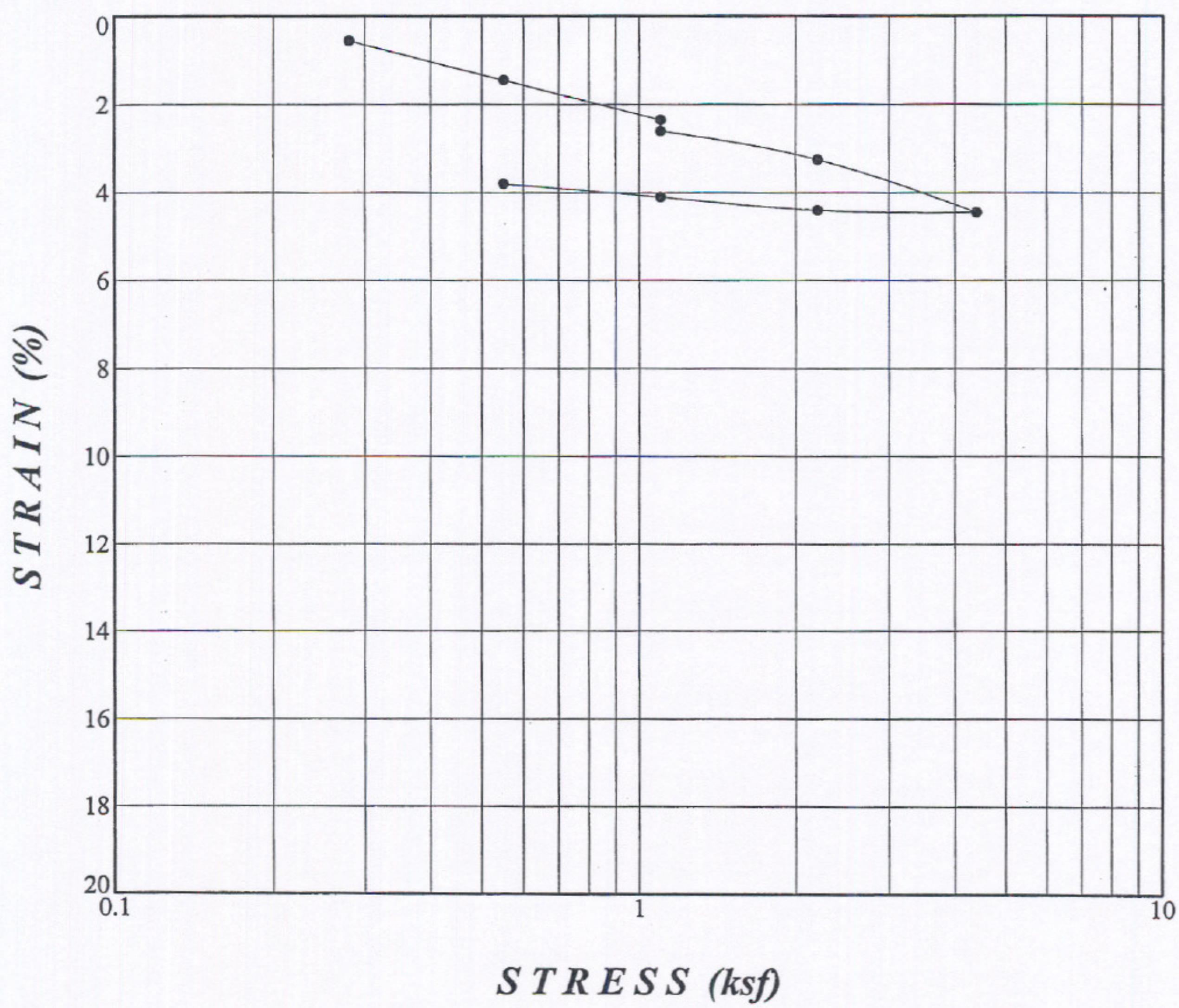
GEOTECHNICAL ENGINEERS & ENGINEERING GEOLOGISTS

Figure C.9

CONSOLIDATION TEST

PROJECT NAME: *Sierra Canyon School*	SAMPLE ID: *AH 04 @ 3.00*
PROJECT NUMBER: *PIN 3614B*	MATERIAL DESCRIPTION: *Older Alluvium (Qoa)*

Load (psf) water added to test at: 1100



MOISTURE CONTENT (%)		DRY DENSITY (pcf)		RESULTS	
In Situ:	*11.6*	Before Test:	*105.2*	Initial Void Ratio:	*0.6225*

SubSurface Designs, Inc.

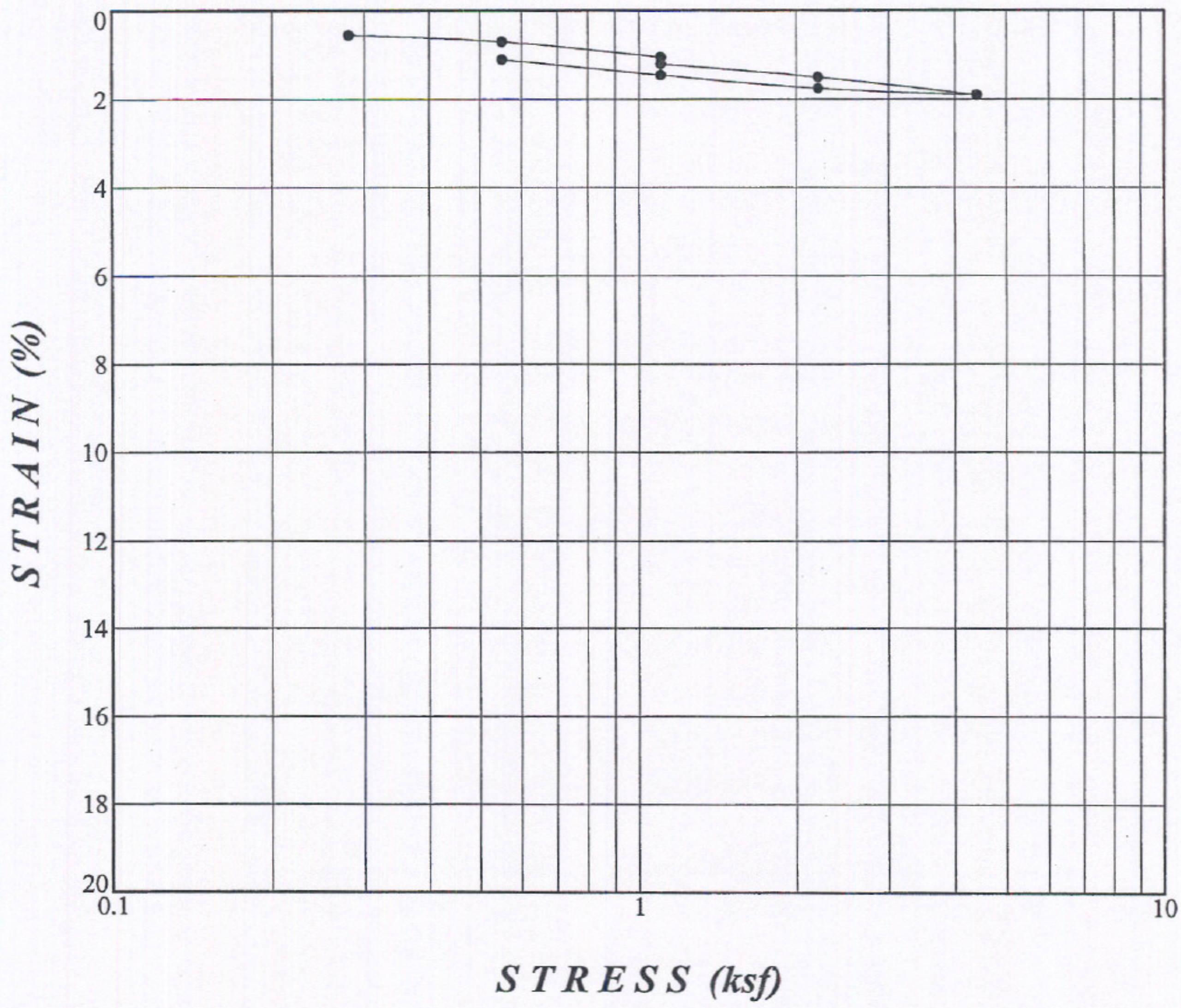
GEOTECHNICAL ENGINEERS & ENGINEERING GEOLOGISTS

Figure C.10

CONSOLIDATION TEST

PROJECT NAME: *Sierra Canyon School*		SAMPLE ID: *AH 04 @ 9.00*
PROJECT NUMBER: *PIN 3614B*	MATERIAL DESCRIPTION: *Older Alluvium (Qoa)*	

Load (psf) water added to test at: 1100



MOISTURE CONTENT (%)	DRY DENSITY (pcf)	RESULTS
In Situ: *10.0*	Before Test: *119.7*	Initial Void Ratio: *0.4154*

SubSurface Designs, Inc.

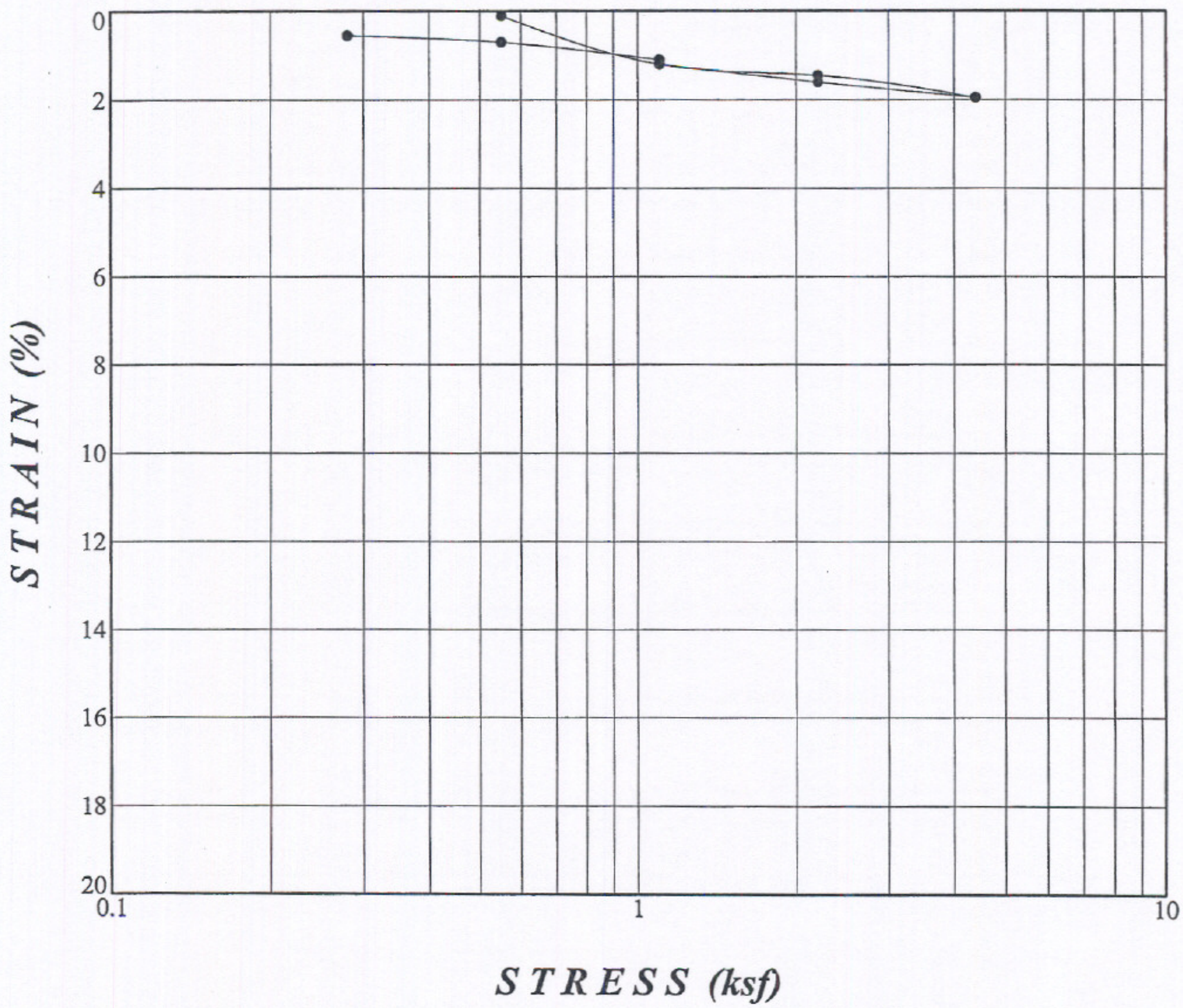
GEOTECHNICAL ENGINEERS & ENGINEERING GEOLOGISTS

Figure C.11

CONSOLIDATION TEST

PROJECT NAME: *Sierra Canyon School*	SAMPLE ID: *AH 04 @ 20.00*
PROJECT NUMBER: *PIN 3614B*	MATERIAL DESCRIPTION: *Older Alluvium (Qoa)*

Load (psf) water added to test at: 1100



MOISTURE CONTENT (%)		DRY DENSITY (pcf)		RESULTS	
In Situ:	*15.7*	Before Test:	*110.4*	Initial Void Ratio:	*0.4842*

SubSurface Designs, Inc.

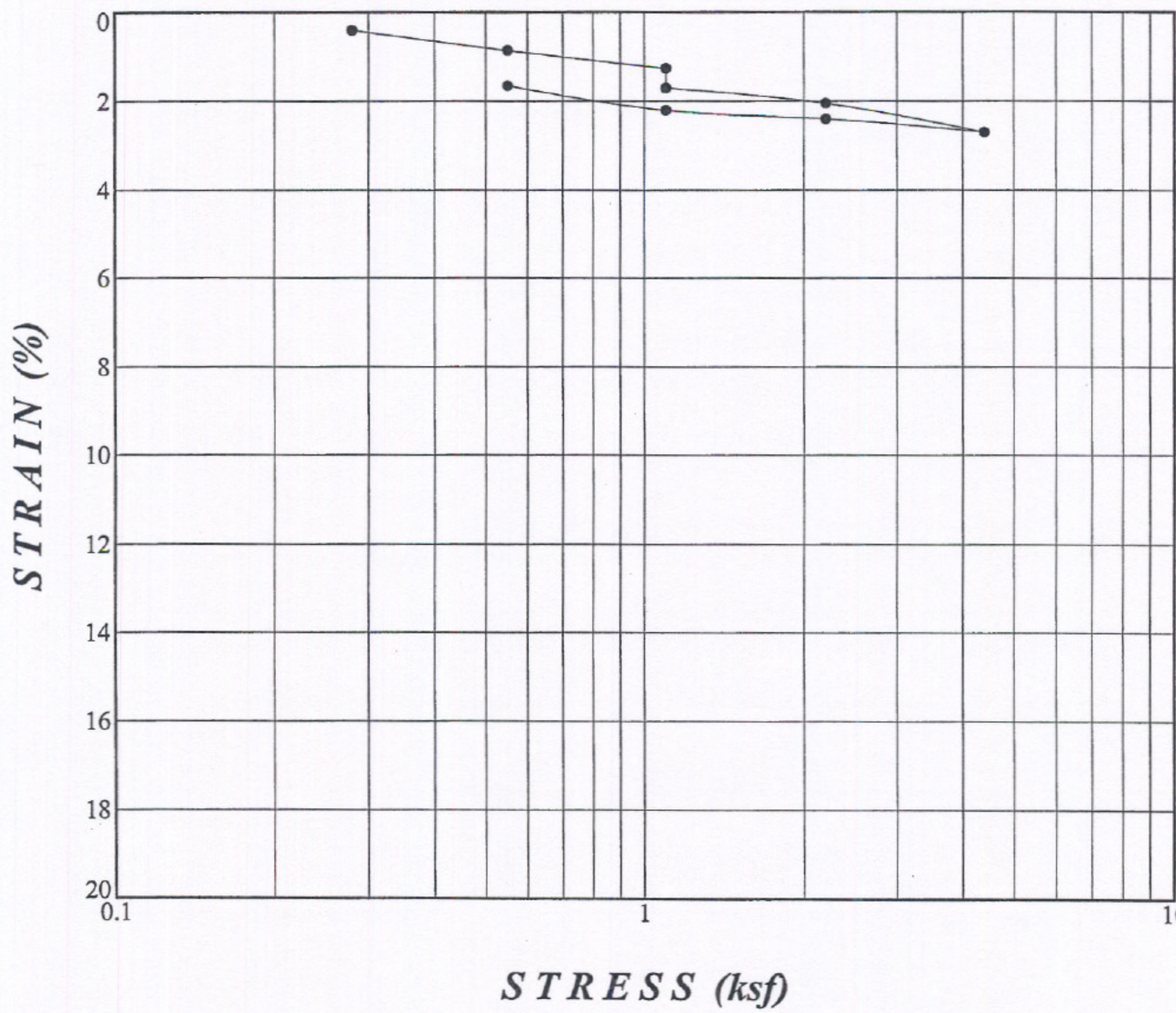
GEOTECHNICAL ENGINEERS & ENGINEERING GEOLOGISTS

Figure C.12

CONSOLIDATION TEST

PROJECT NAME: *Sierra Canyon School*	SAMPLE ID: *AH 05 @ 5.00*
PROJECT NUMBER: *PIN 3614B*	MATERIAL DESCRIPTION: *Older Alluvium (Qoa)*

Load (psf) water added to test at: 1100



MOISTURE CONTENT (%)		DRY DENSITY (pcf)		RESULTS	
In Situ:	*8.0*	Before Test:	*117.1*	Initial Void Ratio:	*0.4077*

SubSurface Designs, Inc.

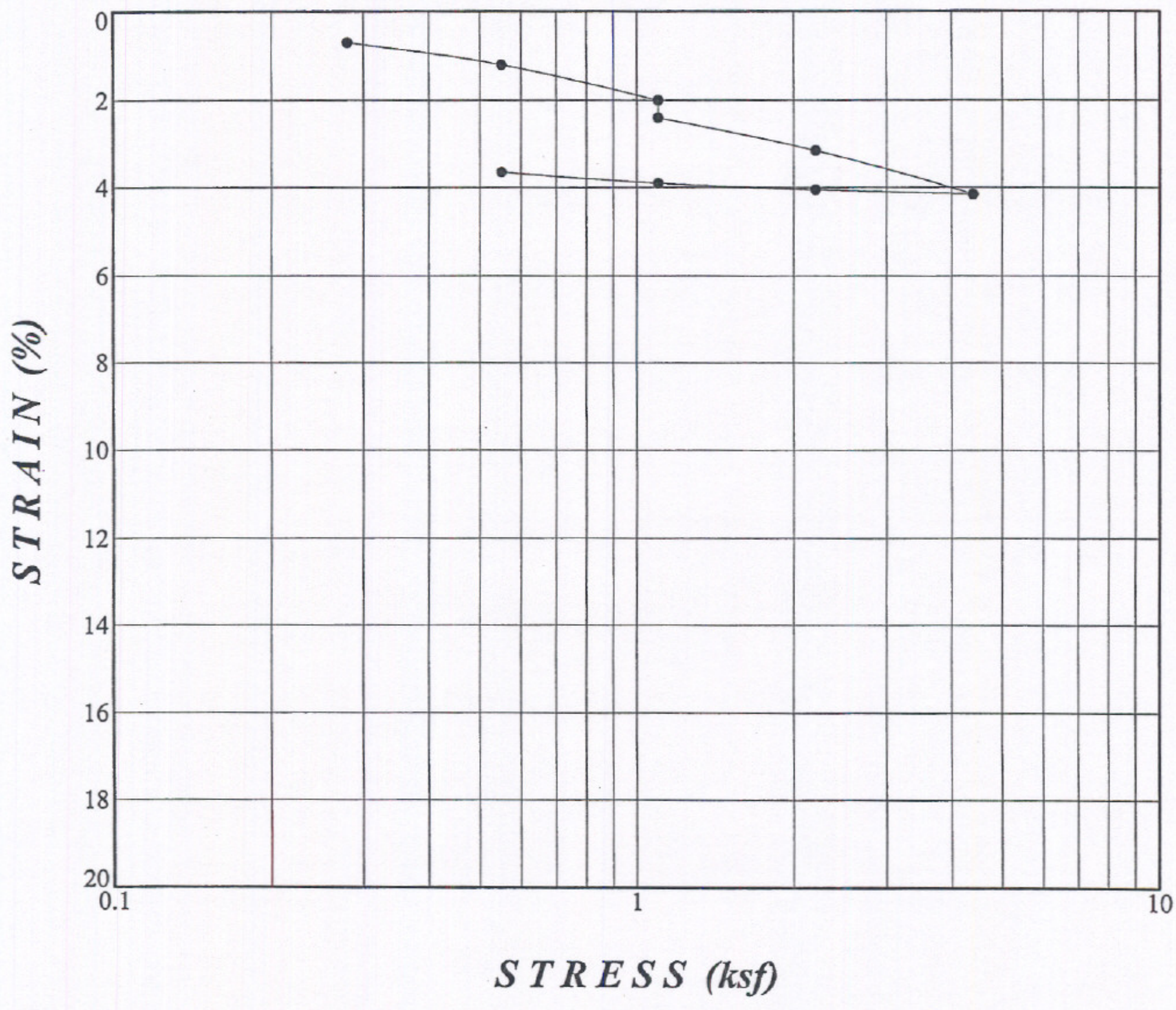
GEOTECHNICAL ENGINEERS & ENGINEERING GEOLOGISTS

Figure C.13

CONSOLIDATION TEST

PROJECT NAME: *Sierra Canyon School*	SAMPLE ID: *AH 05 @ 10.00*
PROJECT NUMBER: *PIN 3614B*	MATERIAL DESCRIPTION: *Older Alluvium (Qoa)*

Load (psf) water added to test at: 1100



MOISTURE CONTENT (%)		DRY DENSITY (pcf)		RESULTS	
In Situ:	*9.8*	Before Test:	*106.6*	Initial Void Ratio:	*0.6483*

SubSurface Designs, Inc.

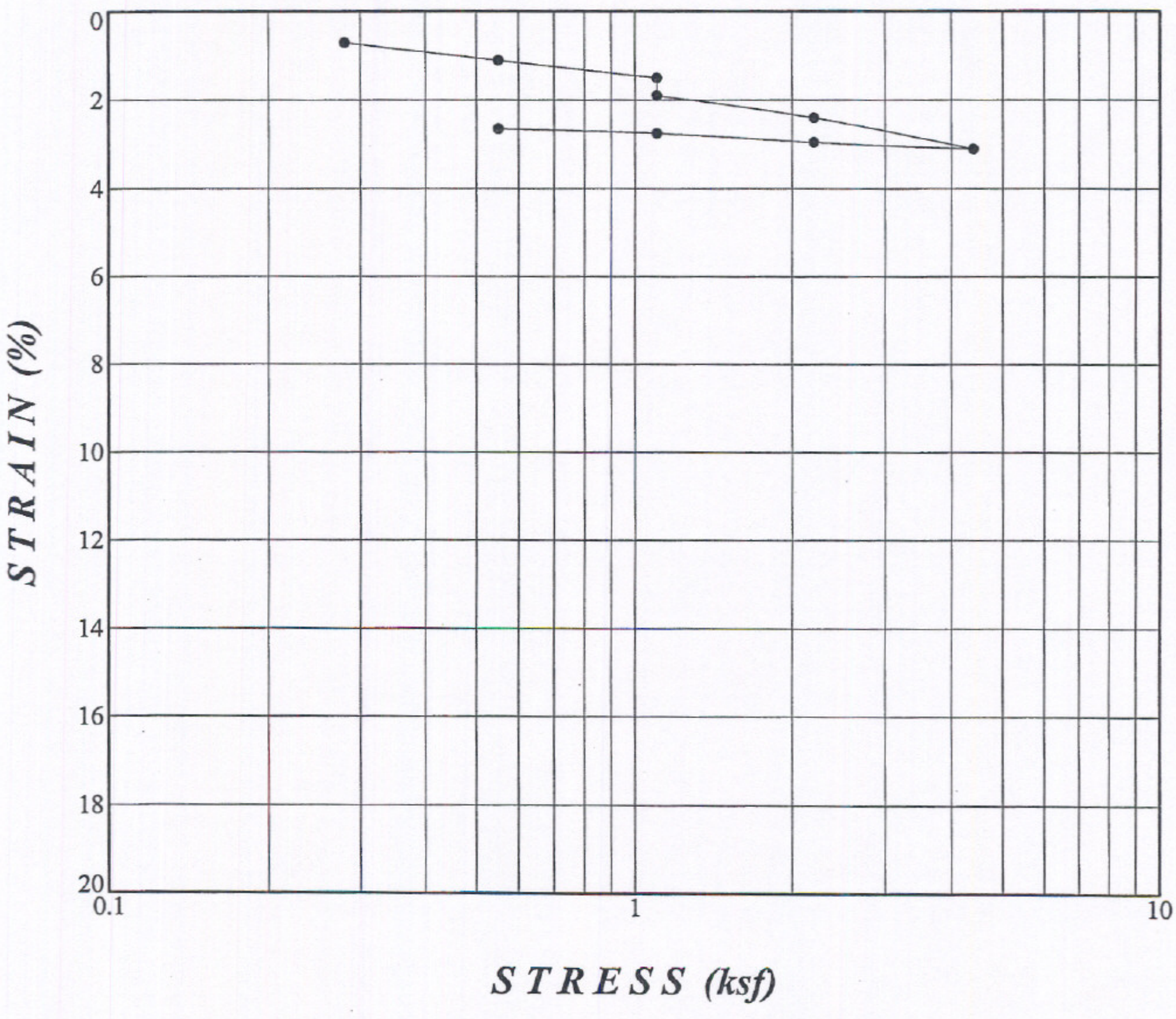
GEOTECHNICAL ENGINEERS & ENGINEERING GEOLOGISTS

Figure C.14

CONSOLIDATION TEST

PROJECT NAME: *Sierra Canyon School*	SAMPLE ID: *AH 05 @ 20.00*
PROJECT NUMBER: *PIN 3614B*	MATERIAL DESCRIPTION: *Older Alluvium (Qoa)*

Load (psf) water added to test at: 1100



MOISTURE CONTENT (%)		DRY DENSITY (pcf)		RESULTS	
In Situ:	*9.4*	Before Test:	*106.2*	Initial Void Ratio:	*0.6439*

SubSurface Designs, Inc.

GEOTECHNICAL ENGINEERS & ENGINEERING GEOLOGISTS

Figure C.15

APPENDIX III

CALCULATIONS

Bearing Value

Temporary Stability Calculation

Bearing Value

Continuous Foundation				
Phi (deg.)	Cohesion	Gamma (pcf.)	Footing Width (ft.)	Embedment Depth (ft.)
30	290	120	1	2
Bearing Value for Continuous Footing: 4830 psf.				
Use Bearing Value of: 2000 psf.				

Column Foundation				
Phi (deg.)	Cohesion	Gamma (pcf.)	Footing Width (ft.)	Embedment Depth (ft.)
30	290	120	2	2
Bearing Value for Column Footing: 5680 psf.				
Use Bearing Value of: 2000 psf.				

TEMPORARY STABILITY CALCULATION

INPUT:

Height (H):	10.00	ft.				
Slope Angle (B):	0.00	deg.				
Soil Phi (phi):	30.30	deg.				
Soil Cohesion (c):	290.00	psf.				
Soil Density (g):	130.00	pcf.				
Surcharge (P):	0.00	lbs.				
Tension Crack (HC):	0.00	ft.				
Safety Factor Applied:	1.25	FS				
Failure Angle (A):	45.00	50.00	55.00	60.00	65.00	deg.

EQUATIONS:

Angle1 = 90-A =	45.00	40.00	35.00	30.00	25.00	deg.
Angle2 = 90+B =	90.00	90.00	90.00	90.00	90.00	deg.
Angle3 = 180-(Angle1+Angle2) =	45.00	50.00	55.00	60.00	65.00	deg.
Failure Length = LF						
LF = LT-LC =	14.14	13.05	12.21	11.55	11.03	ft.
LT=H*sin(Angle2)/sin(Angle3) =	14.14	13.05	12.21	11.55	11.03	ft.
LC=HC*sin(Angle2)/sin(Angle3) =	0.00	0.00	0.00	0.00	0.00	ft.
Area = At - Ac =	50.00	41.95	35.01	28.87	23.32	ft^2
h=LT*sin(Angle1)*sin(Angle3)/ sin(Angle1 + Angle3) =	7.07	6.43	5.74	5.00	4.23	ft.
hc=LC*sin(Angle1)*sin(Angle3)/ sin(Angle1 + Angle3) =	0.00	0.00	0.00	0.00	0.00	ft.
Weight = P + (Ar * g) = W =	6500.00	5454.15	4551.35	3752.78	3031.00	lbs.
Horizontal Driving = Dh						
Dh = W*sin(A)*cos(A) =	3250.00	2685.64	2138.43	1625.00	1160.94	lbs.
Normal Force = Nh						
Nh = W*cos(A)^2 =	3250.00	2253.52	1497.35	938.19	541.36	lbs
Horizontal Resisting = Rh						
Rh = Nh*tan(phi)+LF*c*cos(A) =	4799.15	3750.24	2905.58	2222.55	1668.63	lbs.
Factor of Safety =	1.48	1.40	1.36	1.37	1.44	FS

APPENDIX IV

SEISMIC ANALYSIS

Seismic Programs

Seismic Calculations

EQSEARCH

The program EQSEARCH was used to determine all historical earthquakes with event magnitudes ranging from 4.0 to 9.0 on the Richter Scale within a 50 mile search radius of the subject property over the past 100 years. EQSEARCH effectively performs searches of a historical-earthquake catalog using an abbreviated (M=4.0 and above, and latitude from 30.0 to 36.5) and supplemented Southern California version of the California Division of Mines and Geology computerized earthquake catalog for the State of California. Search parameters (i.e., geographic limits, limiting dates, and limiting magnitudes) are specified and the user selects one of 14 available acceleration-attenuation relations. Site specific peak-horizontal-acceleration probability of exceedance is also estimated from the historical search. For each historical earthquake in the search area, EQSEARCH prints latitude, longitude, date, depth, Richter magnitude, computed site-acceleration, computed site-Modified-Mercalli Intensity, and the approximate earthquake-to-site distance in both miles and kilometers. Data files needed to generate an epicenter map and a seismic recurrence curve is also created by EQSEARCH.

EQFAULT

The program EQFAULT was used to estimate the proximity of various faults within a 50 mile radius, determine their maximum probable event magnitudes, and calculate the resulting ground accelerations on the subject property. EQFAULT effectively performs deterministic seismic hazard analyses using up to 150 digitized California faults as earthquake sources. The program estimates the closest distance between each fault and a user-specified site (given as latitude/longitude). If a fault is found to be within a user-selected radius, the program estimates peak horizontal ground acceleration that may occur at the site from the "maximum credible" and "maximum probable" earthquakes on that fault. Site acceleration (g) is computed by any of the 14 user-selected acceleration-attenuation relations that are contained in EQFAULT. Site Modified Mercalli Intensities are also predicted (based on the peak acceleration) for each earthquake event. Data files needed to generate a fault model map and a comparison plot of earthquake accelerations is also created by EQFAULT.

UBCSEIS

The program UBCSEIS was used to provide estimates of Uniform Building Code (UBC) seismic design coefficients using 3-D fault sources. UBCSEIS is a computer program that performs fault searches and determines distances to nearby faults from a California fault data file recently compiled by the California Division of Mines and Geology (CDMG) for the State of California. The user selects one of five seismic zones used by the UBC and one of six soil profiles defined by the UBC. The program computes site-to-fault distances and selects the closest Type A, Type B, and Type C faults. The program then selects corresponding UBC seismic coefficients for each of the fault types and constructs a design response spectrum.

```
*************************
*                       *
*    E Q S E A R C H    *
*                       *
*     Version 3.00      *
*                       *
*************************
```

ESTIMATION OF
PEAK ACCELERATION FROM
CALIFORNIA EARTHQUAKE CATALOGS

JOB NUMBER: 3614B

DATE: 03-11-2003

JOB NAME: Sierra Canyon School

EARTHQUAKE-CATALOG-FILE NAME: ALLQUAKE.DAT

```
MAGNITUDE RANGE:
   MINIMUM MAGNITUDE:  4.50
   MAXIMUM MAGNITUDE:  9.00

SITE COORDINATES:
   SITE LATITUDE:  34.2710
   SITE LONGITUDE:  118.5847

SEARCH DATES:
            START DATE:   1800
            END DATE:   2000

SEARCH RADIUS:
            50.0 mi
            80.5 km

ATTENUATION RELATION:  17) Campbell & Bozorgnia (1994/1997) - Alluvium
   UNCERTAINTY (M=Median, S=Sigma): S       Number of Sigmas:  1.0
   ASSUMED SOURCE TYPE:  DS [SS=Strike-slip, DS=Reverse-slip, BT=Blind-thrust]
   SCOND:   0  Depth Source:  A
   Basement Depth:  5.00 km     Campbell SSR:  0     Campbell SHR:  0
   COMPUTE RHGA HORIZ. ACCEL. (FACTOR:  0.65   DISTANCE:   20  miles)

MINIMUM DEPTH VALUE (km):  3.0
```

FILE CODE	LAT. NORTH	LONG. WEST	DATE	TIME (UTC) H M Sec	DEPTH (km)	QUAKE MAG.	SITE ACC. g	SITE MM INT.	APPROX. DISTANCE mi [km]
T-A	34.0000	118.2500	09/23/1827	0 0 0.0	0.0	5.00	0.039	V	26.8(43.1)
DMG	34.0000	119.0000	09/24/1827	4 0 0.0	0.0	7.00	0.154	VIII	30.2(48.6)
T-A	34.8300	118.7500	11/27/1852	0 0 0.0	0.0	7.00	0.111	VII	39.7(63.9)
MGI	34.1000	118.1000	07/11/1855	415 0.0	0.0	6.30	0.095	VII	30.1(48.4)
T-A	34.0000	118.2500	01/10/1856	0 0 0.0	0.0	5.00	0.039	V	26.8(43.1)
T-A	34.9200	118.9200	01/20/1857	0 0 0.0	0.0	5.00	0.017	IV	48.7(78.4)
T-A	34.9200	118.9200	05/23/1857	0 0 0.0	0.0	5.00	0.017	IV	48.7(78.4)
T-A	34.0000	118.2500	03/26/1860	0 0 0.0	0.0	5.00	0.039	V	26.8(43.1)
DMG	34.8000	119.1000	09/05/1883	1230 0.0	0.0	6.00	0.040	V	46.8(75.4)
DMG	34.2000	117.9000	08/28/1889	215 0.0	0.0	5.50	0.034	V	39.4(63.4)
DMG	34.3000	118.6000	04/04/1893	1940 0.0	0.0	6.00	0.527	X	2.2(3.5)
DMG	34.1000	119.4000	05/19/1893	035 0.0	0.0	5.50	0.026	V	48.0(77.3)
MGI	34.0000	118.0000	12/25/1903	1745 0.0	0.0	5.00	0.024	IV	38.3(61.6)
MGI	34.3000	119.3000	05/01/1904	1830 0.0	0.0	4.60	0.016	IV	40.9(65.7)
MGI	34.0000	118.3000	09/03/1905	540 0.0	0.0	5.30	0.056	VI	24.8(39.9)
MGI	34.0000	119.0000	12/14/1912	0 0 0.0	0.0	5.70	0.058	VI	30.2(48.6)
MGI	34.2000	119.2000	06/16/1914	1052 0.0	0.0	4.60	0.019	IV	35.5(57.1)
DMG	34.0000	118.5000	11/08/1914	1140 0.0	0.0	4.50	0.041	V	19.3(31.1)
DMG	34.9000	118.9000	10/23/1916	244 0.0	0.0	6.00	0.040	V	47.0(75.6)
DMG	34.7000	119.0000	10/23/1916	254 0.0	0.0	5.50	0.036	V	37.9(61.0)
MGI	34.0000	118.2000	02/13/1917	13 5 0.0	0.0	4.60	0.026	V	28.9(46.5)
MGI	34.0000	118.2000	06/26/1917	2115 0.0	0.0	4.60	0.026	V	28.9(46.5)
MGI	34.0000	118.2000	06/26/1917	2120 0.0	0.0	4.60	0.026	V	28.9(46.5)
MGI	34.0000	118.2000	06/26/1917	2130 0.0	0.0	4.60	0.026	V	28.9(46.5)
MGI	34.0000	118.5000	11/19/1918	2018 0.0	0.0	5.00	0.061	VI	19.3(31.1)
MGI	34.0000	118.4000	02/22/1920	1610 0.0	0.0	4.60	0.039	V	21.5(34.6)
DMG	34.0000	118.5000	06/22/1920	248 0.0	0.0	4.90	0.057	VI	19.3(31.1)
MGI	34.0800	118.2600	07/16/1920	18 8 0.0	0.0	5.00	0.049	VI	22.8(36.6)
MGI	34.1000	118.3000	07/16/1920	2022 0.0	0.0	4.60	0.042	VI	20.1(32.3)
MGI	34.1000	118.3000	07/16/1920	2127 0.0	0.0	4.60	0.042	VI	20.1(32.3)
MGI	34.1000	118.3000	07/16/1920	2130 0.0	0.0	4.60	0.042	VI	20.1(32.3)
MGI	34.2000	118.0000	01/09/1921	530 0.0	0.0	4.60	0.021	IV	33.7(54.3)
MGI	34.0000	118.4000	02/07/1927	429 0.0	0.0	4.60	0.039	V	21.5(34.6)
DMG	34.0000	118.5000	08/04/1927	1224 0.0	0.0	5.00	0.061	VI	19.3(31.1)
MGI	33.9000	118.2000	10/08/1927	1914 0.0	0.0	4.60	0.021	IV	33.8(54.3)
MGI	34.0000	118.0000	05/05/1929	1 7 0.0	0.0	4.60	0.017	IV	38.3(61.6)
DMG	33.9000	118.1000	07/08/1929	1646 6.7	13.0	4.70	0.019	IV	37.7(60.7)
MGI	34.1000	118.0000	01/27/1930	2026 0.0	0.0	4.60	0.019	IV	35.4(57.0)
DMG	33.9500	118.6320	08/31/1930	04036.0	0.0	5.20	0.059	VI	22.3(35.9)
MGI	34.0000	118.4000	10/01/1930	040 0.0	0.0	4.60	0.039	V	21.5(34.6)
DMG	33.7500	118.0830	03/11/1933	2 4 0.0	0.0	4.90	0.017	IV	46.0(74.1)
DMG	33.7500	118.0830	03/11/1933	2 9 0.0	0.0	5.00	0.018	IV	46.0(74.1)
DMG	33.7500	118.0830	03/11/1933	210 0.0	0.0	4.60	0.013	III	46.0(74.1)
DMG	33.7500	118.0830	03/11/1933	216 0.0	0.0	4.80	0.016	IV	46.0(74.1)
DMG	33.7500	118.0830	03/11/1933	227 0.0	0.0	4.60	0.013	III	46.0(74.1)
DMG	33.7500	118.0830	03/11/1933	230 0.0	0.0	5.10	0.020	IV	46.0(74.1)
DMG	33.7500	118.0830	03/11/1933	259 0.0	0.0	4.60	0.013	III	46.0(74.1)
DMG	33.7500	118.0830	03/11/1933	323 0.0	0.0	5.00	0.018	IV	46.0(74.1)
DMG	33.7500	118.0830	03/11/1933	436 0.0	0.0	4.60	0.013	III	46.0(74.1)

FILE CODE	LAT. NORTH	LONG. WEST	DATE	TIME (UTC) H M Sec	DEPTH (km)	QUAKE MAG.	SITE ACC. g	SITE MM INT.	APPROX. DISTANCE mi [km]
DMG	33.7500	118.0830	03/11/1933	439 0.0	0.0	4.90	0.017	IV	46.0(74.1)
DMG	33.7500	118.0830	03/11/1933	440 0.0	0.0	4.70	0.014	IV	46.0(74.1)
DMG	33.7000	118.0670	03/11/1933	51022.0	0.0	5.10	0.018	IV	49.3(79.4)
DMG	33.7500	118.0830	03/11/1933	513 0.0	0.0	4.70	0.014	IV	46.0(74.1)
DMG	33.7500	118.0830	03/11/1933	8 8 0.0	0.0	4.50	0.012	III	46.0(74.1)
DMG	33.7000	118.0670	03/11/1933	85457.0	0.0	5.10	0.018	IV	49.3(79.4)
DMG	33.7500	118.0830	03/11/1933	910 0.0	0.0	5.10	0.020	IV	46.0(74.1)
DMG	33.7500	118.1330	03/11/1933	11 4 0.0	0.0	4.60	0.014	IV	44.3(71.3)
DMG	33.8500	118.2670	03/11/1933	1425 0.0	0.0	5.00	0.028	V	34.3(55.2)
DMG	33.8830	118.3170	03/11/1933	1457 0.0	0.0	4.90	0.030	V	30.9(49.6)
DMG	33.7500	118.0830	03/11/1933	1653 0.0	0.0	4.80	0.016	IV	46.0(74.1)
DMG	33.7500	118.0830	03/12/1933	616 0.0	0.0	4.60	0.013	III	46.0(74.1)
DMG	33.7500	118.0830	03/12/1933	1738 0.0	0.0	4.50	0.012	III	46.0(74.1)
DMG	33.7500	118.0830	03/12/1933	2354 0.0	0.0	4.50	0.012	III	46.0(74.1)
DMG	33.7500	118.0830	03/13/1933	432 0.0	0.0	4.70	0.014	IV	46.0(74.1)
DMG	33.7500	118.0830	03/13/1933	131828.0	0.0	5.30	0.023	IV	46.0(74.1)
DMG	33.7500	118.0830	03/14/1933	1219 0.0	0.0	4.50	0.012	III	46.0(74.1)
DMG	33.7830	118.1330	10/02/1933	91017.6	0.0	5.40	0.028	V	42.5(68.3)
DMG	34.2000	117.9000	07/13/1935	105416.5	0.0	4.70	0.018	IV	39.4(63.4)
DMG	33.7590	118.2530	08/31/1938	31814.2	10.0	4.50	0.015	IV	40.1(64.6)
DMG	34.9110	118.9730	02/23/1939	84551.7	10.0	4.50	0.011	III	49.4(79.5)
DMG	34.8850	119.0020	02/23/1939	91846.7	10.0	4.50	0.011	III	48.6(78.2)
DMG	33.7830	118.2000	12/27/1939	192849.0	0.0	4.70	0.017	IV	40.2(64.8)
DMG	33.7670	118.4500	10/11/1940	55712.3	0.0	4.70	0.021	IV	35.6(57.4)
DMG	34.8670	118.9330	09/21/1941	1953 7.2	0.0	5.20	0.022	IV	45.7(73.5)
DMG	33.8170	118.2170	10/22/1941	65718.5	0.0	4.90	0.022	IV	37.7(60.7)
DMG	33.7830	118.2500	11/14/1941	84136.3	0.0	5.40	0.032	V	38.8(62.4)
DMG	34.4830	118.9830	09/03/1942	14 6 1.0	0.0	4.50	0.026	V	27.0(43.5)
DMG	34.4830	118.9830	09/04/1942	63433.0	0.0	4.50	0.026	V	27.0(43.5)
DMG	33.8670	118.2170	06/19/1944	0 333.0	0.0	4.50	0.018	IV	34.9(56.2)
DMG	34.0170	118.9670	04/16/1948	222624.0	0.0	4.70	0.029	V	28.0(45.1)
DMG	34.6170	119.0830	02/26/1950	0 622.0	0.0	4.70	0.019	IV	37.1(59.7)
DMG	34.9500	118.8670	07/21/1952	121936.0	0.0	5.30	0.021	IV	49.5(79.7)
DMG	34.9000	118.9500	08/01/1952	13 430.0	0.0	5.10	0.019	IV	48.1(77.5)
DMG	34.5190	118.1980	08/23/1952	10 9 7.1	13.1	5.00	0.037	V	27.9(44.9)
DMG	34.5860	118.6130	02/07/1956	31638.6	2.6	4.60	0.038	V	21.8(35.1)
DMG	34.1180	119.2200	03/18/1957	185628.0	13.8	4.70	0.019	IV	37.8(60.8)
DMG	34.4110	118.4010	02/09/1971	14 041.8	8.4	6.40	0.245	IX	14.2(22.9)
DMG	34.4110	118.4010	02/09/1971	14 1 8.0	8.0	5.80	0.167	VIII	14.2(22.9)
DMG	34.4110	118.4010	02/09/1971	14 150.0	8.0	4.50	0.062	VI	14.2(22.9)
DMG	34.4110	118.4010	02/09/1971	14 231.0	8.0	4.70	0.072	VI	14.2(22.9)
DMG	34.4110	118.4010	02/09/1971	14 244.0	8.0	5.80	0.167	VIII	14.2(22.9)
DMG	34.4110	118.4010	02/09/1971	14 745.0	8.0	4.50	0.062	VI	14.2(22.9)
DMG	34.4110	118.4010	02/09/1971	14 838.0	8.0	4.50	0.062	VI	14.2(22.9)
DMG	34.4110	118.4010	02/09/1971	14 853.0	8.0	4.60	0.067	VI	14.2(22.9)
DMG	34.3610	118.3060	02/09/1971	141021.5	5.0	4.70	0.057	VI	17.1(27.5)
DMG	34.4110	118.4010	02/09/1971	141028.0	8.0	5.30	0.117	VII	14.2(22.9)
DMG	34.3440	118.6360	02/09/1971	143436.1	-2.0	4.90	0.133	VIII	5.8(9.4)
DMG	34.3080	118.4540	02/09/1971	144346.7	6.2	5.20	0.129	VIII	7.9(12.7)

FILE CODE	LAT. NORTH	LONG. WEST	DATE	TIME (UTC) H M Sec	DEPTH (km)	QUAKE MAG.	SITE ACC. g	SITE MM INT.	APPROX. DISTANCE mi [km]
DMG	34.3350	118.3310	02/09/1971	155820.7	14.2	4.80	0.072	VII	15.1(24.3)
DMG	34.4260	118.4140	02/10/1971	518 7.2	5.8	4.50	0.060	VI	14.5(23.3)
DMG	34.3970	118.4390	02/21/1971	55052.6	6.9	4.70	0.089	VII	12.0(19.3)
DMG	34.3920	118.4270	02/21/1971	71511.7	7.2	4.50	0.074	VII	12.3(19.7)
DMG	34.3530	118.4560	03/07/1971	13340.5	3.3	4.50	0.068	VI	9.3(14.9)
DMG	34.2860	118.5150	03/31/1971	145222.5	2.1	4.60	0.136	VIII	4.1(6.6)
DMG	34.0650	119.0350	02/21/1973	144557.3	8.0	5.90	0.071	VI	29.4(47.3)
DMG	34.3990	118.4730	03/09/1974	05431.9	24.4	4.70	0.066	VI	10.9(17.5)
PAS	34.3470	118.6560	04/08/1976	152138.1	14.5	4.60	0.099	VII	6.6(10.7)
PAS	34.3800	118.4590	08/12/1977	21926.1	9.5	4.50	0.059	VI	10.4(16.7)
PAS	33.9440	118.6810	01/01/1979	231438.9	11.3	5.00	0.048	VI	23.2(37.4)
PAS	34.0160	118.9880	10/26/1984	172043.5	13.3	4.60	0.025	V	29.0(46.7)
PAS	34.0610	118.0790	10/01/1987	144220.0	9.5	5.90	0.062	VI	32.3(52.0)
PAS	34.0490	118.1010	10/01/1987	144541.5	13.6	4.70	0.024	V	31.6(50.8)
PAS	34.0600	118.1000	10/01/1987	1449 5.9	11.7	4.70	0.025	V	31.3(50.3)
PAS	34.0520	118.0900	10/01/1987	151231.8	10.8	4.70	0.024	V	32.0(51.6)
PAS	34.0730	118.0980	10/04/1987	105938.2	8.2	5.30	0.041	V	31.0(49.9)
PAS	34.0770	118.0470	02/11/1988	152555.7	12.5	4.70	0.022	IV	33.5(53.9)
PAS	34.9430	118.7430	06/10/1988	23 643.0	6.8	5.40	0.024	V	47.3(76.1)
PAS	34.1490	118.1350	12/03/1988	113826.4	13.3	4.90	0.036	V	27.0(43.5)
PAS	33.9190	118.6270	01/19/1989	65328.8	11.9	5.00	0.044	VI	24.4(39.3)
GSP	34.2620	118.0020	06/28/1991	144354.5	11.0	5.40	0.040	V	33.3(53.5)
GSP	34.2130	118.5370	01/17/1994	123055.4	18.0	6.70	0.466	X	4.8(7.8)
GSP	34.2610	118.5340	01/17/1994	123939.8	14.0	4.50	0.147	VIII	3.0(4.8)
GSP	34.2540	118.5450	01/17/1994	130627.9	0.0	4.60	0.164	VIII	2.5(4.1)
GSP	34.3170	118.4550	01/17/1994	132644.7	2.0	4.70	0.090	VII	8.0(12.9)
GSB	34.2850	118.6240	01/17/1994	135602.4	19.0	4.70	0.176	VIII	2.4(3.9)
GSP	34.3310	118.4420	01/17/1994	141430.3	1.0	4.50	0.069	VI	9.1(14.7)
GSP	34.3740	118.6220	01/17/1994	155410.8	12.0	4.80	0.103	VII	7.4(11.9)
GSP	34.2280	118.5730	01/17/1994	175608.2	19.0	4.60	0.155	VIII	3.0(4.9)
GSB	34.3010	118.5650	01/17/1994	204602.4	9.0	5.20	0.258	IX	2.4(3.8)
GSP	34.3260	118.6980	01/17/1994	233330.7	9.0	5.60	0.181	VIII	7.5(12.1)
GSP	34.3770	118.6980	01/18/1994	004308.9	11.0	5.20	0.106	VII	9.8(15.7)
GSB	34.3580	118.6220	01/18/1994	040126.8	1.0	4.50	0.096	VII	6.4(10.2)
GSB	34.3190	118.5580	01/18/1994	132444.1	1.0	4.50	0.135	VIII	3.6(5.9)
GSP	34.3790	118.5610	01/18/1994	152346.9	7.0	4.80	0.101	VII	7.6(12.2)
GSB	34.3600	118.5710	01/19/1994	044048.0	2.0	4.50	0.098	VII	6.2(10.0)
GSP	34.2150	118.5100	01/19/1994	140914.8	17.0	4.50	0.104	VII	5.8(9.3)
GSB	34.3790	118.7110	01/19/1994	210928.6	14.0	5.50	0.124	VII	10.4(16.7)
GSP	34.3780	118.6180	01/19/1994	211144.9	11.0	5.10	0.123	VII	7.6(12.3)
GSB	34.3000	118.4660	01/21/1994	183915.3	10.0	4.70	0.101	VII	7.1(11.4)
GSB	34.3450	118.5520	01/24/1994	041518.8	6.0	4.80	0.131	VIII	5.4(8.7)
GSP	34.2740	118.5630	01/27/1994	171958.8	14.0	4.60	0.183	VIII	1.3(2.0)
GSP	34.3050	118.5790	01/29/1994	112036.0	1.0	5.10	0.234	IX	2.4(3.8)
GSP	34.2310	118.4750	03/20/1994	212012.3	13.0	5.30	0.157	VIII	6.8(11.0)
GSP	34.2930	118.3890	12/06/1994	034834.5	9.0	4.50	0.054	VI	11.3(18.1)
GSP	34.3940	118.6690	06/26/1995	084028.9	13.0	5.00	0.091	VII	9.8(15.7)
GSP	34.3690	118.6720	04/26/1997	103730.7	16.0	5.10	0.113	VII	8.4(13.5)
GSP	34.3770	118.6490	04/27/1997	110928.4	15.0	4.80	0.094	VII	8.2(13.2)

-END OF SEARCH- 147 EARTHQUAKES FOUND WITHIN THE SPECIFIED SEARCH AREA.

TIME PERIOD OF SEARCH: 1800 TO 2000

LENGTH OF SEARCH TIME: 201 years

THE EARTHQUAKE CLOSEST TO THE SITE IS ABOUT 1.3 MILES (2.0 km) AWAY.

LARGEST EARTHQUAKE MAGNITUDE FOUND IN THE SEARCH RADIUS: 7.0

LARGEST EARTHQUAKE SITE ACCELERATION FROM THIS SEARCH: 0.527 g

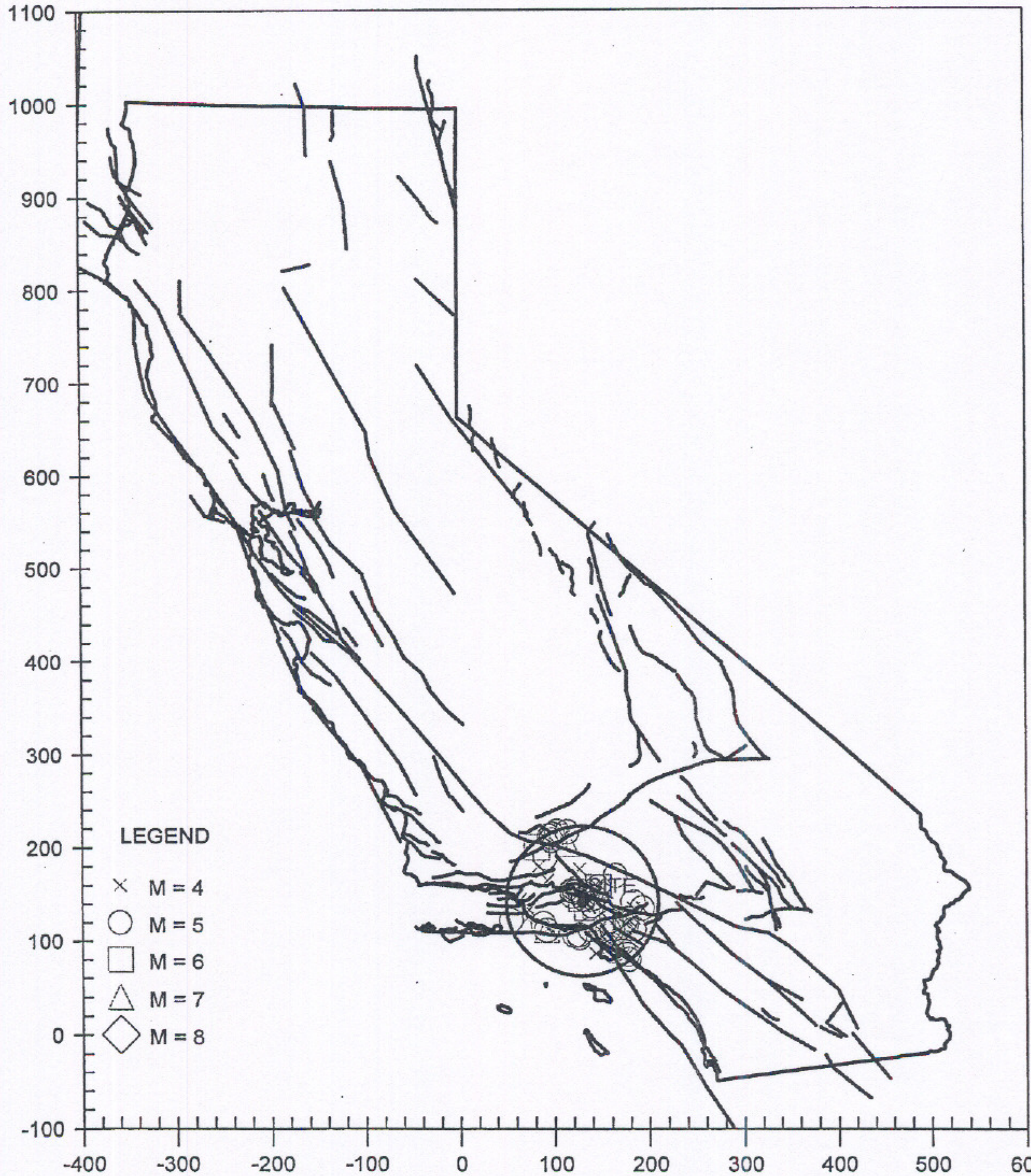
COEFFICIENTS FOR GUTENBERG & RICHTER RECURRENCE RELATION:
a-value= 2.787
b-value= 0.688
beta-value= 1.584

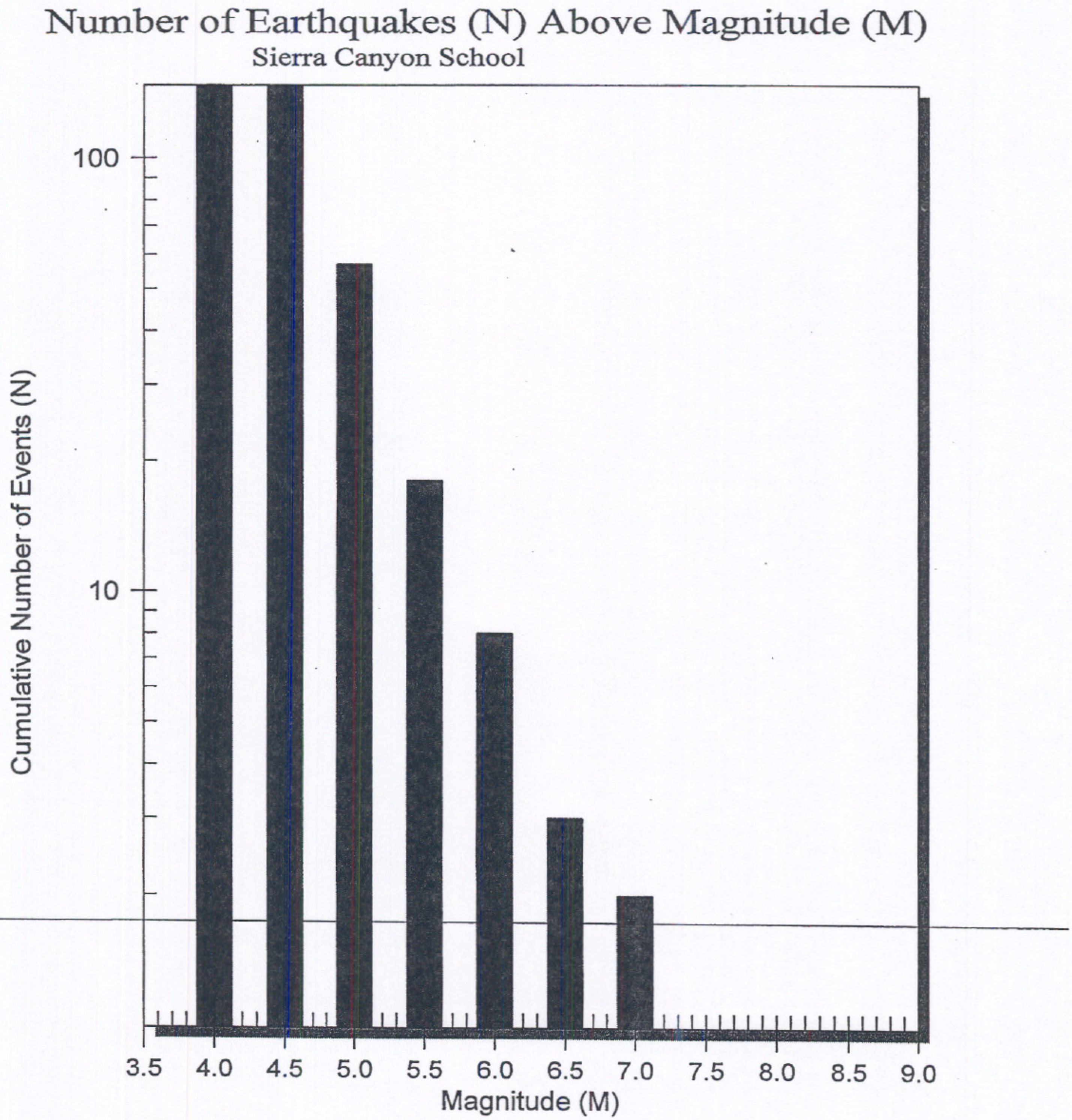
TABLE OF MAGNITUDES AND EXCEEDANCES:

Earthquake Magnitude	Number of Times Exceeded	Cumulative No. / Year
4.0	147	0.73134
4.5	147	0.73134
5.0	57	0.28358
5.5	18	0.08955
6.0	8	0.03980
6.5	3	0.01493
7.0	2	0.00995

EARTHQUAKE EPICENTER MAP

Sierra Canyon School





Number of Earthquakes (N) Above Magnitude (M)
Sierra Canyon School
Cumulative Number of Events (N)
100
10
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
8.0
8.5
9.0
Magnitude (M)

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

DETERMINISTIC ESTIMATION OF
PEAK ACCELERATION FROM DIGITIZED FAULTS

JOB NUMBER: PIN # 3614B

DATE: 03-11-2003

JOB NAME: Sierra Canyon School

CALCULATION NAME: Test Run Analysis

FAULT-DATA-FILE NAME: CDMGFLTE.DAT

SITE COORDINATES:
SITE LATITUDE: 34.2710
SITE LONGITUDE: 118.5847

SEARCH RADIUS: 50 mi

ATTENUATION RELATION: 17) Campbell & Bozorgnia (1994/1997) - Alluvium
UNCERTAINTY (M=Median, S=Sigma): S Number of Sigmas: 1.0
DISTANCE MEASURE: cdist
SCOND: 0
Basement Depth: 5.00 km Campbell SSR: 0 Campbell SHR: 0
COMPUTE RHGA HORIZ. ACCEL. (FACTOR: 0.65 DISTANCE: 20 miles)

FAULT-DATA FILE USED: CDMGFLTE.DAT

MINIMUM DEPTH VALUE (km): 3.0

ABBREVIATED FAULT NAME	APPROXIMATE DISTANCE mi (km)	ESTIMATED MAX. EARTHQUAKE EVENT Probable: MAXIMUM EARTHQUAKE MAG. (Mw)	RHGA SITE ACCEL. g	EST. SITE INTENSITY MOD.MERC.
SANTA SUSANA (P)	4.9(7.9)	6.6	0.469	X
NORTHRIDGE (E. Oak Ridge) (P)	5.7(9.2)	6.9	0.463	X
SIERRA MADRE (San Fernando) (A)	7.5(12.1)	6.7	0.360	IX
HOLSER (P)	9.4(15.1)	6.5	0.266	IX
VERDUGO (A)	10.6(17.1)	6.7	0.261	IX
SAN GABRIEL (A)	10.7(17.2)	7.0	0.264	IX
OAK RIDGE (Onshore) (P)	11.4(18.4)	6.9	0.270	IX
SIMI-SANTA ROSA (P)	12.7(20.5)	6.7	0.330	IX
MALIBU COAST (A)	15.5(25.0)	6.9	0.300	IX
HOLLYWOOD (A)	15.5(25.0)	6.4	0.225	IX
SANTA MONICA (P)	15.8(25.4)	6.6	0.249	IX
SAN CAYETANO (A)	16.4(26.4)	6.8	0.268	IX
SIERRA MADRE (A)	16.7(26.9)	7.0	0.294	IX
NEWPORT-INGLEWOOD (L.A.Basin)(A)	20.5(33.0)	6.9	0.211	VIII
PALOS VERDES (A)	20.8(33.5)	7.1	0.237	IX
RAYMOND (A)	22.9(36.8)	6.5	0.155	VIII
SANTA YNEZ (East) (P)	28.1(45.2)	7.0	0.164	VIII
SAN ANDREAS - Mojave (A)	28.9(46.5)	7.1	0.171	VIII
SAN ANDREAS - 1857 Rupture (A)	28.9(46.5)	7.8	0.274	IX
CLAMSHELL-SAWPIT (P)	30.0(48.3)	6.5	0.111	VII
SAN ANDREAS - Carrizo (A)	30.1(48.4)	7.2	0.176	VIII
VENTURA - PITAS POINT (A)	32.5(52.3)	6.8	0.125	VII
M.RIDGE-ARROYO PARIDA-SANTA ANA(P)	36.7(59.1)	6.7	0.098	VII
WHITTIER (A)	37.9(61.0)	6.8	0.100	VII
OAK RIDGE(Blind Thrust Offshore)(P)	39.2(63.1)	6.9	0.105	VII
CHANNEL IS. THRUST (Eastern) (P)	39.8(64.0)	7.4	0.145	VIII
RED MOUNTAIN (A)	41.8(67.2)	6.8	0.089	VII
SAN JOSE (P)	42.4(68.3)	6.5	0.069	VI
GARLOCK (West) (A)	42.7(68.7)	7.1	0.112	VII
BIG PINE (P)	44.7(71.9)	6.7	0.074	VII
CUCAMONGA (A)	46.3(74.5)	7.0	0.090	VII
CHINO-CENTRAL AVE. (Elsinore) (P)	49.2(79.1)	6.7	0.065	VI

-END OF SEARCH- 37 FAULTS FOUND WITHIN THE SPECIFIED SEARCH RADIUS.

THE SANTA SUSANA FAULT IS CLOSEST TO THE SITE.
IT IS ABOUT 4.9 MILES (7.9 km) AWAY.

LARGEST MAXIMUM-EARTHQUAKE SITE ACCELERATION: 0.4687 g

* (A) Considered Active
(P) Considered Potentially Active

```
***********************
*                     *
*    U B C S E I S    *
*                     *
*    Version  1.00    *
*                     *
***********************
  COMPUTATION OF 1997
 UNIFORM BUILDING CODE
SEISMIC DESIGN PARAMETERS
```

JOB NUMBER: PIN # 3614B DATE: 03-11-2003

JOB NAME: Sierra Canyon S

FAULT-DATA-FILE NAME: CDMGUBCR.DAT

SITE COORDINATES:
SITE LATITUDE: 34.2710
SITE LONGITUDE: 118.5847

UBC SEISMIC ZONE: 0.4

UBC SOIL PROFILE TYPE: SD

NEAREST TYPE A FAULT:
NAME: SAN ANDREAS - 1857 Rupture
DISTANCE: 46.4 km

NEAREST TYPE B FAULT:
NAME: SANTA SUSANA
DISTANCE: 5.2 km

NEAREST TYPE C FAULT:
NAME:
DISTANCE: 99999.0 km

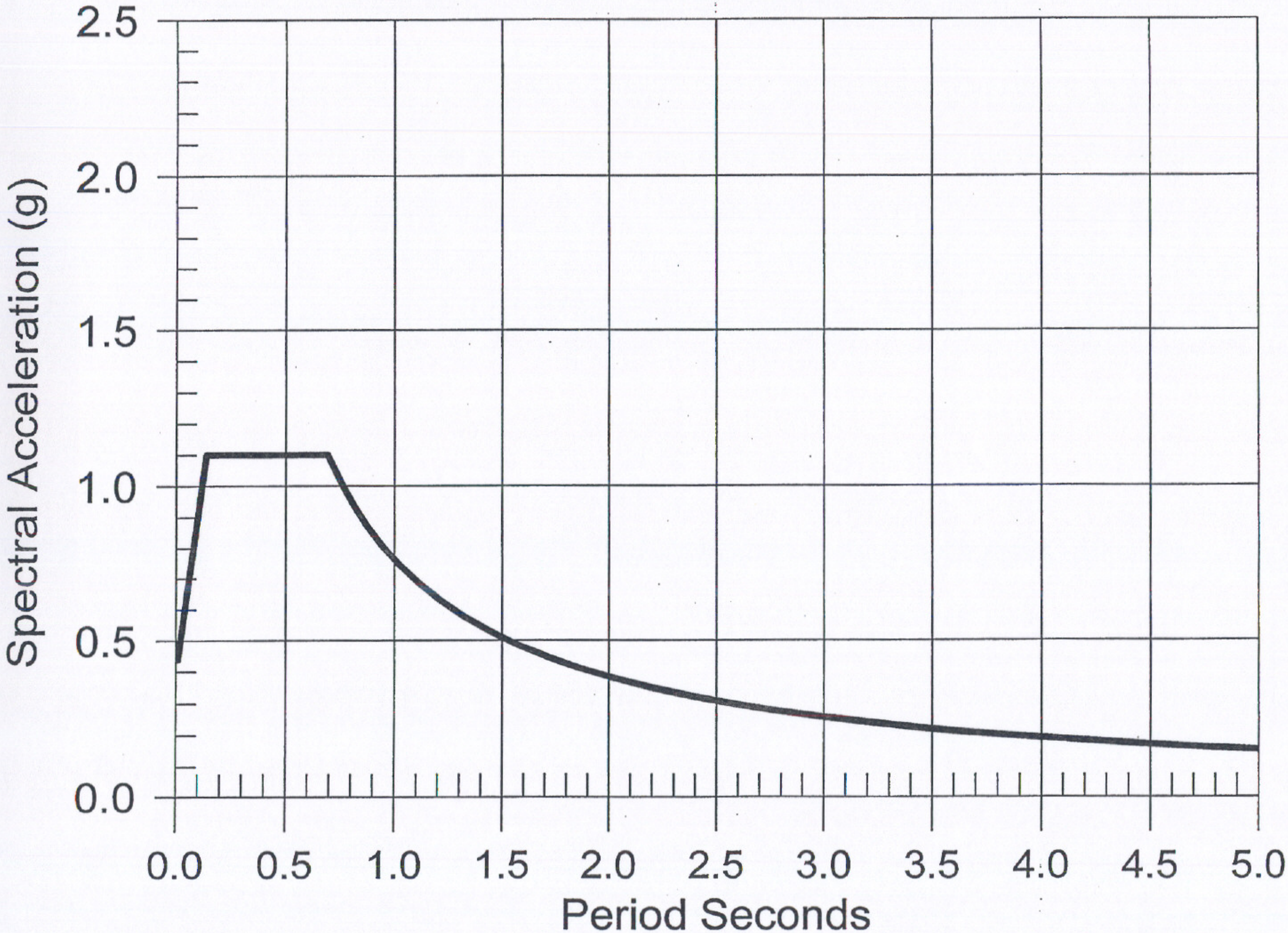
SELECTED UBC SEISMIC COEFFICIENTS:
Na: 1.0
Nv: 1.2
Ca: 0.44
Cv: 0.76
Ts: 0.694
To: 0.139

```
*******************************************************************
* CAUTION:  The digitized data points used to model faults are    *
*           limited in number and have been digitized from small- *
*           scale maps (e.g., 1:750,000 scale).  Consequently,    *
*           the estimated fault-site-distances may be in error by *
*           several kilometers.  Therefore, it is important that  *
*           the distances be carefully checked for accuracy and   *
*           adjusted as needed, before they are used in design.   *
*******************************************************************
```

ABBREVIATED FAULT NAME	APPROX. DISTANCE (km)	SOURCE TYPE (A,B,C)	MAX. MAG. (Mw)	SLIP RATE (mm/yr)	FAULT TYPE (SS,DS,BT)
SANTA SUSANA	5.2	B	6.6	5.00	DS
SIERRA MADRE (San Fernando)	10.3	B	6.7	2.00	DS
HOLSER	12.1	B	6.5	0.40	DS
VERDUGO	15.1	B	6.7	0.50	DS
OAK RIDGE (Onshore)	16.4	B	6.9	4.00	DS
SAN GABRIEL	16.9	B	7.0	1.00	SS
SIMI-SANTA ROSA	19.7	B	6.7	1.00	DS
HOLLYWOOD	23.0	B	6.5	1.00	DS
MALIBU COAST	23.2	B	6.7	0.30	DS
SANTA MONICA	23.6	B	6.6	1.00	DS
SAN CAYETANO	24.6	B	6.8	6.00	DS
ANACAPA-DUME	26.4	B	7.3	3.00	DS
SIERRA MADRE (Central)	26.5	B	7.0	3.00	DS
NEWPORT-INGLEWOOD (L.A.Basin)	32.5	B	6.9	1.00	SS
PALOS VERDES	33.4	B	7.1	3.00	SS
RAYMOND	35.8	B	6.5	0.50	DS
SANTA YNEZ (East)	44.2	B	7.0	2.00	SS
SAN ANDREAS - 1857 Rupture	46.4	A	7.8	34.00	SS
CLAMSHELL-SAWPIT	48.2	B	6.5	0.50	DS
VENTURA - PITAS POINT	51.8	B	6.8	1.00	DS
M.RIDGE-ARROYO PARIDA-SANTA ANA	57.8	B	6.7	0.40	DS
ELSINORE-WHITTIER	61.0	B	6.8	2.50	SS
RED MOUNTAIN	65.5	B	6.8	2.00	DS
SAN JOSE	67.6	B	6.5	0.50	DS
GARLOCK (West)	68.7	A	7.1	6.00	SS
PLEITO THRUST	69.4	B	6.8	2.00	DS
BIG PINE	71.8	B	6.7	0.80	SS
CUCAMONGA	74.8	A	7.0	5.00	DS
CHINO-CENTRAL AVE. (Elsinore)	78.9	B	6.7	1.00	DS
SANTA CRUZ ISLAND	91.1	B	6.8	1.00	DS
WHITE WOLF	95.8	B	7.2	2.00	DS
SAN ANDREAS - Southern	97.3	A	7.4	24.00	SS
NEWPORT-INGLEWOOD (Offshore)	97.5	B	6.9	1.50	SS
ELSINORE-GLEN IVY	98.7	B	6.8	5.00	SS
SAN JACINTO-SAN BERNARDINO	99.0	B	6.7	12.00	SS
SANTA YNEZ (West)	99.2	B	6.9	2.00	SS
CLEGHORN	103.0	B	6.5	3.00	SS
NORTH FRONTAL FAULT ZONE (West)	119.9	B	7.0	1.00	DS
GARLOCK (East)	124.0	A	7.3	7.00	SS
SANTA ROSA ISLAND	124.5	B	6.9	1.00	DS
CORONADO BANK	126.8	B	7.4	3.00	SS
SAN JACINTO-SAN JACINTO VALLEY	127.0	B	6.9	12.00	SS
HELENDALE - S. LOCKHARDT	127.7	B	7.1	0.60	SS
LENWOOD-LOCKHART-OLD WOMAN SPRGS	129.8	B	7.3	0.60	SS
ELSINORE-TEMECULA	133.4	B	6.8	5.00	SS

DESIGN RESPONSE SPECTRUM

Seismic Zone: 0.4 Soil Profile: SD



APPENDIX V

REFERENCES

Site References

Area References

Geotechnical References

REFERENCES

Site References

1. Brian A. Robinson & Associates, Inc., August 30, 1994, Geotechnical Investion for Earthquake Damage, 11023 Lurline Avenue, Chatsworth, California.

2. City of Los Angeles, January 10, 1996, Approval Letter, 11023 Lurline Avenue, Chatsworth, California.

3. Oro Engineering Corporation, 1999, Soil Engineering Report, Proposed Single Family Residence, 11023 Lurline Avenue, Chatsworth, California.

4. SubSurface Designs, Inc., December 11, 2000, Preliminary Soils Engineering Investigation, 11023 - 11041 Lurline Avenue, Chatsworth, California

5. SubSurface Designs, Inc., March 13, 2003, Limited Soils Engineering Investigation, Proposed Gymnasium & Parking Areas, 11023 Lurline Avenue, Los Angeles, California.

Area References

1. Kovacs-Byer and Associates, Inc., January 24, 1979, Geologic and Soils Engineering Investigation, Tentative Tract 32704, 11026 DeSoto Avenue, Chatsworth, California.

2. Kovacs-Byer and Associates, Inc., November 19, 1985, Rain Damage Update Letter, Tentative Tract 32704, 11026 DeSoto Avenue, Chatsworth, California.

3. Kovacs-Byer and Associates, Inc., March 6, 1986, Revised Grading Plan, Tentative Tract 32704, 11026 DeSoto Avenue, Chatsworth, California.

4. Kovacs-Byer and Associates, Inc., May 24, 1989, Compaction Report, Proposed Four Residences, 11026 DeSoto Avenue, Chatsworth, California.

5. City of Los Angeles, June 2, 1989, Approval Letter, Primary Structural Fill, 11026 DeSoto Avenue, Chatsworth, California.

6. Geotechnical Solutions, Inc., October 19, 1994, Soils Engineering-Foundation Investigation-Geology Study, 11200 DeSoto Avenue, Chatsworth, California.

7. Geotechnical Solutions, Inc., April 13, 1985, Addendum Letter, 11200 DeSoto Avenue, Chatsworth, California.

8. City of Los Angeles, December 6, 1995, Approval Letter, 11200 DeSoto Avenue, Chatsworth, California.

9. SubSurface Designs, Inc., May 20, 1999, Soils Engineering Investigation, Proposed Playing Field, Basketball Courts, Parking Area and 2:1 Cut Slope, 11052 Sierra Canyon Way, Chatsworth, California.

10. City of Los Angeles, June 2, 1999, Approval Letter, 11052 Sierra Canyon Way, Chatsworth, California.

Geotechnical References

1. Bowles, Joseph, E., Foundation Analysis and Design (McGraw-Hill, New York : 1968)

2. Huang, Yang H., Stability Analysis of Earth Slopes (Van Nostrand Reinhold, New York : 1983)

3. Monahan, Edward J., PE, Construction of and on Compacted Fills (Wiley & Sons, New York : 1986)

4. Naval Facilities Engineering Command Foundations and Earth Structures - Design Manual 7.02 (Naval Publications and Forms Center, Philadelphia : 1986)

5. Poulos, H. G., and Davis, E. H., Pile Foundation Analysis and Design (Wiley & Sons, New York : 1980)

6. Taylor, Donald W., Fundamentals of Soil Mechanics (Wiley & Sons, New York : 1948)

7. Terzaghi, Karl and Peck, Ralph B., Soil Mechanics in Engineering Practice (Wiley & Sons, New York : 1948)

8. Tschebotarioff, Gregory P., Foundations, Retaining and Earth Structures - 2nd (McGraw Hill, New York : 1979)

Parallax
associates, inc.

Facsimile Transmittal

Attention: Mr. Jim Brock

Project Number: 0403.30

Company: Environmental Planning Associates, Inc.

Project Name: Sierra Canyon High School-Master Plan EIR Documents

Fax Number: 310.820.1956

Date: 1.31.05

Jim,

Following this cover is a copy of the Soils Report Approval Letter from the City of Los Angeles.

I have forwarded copies of the letter to the Geotechnical and Structural Engineers for review and comment.

Feel free to call if you have any questions.

Joe

Joseph Masotta

You will receive 5 page(s) of copy including this form. If you experience trouble with this transmission or do not receive all pages, please call at 310.216.5775.
Date/Time Transmitted: ______________
By: ______________

scs-epa-jb-fx03

CITY OF LOS ANGELES

CALIFORNIA

JAMES K. HAHN
MAYOR

DEPARTMENT OF
BUILDING AND SAFETY
201 NORTH FIGUEROA STREET
LOS ANGELES, CA 90012

ANDREW A. ADELMAN, P.E.
GENERAL MANAGER

RAYMOND CHAN
EXECUTIVE OFFICER

SOILS REPORT APPROVAL LETTER

January 20, 2005

LOG # 46431
SOILS FILE - 2

Seirra Canyon Secondary School
11023 Lurline Avenue
Chatsworth, CA 91311

TRACT: Ex Mission De San Fernando (SEC 8 T2N R16W)
LOT: Arbs 8 & 9
LOCATION: 11023 Lurline Avenue

CURRENT REFERENCE REPORT/LETTER(S)	REPORT NO.	DATE(S) OF DOCUMENT	PREPARED BY
Soils Report	3614B	11/29/2004	SubSurface Designs, Inc.
Oversized Document	"	"	"

The referenced report concerning the proposed construction of a high school has been reviewed by the Grading Division of the Department of Building and Safety. The proposed improvements includes classrooms, administration buildings, an auditorium, a gymnasium, an aquatics center, and associates structures. The report recommends supporting the proposed structures on conventional footings and friction piles founded in compacted fill or natural soils of older alluvium. An existing 54-inch MWD waterline runs across the site.

According to the report, the subsurface materials are low expansive and consist of up to 8.5 feet of fill over native soils of older alluvium of gravelly silty sand. The report recommends removing and recompacting the existing fill. Temporary excavations up to 12 feet are proposed. The report recommends open vertical cuts up to 10 feet high. However, the report calculations omit the effect of tension cracks and, therefore, temporary vertical excavations up to 5 feet high is only approved.

The reports are acceptable, provided the following conditions are complied with during site development:

1. Unsurcharged temporary excavations may be cut vertically up to a height of 5 feet. Portions of the excavation above this height shall be trimmed to no steeper than a gradient of 1:1, as recommended. A supplementary report with calculations including the effect of tension cracks shall be submitted to the Department to demonstrate the safety in the event vertical excavations exceed 5 feet.

2. The soil engineer shall review and approve the detailed plans prior to issuance of any permits. This approval shall be by signature on the plans which clearly indicates that the soil engineer has reviewed the plans prepared by the design engineer and that the plans include the recommendations contained in the report.

3. All the recommendations of the report which are in addition to or more restrictive than the conditions contained herein shall be incorporated into the plans.

4. The LABC Soil Type underlying the site is Sd. The minimum horizontal distances toknown seismic sources shall conform to the Maps of Known Active Fault Near Source Zones published by ICBO. (Table 16 A-J)

5. Compacted fill shall extend beyond the footings a minimum distance equal to the depth of the fill below the bottom of footings or a minimum of 3 feet whichever is greater.

6. All footings shall be founded in compacted fill and competent naturalsoils, as recommended.

7. Footings supported on approved compacted fill or expansive soil shall be reinforced with a minimumof four (4) ½-inch diameter (#4) deformed reinforcing bars. Two (2) bars shall be placed near the bottom and two (2) bars placed bear the top. (1804.4)

8. Pile, caisson and/or isolated foundation ties are required by Code Section 1807.2. Exceptions and modification to this requirement are provided in Information Bulletin P/BC 2001-30.

9. All friction pile or caisson drilling and installation shall be performed under the continuous inspection and approval of the soils engineer.

10. Concrete floor slabs placed on approved compacted fill or expansive soil shall be at least 3½ inches thick and shall be reinforced with ½-inch diameter (#4) reinforcing bars spaced a maximum of 16 inches on center each way.

11. Existing uncertified fill shall not be used for support of footings, concrete slabs or new fill.

12. The building design shall incorporate provisions for anticipated differential settlements in excess of one-fourth inch.

13. If the actual foundation design loads do not conform to the foundation loads assumed in the report, the soil engineer shall submit a supplementary report containing specific design recommendations for the heavier loads to the Department for review and approval prior to issuance of a permit.

14. A grading permit shall be obtained.

15. All man-made fill shall be compacted to a minimum 90 percent of the maximum dry density of the fill material per the latest version of ASTM D 1557; Where cohesionless soil having less than 15 percent finer then 0.005 millimeters is used for fill, it shall be compacted to a minimum of 95 percent relative compaction based on maximum dry density.

16. Grading shall be scheduled for completion prior to the start of the rainy season, or detailed temporary erosion control plans shall be filed in a manner satisfactory to theDepartment and

the Department of Public Works, for any grading work in excess of 200 cu yd.

17. All roof and pad drainage shall be conducted to the street in an acceptable manner. (7013.10)

18. Pool deck drainage shall be collected and conducted to an approved location via a non-erosive device. (7013.10)

19. The proposed swimming pool shall be designed for a freestanding condition. (P/BC 2001-01)

20. The applicant is advised that the approval of this report does not waive the requirements for excavations contained in the State Construction Safety Orders enforced by the State Division of Industrial Safety.

21. A supplemental report shall be submitted to the Grading Section containing recommendations for shoring, underpinning, and sequence of construction in the event that any excavation would remove lateral support to the public way or adjacent structures.

22. Suitable arrangements shall be made with the Department of Public Works for the proposed removal of support and/or retaining of slopes adjoining the public way.

23. Retaining walls up to a maximum height of 12 feet shall be designed for the minimum lateral earth pressures as recommended in pages 25 and 26 of the report. The soils engineer and structural engineer shall determine the additional surcharge loads for the design of the retaining walls.

24. All retaining walls shall be provided with a standard surface backdrain system and all drainage shall be conducted to the street in an acceptable manner and in a non-erosive device.

25. All retaining walls shall be provided with a subdrain system to prevent possible hydrostatic pressure behind the wall. Prior to issuance of any permit, the retaining wall subdrain system recommended in the soil report shall be incorporated into the foundation plan which shall be reviewed and approved by the soils engineer of record. (7015.5 & 108.9)

26. Installation of the subdrain system shall be inspected and approved by the soil engineer of record and the City grading/building inspector. (7015.5 & 108.9)

27. Prior to the placing of compacted fill, a representative of the soils engineer shall inspect and approve the bottom excavations. He shall post a notice on the job site for the City Grading Inspector and the Contractor stating that the soil inspected meets the conditions of the report, but that no fill shall be placed until the LADBS Grading Inspector has also inspected and approved the bottom excavations. A written certification to this effect shall be included in the final compaction report filed with the grading Division of the Department. All fill shall be placed under the inspection and approval of the soils engineer. A compaction report together with the approved soil report and Department approval letter shall be submitted to the Grading Division of the Department upon completion of the compaction. An engineer's certificate of compliance shall include the grading permit number and the legal descriptions as described in the permit. (7011.3)

28. Prior to the pouring of concrete, a representative of the soil engineer shall inspect and approve the footing excavations. A notice shall be posted on the job site for the City Building Inspector

and the Contractor stating that the work so inspected meets the conditions of the report, but that no concrete shall be poured until the City Building Inspector has also inspected and approved the footing excavations. A written certification to this effect shall be filed with the Department upon completion of the work.

29. The soil engineer shall inspect all excavations to determine that conditions anticipated in the report have been encountered and to provide recommendations for the correction of hazards found during construction.

30. Prior to excavation, an initial inspection shall be called at which time protection fences and dust and traffic control will be scheduled.

RAPHAEL CHENG
Geotechnical Engineer I

RHC/rhc
46431
(213) 482-0480

cc: SubSurface Designs
VN District Office