

APPENDIX A

EXPLORATORY BORING LOGS

Key to Soil and Bedrock Symbols and Terms



Unified Soil Classification System

Coarse-grained Soils > 1/2 of materials is larger than #200 sieve	The No. 200 U.S. Standard Sieve is about the smallest particle visible to the naked eye	GRAVELS more than half of coarse fraction is larger than #4 sieve	Clean Gravels (less than 5% fines)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines
			Gravels with fines	GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
		SANDS more than half of coarse fraction is smaller than #4 sieve	Clean Sands (less than 5% fines)	GM	Silty Gravels, poorly-graded gravel-sand-silt mixtures
			Sands with fines	GC	Clayey Gravels, poorly-graded gravel-sand-clay mixtures
		SILTS & CLAYS Liquid Limit Less Than 50	Sands with fines	SW	Well-graded sands, gravelly sands, little or no fines
				SP	Poorly-graded sands, gravelly sands, little or no fines
			Sands with fines	SM	Silty Sands, poorly-graded sand-gravel-silt mixtures
				SC	Clayey Sands, poorly-graded sand-gravel-clay mixtures
			SILTS & CLAYS Liquid Limit Greater Than 50	ML	Inorganic silts & very fine sands, silty or clayey fine sands, clayey silts with slight plasticity
				CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
				OL	Organic silts & clays of low plasticity
				MH	Inorganic silts, micaceous or diatomaceous fine sand or silt
Fine-grained Soils > 1/2 of materials is smaller than #200 sieve				CH	Inorganic clays of high plasticity, fat clays
				OH	Organic silts and clays of medium-to-high plasticity
				PT	Peat, humus swamp soils with high organic content
Highly Organic Soils					

Grain Size

Description	Sieve Size	Grain Size	Approximate Size
Boulders	>12"	>12"	Larger than basketball-sized
Cobbles	3 - 12"	3 - 12"	Fist-sized to basketball-sized
Gravel	coarse 3/4 - 3"	3/4 - 3"	Thumb-sized to fist-sized
	fine #4 - 3/4"	0.19 - 0.75"	Pea-sized to thumb-sized
Sand	coarse #10 - #4	0.075 - 0.19"	Rock salt-sized to pea-sized
	medium #40 - #10	0.017 - 0.075"	Sugar-sized to rock salt-sized
	fine #200 - #40	0.0029 - 0.017"	Flour-sized to sugar-sized to
Fines	Passing #200	<0.0029"	Flour-sized and smaller

Modifiers

Trace	< 1 %
Few	1 - 5 %
Some	5 - 12 %
Numerous	12 - 20 %

Laboratory Test Abbreviations

MAX	Maximum Dry Density	MA	Mechanical (Particle Size) Analysis
EXP	Expansion Potential	AT	Atterberg Limits
SO4	Soluble Sulfate Content	#200	#200 Screen Wash
RES	Resistivity	DSU	Direct Shear (Undisturbed Sample)
pH	Acidity	DSR	Direct Shear (Remolded Sample)
CON	Consolidation	HYD	Hydrometer Analysis
SW	Swell	SE	Sand Equivalent
CL	Chloride Content	OC	Organic Content
RV	R-Value	COMP	Mortar Cylinder Compression

Bedrock Hardness

Soft	Can be crushed and granulated by hand; "soil like" and structureless
Moderately Hard	Can be grooved with fingernails; gouged easily with butter knife; crumbles under light hammer blows
Hard	Cannot break by hand; can be grooved with a sharp knife; breaks with a moderate hammer blow
Very Hard	Sharp knife leaves scratch; chips with repeated hammer blows

Sampler and Symbol Descriptions

	Approximate Depth of Groundwater Encountered
	Approximate Depth of Standing Groundwater
	Modified California Split Spoon Sample
	No Recovery in Mod. Calif. Split Spoon Sample
	Standard Penetration Test
	Shelby Tube Sample
	Bulk Sample
	No Recovery in SPT Sampler
	No Recovery in Shelby Tube

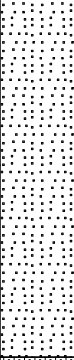

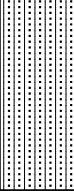
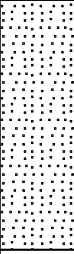

Notes:

Blows Per Foot: Number of blows required to advance sampler 1 foot (unless a lesser distance is specified). Samplers in general were driven into the soil or bedrock at the bottom of the hole with a standard (140 lb.) hammer dropping a standard 30 inches unless noted otherwise in Log Notes. Drive samples collected in bucket auger borings may be obtained by dropping non-standard weight from variable heights. When a SPT sampler is used the blow count conforms to ASTM D-1586

EXPLORATION LOG

Project: Selina Brand Glamping			Boring No.: B-1						
Location: 2107 Old Woman Springs Road, Yucca Valley, CA			Elevation: ±3501						
Job No.: 19-309		Client: Robott Land Company	Date: 08/05/2020						
Drill Method: 8" Hollow Stem		Driving Weight: 140lbs/30"	Logged By: KM						
Depth (Feet)	Lith- ology	Material Description	W A T E R	Samples			Laboratory Tests		
				Blows per 6 in.	C o r e	B u l k	Moisture Content (%)	Dry Density (pcf)	Other Lab Tests
0		ALLUVIUM (Qal) <u>Silty Sand (SM)</u> : Yellowish-brown, moist, loose, fine- to coarse-grained sand. Becomes medium dense.							Sieve, El
5		<u>Poorly Graded Sand with Silt (SP-SM)</u> : Yellowish-brown, moist, medium dense, fine- to medium-grained sand, poorly graded, with trace of coarse grained sand. Becomes slightly moist, fine- to coarse-grained sand.		5 10 18			2.7	121.2	
				4 5 6			1.9	114.6	
				6 7 12			1.4	107.3	
10		<u>Poorly Graded Sand (SP)</u> : Yellowish-brown, moist, medium dense, fine- to medium-grained sand.		7 11 15			1.0	108.5	
15		<u>Silty Sand (SM)</u> : Yellowish-brown, moist, dense, fine- to medium-grained sand.		22 26 30			3.0	126.7	
20		<u>Poorly Graded Sand (SP)</u> : Yellowish-brown, moist, dense, fine- to medium-grained sand, with gravel.		11 24 37			1.9		
25		<u>Poorly Graded Sand with Silt (SP-SM)</u> : Yellowish-brown, dry to slightly moist, dense, fine- to coarse-grained sand.		14 17 22					
30		<u>Poorly Graded Sand (SP)</u> : Yellowish-brown, moist, dense, fine- to medium-grained sand, poorly graded, with gravel.		17 26 37			1.7	111.9	
35		No gravel.		14					

EXPLORATION LOG

Project: Selina Brand Glamping				Boring No.: B-1				
Location: 2107 Old Woman Springs Road, Yucca Valley, CA				Elevation: ±3501				
Job No.: 19-309		Client: Robott Land Company		Date: 08/05/2020				
Drill Method: 8" Hollow Stem		Driving Weight: 140lbs/30"		Logged By: KM				
Depth (Feet)	Lith- ology	Material Description	W A T E R	Samples		Laboratory Tests		
				Blows per 6 in.	C o r e B u l k	Moisture Content (%)	Dry Density (pcf)	Other Lab Tests
40		very dense, no recovery.		20 22		1.1	113.9	
			20 50/3"					
45			Silty Sand (SM): Light brown, to creamish brown, moist, very dense, fine- to medium-grained sand, with gravel.		50/3			
50			Poorly Graded Sand (SP): Yellowish-brown, moist, very dense, fine- to medium-grained sand, with Gravel.		14 24 50/4"			
55				26 35 27				
60		Total Depth 56.5 feet No water Boring Backfilled with cuttings.						
65								
70								








EXPLORATION LOG

Project: Selina Brand Glamping			Boring No.: B-2						
Location: 2107 Old Woman Springs Road, Yucca Valley, CA			Elevation: ±3506						
Job No.: 19-309		Client: Robott Land Company	Date: 08/05/2020						
Drill Method: 8" Hollow Stem		Driving Weight: 140lbs/30"	Logged By: KM						
Depth (Feet)	Lith- ology	Material Description	W A T E R	Samples		Laboratory Tests			
				Blows per 6 in.	C o r e B u l k	Moisture Content (%)	Dry Density (pcf)	Other Lab Tests	
0		ALLUVIUM (Qal) <u>Silty Sand (SM)</u> : Yellowish-brown, dry, medium dense, fine- to coarse-grained sand. Becomes dark yellowish brown.		11 14 16		1.8	123.4		
5		<u>Poorly Graded Sand with Silt (SP-SM)</u> : Yellowish-brown, dry, medium dense, fine- to coarse-grained sand, poorly graded, with trace of coarse grained sand.	8 9 14		1.1				109.5
		<u>Poorly Graded Sand (SP)</u> : Yellowish-brown, dry, medium dense, fine- to coarse-grained sand.	8 12 14						
10			9 12 17		1.1	111.5			
15		<u>Poorly Graded Sand with silt (SM)</u> : Light gray, to yellowish-gray, dry, medium dense, fine- to coarse-grained sand.	9 11 15				0.8		112.5
20		medium dense to dense, no recovery.	9 12 17						
25		Total Depth 21.5 feet No water Boring Backfilled with cuttings.							
30									
35									

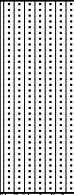

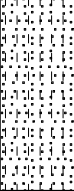

EXPLORATION LOG

Project: Selina Brand Glamping				Boring No.: B-3						
Location: 2107 Old Woman Springs Road, Yucca Valley, CA				Elevation: ±3522						
Job No.: 19-309		Client: Robott Land Company		Date: 08/05/2020						
Drill Method: 8" Hollow Stem		Driving Weight: 140lbs/30"		Logged By: KM						
Depth (Feet)	Lith- ology	Material Description	W A T E R	Samples		Laboratory Tests				
				Blows per 6 in.	C o r e B u l k	Moisture Content (%)	Dry Density (pcf)	Other Lab Tests		
0		ALLUVIUM (Qal) <u>Silty Sand (SM)</u> : Yellowish-brown, dry, loose to medium dense, fine- to coarse-grained sand. Becomes dark yellowish brown, slightly moist, medium dense.		6 8 12		1.3	112.0	Cons		
5		<u>Poorly Graded Sand with Silt (SP-SM)</u> : Yellowish-brown, dry, medium dense, medium- to coarse-grained sand, poorly graded.		7 9 13					1.1	112.2
		<u>Silty Sand (SM)</u> : Yellowish-brown, dry, medium dense, fine-grained sand, with trace coarse-grained sand.		14 15 13						
10		No Recovery.		7 10 11						
		15		<u>Poorly Graded Sand (SP)</u> : Tan, to light brown, slightly moist, dense, fine- to coarse-grained sand, with some gravel.	14 18 23		0.9		110.4	
20		<u>Silty Sand (Sm)</u> : Tan, to light gray, slightly moist, medium dense, fine- to coarse-grained sand.		9 12 17		2.3	98.8			
		Total Depth 21.5 feet No water Boring Backfilled with cuttings.								
25										
30										
35										

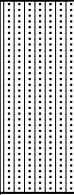

EXPLORATION LOG

Project: Selina Brand Glamping				Boring No.: B-4					
Location: 2107 Old Woman Springs Road, Yucca Valley, CA				Elevation: ±3530					
Job No.: 19-309		Client: Robott Land Company		Date: 08/05/2020					
Drill Method: 8" Hollow Stem		Driving Weight: 140lbs/30"		Logged By: KM					
Depth (Feet)	Lith- ology	Material Description	W A T E R	Samples			Laboratory Tests		
				Blows per 6 in.	C o r e	B u l k	Moisture Content (%)	Dry Density (pcf)	Other Lab Tests
0		ALLUVIUM (Qal) <u>Silty Sand (SM)</u> : Yellowish-brown, dry to slightly moist, loose to medium dense, fine- to coarse-grained sand. Becomes brown, moist, medium dense, with some gravel.		6 8 10			1.3	114.3	Max, Remold Ds,PH
5		<u>Poorly Graded Sand (SP)</u> : Brown, moist, medium dense, fine- to coarse-grained sand, poorly graded, with some gravel.		7 9 12			1.3	113.5	
				10 12 16			0.7	106.9	
10				10 15 18			0.9	115.6	
15		<u>Silty Sand (SM)</u> : Light brown, moist, very dense, fine- to coarse-grained sand.		12 23 39			1.1	118.5	
20				18 29 32			1.2	108.0	
			Total Depth 21.5 feet No water Boring Backfilled with cuttings.						
25									
30									
35									

EXPLORATION LOG

Project: Selina Brand Glamping				Boring No.: P-1					
Location: 2107 Old Woman Springs Road, Yucca Valley, CA				Elevation: ±3501					
Job No.: 19-309		Client: Robott Land Company		Date: 08/05/2020					
Drill Method: 8" Hollow Stem		Driving Weight: 140lbs/30"		Logged By: KM					
Depth (Feet)	Lith- ology	Material Description	W A T E R	Samples			Laboratory Tests		
				Blows per 6 in.	C o r e	B u l k	Moisture Content (%)	Dry Density (pcf)	Other Lab Tests
0		ALLUVIUM (Qal) <u>Silty Sand (SM)</u> : Yellowish-brown, dry, loose to medium dense, fine- to coarse-grained sand.							
5		Poorly Graded Sand with Silt (SP-SM): moist, medium dense, fine- to coarse-grained sand, poorly graded.	4 5 6						
10		Total Depth 10 feet No water Infiltration test installed and presoaked at 9:45AM.		5 7 8					
15									
20									
25									
30									
35									

EXPLORATION LOG

Project: Selina Brand Glamping				Boring No.: P-2					
Location: 2107 Old Woman Springs Road, Yucca Valley, CA				Elevation: ±3503					
Job No.: 19-309		Client: Robott Land Company		Date: 08/05/2020					
Drill Method: 8" Hollow Stem		Driving Weight: 140lbs/30"		Logged By: KM					
Depth (Feet)	Lith- ology	Material Description	W A T E R	Samples			Laboratory Tests		
				Blows per 6 in.	C o r e	B u l k	Moisture Content (%)	Dry Density (pcf)	Other Lab Tests
0		ALLUVIUM (Qal) <u>Silty Sand (SM)</u> : Yellowish-brown, dry, loose to medium dense, fine- to coarse-grained sand.							
5		Total Depth 5 feet No water Infiltration test installed and presoaked at 10:00AM.		2 5 10					
10									
15									
20									
25									
30									
35									

APPENDIX B

LABORATORY TEST PROCEDURES

LABORATORY DATA SUMMARY

LABORATORY TESTING

Associated with the subsurface exploration was the collection of bulk and relatively undisturbed samples of soil materials for laboratory testing. The relatively undisturbed samples were obtained using a 3-inch, outside-diameter, modified California split-spoon soil sampler lined with 1-inch-high brass rings. The driven ring samples were placed in sealed containers and transported to our laboratory located at 1251 W. Pomona Road, Unit #103, Corona, CA 92882, for testing.

Our laboratory testing capabilities include Soil Classifications, Moisture Content and In-Situ Moisture Content and Dry Unit Weight, Organic Content, Laboratory Maximum Dry Unit Weight and Optimum Moisture Content, Expansion Index, Corrosivity Screening (Soluble Sulfate and Chloride Content, pH, Resistivity), Atterberg Limits, Grain Size Distribution, Direct Shear, Consolidation and Permeability; all in accordance with the latest procedures of American Society for Testing and Materials (ASTM) and California Department of Transportation (Caltrans).

To evaluate the engineering properties of site soils, laboratory testing was performed on selected samples of soil considered representative of those encountered. Appropriate tests were assigned by the project engineer and geologist based on project plans and specifications including the level of anticipated loads, when available, and subsurface stratigraphy. Test results were reviewed by the laboratory manager and engineer-in-charge of the laboratory or his qualified designee for completeness and accuracy. A description of laboratory test procedures and summaries of the test data are presented in the following pages.

LABORATORY TEST PROCEDURES

Soil Classification

Soil materials encountered within the property were classified and described in accordance with the Unified Soil Classification System and in general accordance with the current version of Test Method ASTM D 2488. The assigned group symbols are presented in the exploration logs, Appendix A.

Moisture Content and In Situ Moisture Content and Dry Unit Weight

Moisture content of selected bulk samples and in-place moisture content and dry unit weight of selected, relatively undisturbed soil samples were determined in accordance with the current version of the Test Method ASTM D 2435 and Test Method ASTM D 2216, respectively. Test data are presented in the exploration logs, Appendix A.

Laboratory Maximum Dry Unit Weight and Optimum Moisture Content

The maximum dry unit weight and optimum moisture content of the on-site soils were determined for a selected bulk sample in accordance with current version of Method A of ASTM D 1557. The results of these tests are presented on Plates B-1 and B-2.

Corrosivity Screening

Chemical and electrical analyses were performed on a selected bulk sample of onsite soils to determine their soluble sulfate content, chloride content, pH (acidity) and minimum electrical resistivity. These tests were performed in accordance with the current versions of California Test Method Nos. CTM 417, CTM 422 and CTM 643, respectively. The results of these tests are included on Plate B-1.

Grain Size Distribution

Grain size analysis was performed on selected bulk samples of onsite soils in accordance with the current versions of Test Method ASTM D 136 and/or ASTM C 117, or Test Method ASTM D 422 and/or ASTM D 6913. The test result is graphically presented on Plate B-3.

Direct Shear

The Coulomb shear strength parameters, i.e., angle of internal friction and cohesion, were determined for selected, relatively undisturbed and/or reconstituted-bulk samples of onsite soil. This test was performed in general accordance with the current version of Test Method ASTM D3080. Three specimens were prepared for each test. The test specimens were inundated and then sheared under various normal loads at a constant strain rate of 0.005 inch per minute. The results of the direct shear test are graphically presented on Plate B-4.

Single-Point Collapse

Volume change (collapse) characteristics of selected undisturbed soil samples were determined by one-dimensional single-point collapse test. This test was performed in general accordance with the current version of the Test Method ASTM D 5333. Axial loads were applied to laterally restrained 1-inch-high samples. The resulting deformation was recorded at selected time intervals. At a load approximately corresponding to the existing overburden pressure or the anticipated future load, the test samples were inundated in order to evaluate the effect of an increase in moisture content, e.g., hydro-consolidation potential (or heave). Results of this test are graphically presented on Plates B-5 through B-10.

COMPACTION TEST REPORT

Project No.: 19-309

Date: 8/20/2020

Project: Selina Brand Glamping

Client: Robott Land Company

Source of Sample: Proctor Data

Depth: 0-5'

Sample Number: B-4

Remarks:

MATERIAL DESCRIPTION

Description: Reddish Brown, Silty fine to coarse Sand

Classifications -

USCS: SM

AASHTO:

Nat. Moist. =

Sp.G. =

Liquid Limit =

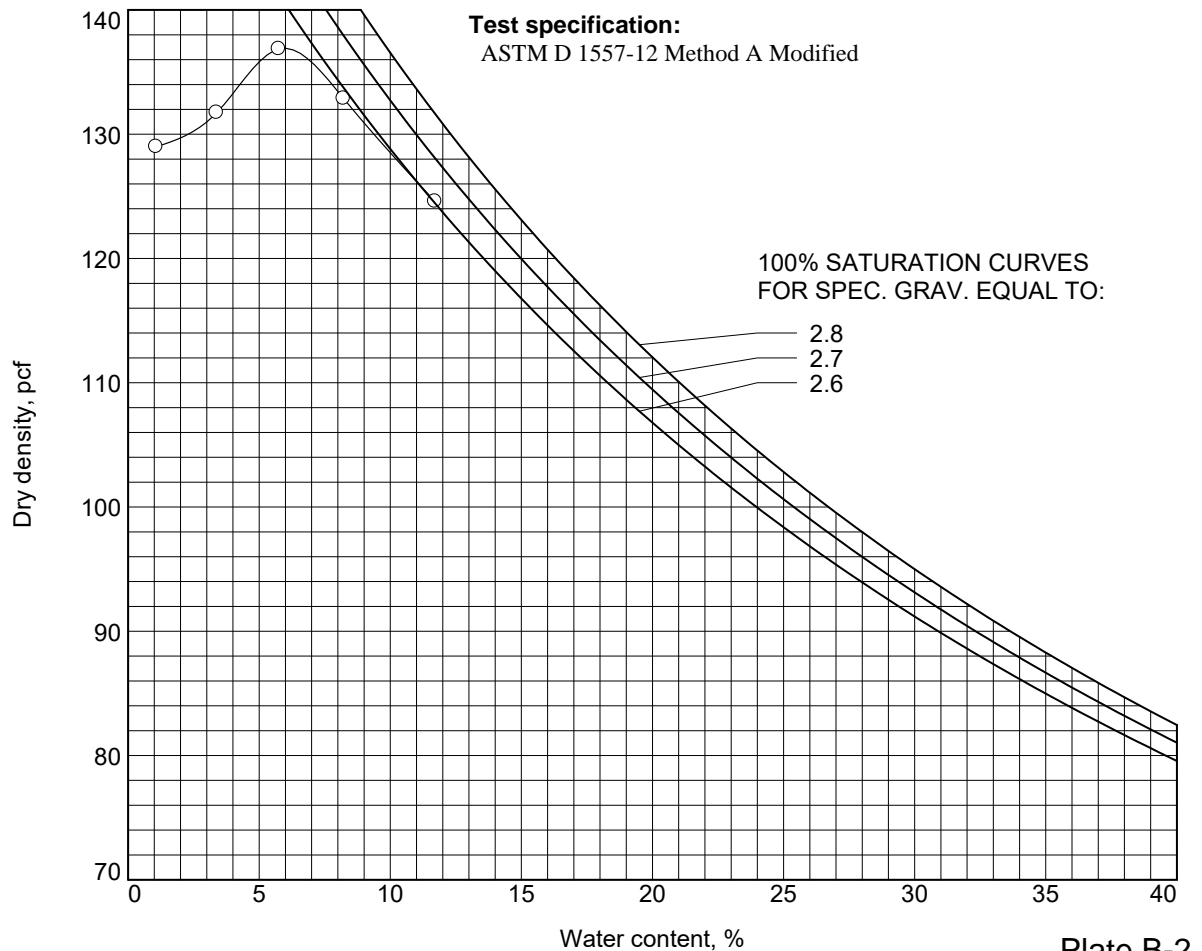
Plasticity Index =

% < No.200 =

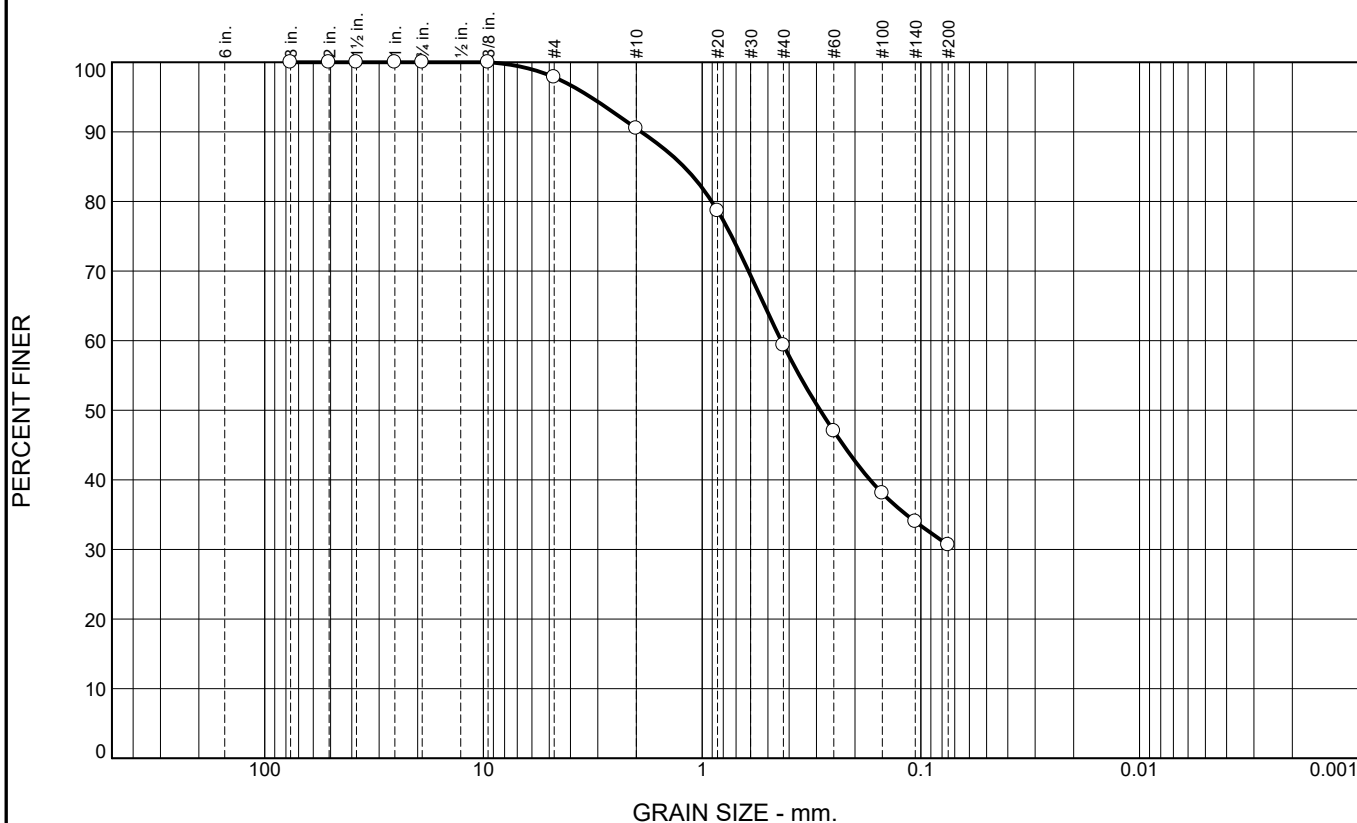
TEST RESULTS

Maximum dry density = 136.9 pcf

Optimum moisture = 6.0 %



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.1	7.4	31.1	28.8	30.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100.0		
2	100.0		
1.5	100.0		
1	100.0		
.75	100.0		
.375	100.0		
#4	97.9		
#10	90.5		
#20	78.7		
#40	59.4		
#60	47.0		
#100	38.1		
#140	34.0		
#200	30.6		

* (no specification provided)

Material Description
 Reddish Brown, Silty fine to coarse Sand

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 1.9000 D₈₅= 1.2108 D₆₀= 0.4349
 D₅₀= 0.2885 D₃₀= D₁₅=
 D₁₀= C_u= C_c=

Classification
 USCS= AASHTO=

Remarks

Source of Sample: Sieve Data
Sample Number: B-1

Depth: 0-5'

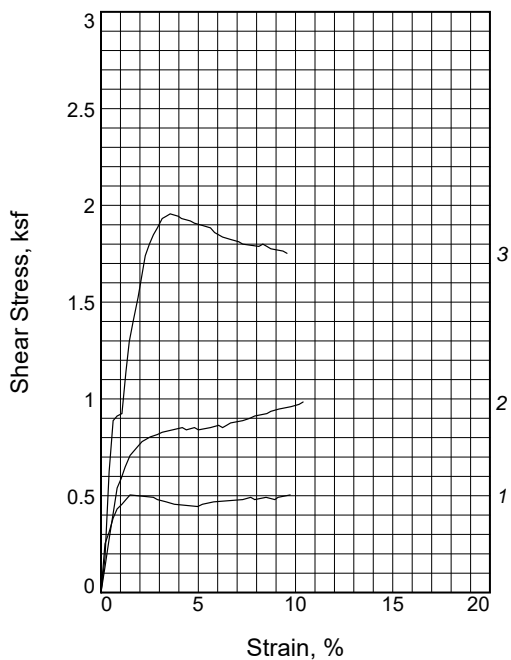
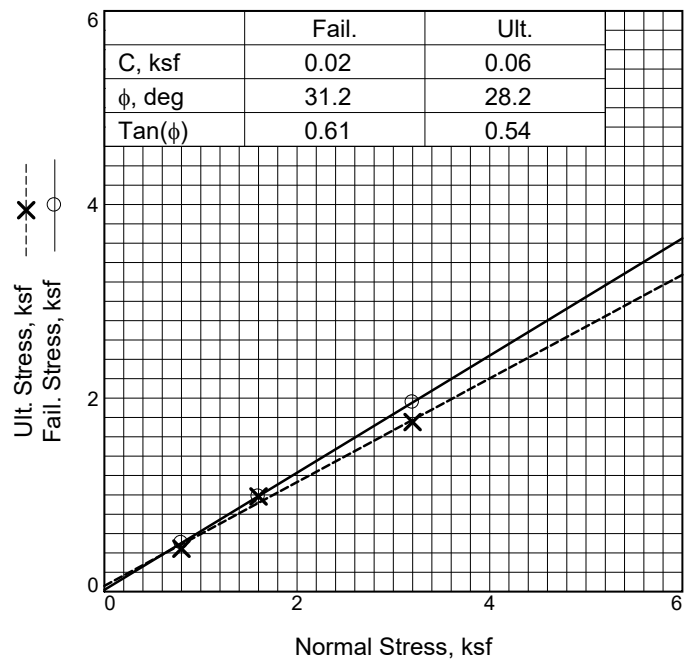
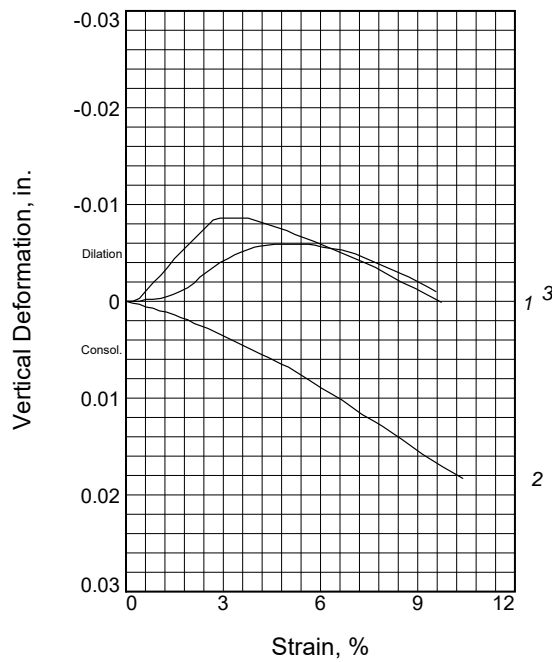
Date: 8/26/2020



Client: Robott Land Company
Project: Selina Brand Glamping

Project No: 19-309

Plate B-3



Sample No.		1	2	3
Initial	Water Content, %	6.0	6.0	6.0
	Dry Density, pcf	120.8	120.8	120.8
	Saturation, %	42.7	42.7	42.7
	Void Ratio	0.3698	0.3698	0.3698
	Diameter, in.	2.42	2.42	2.42
	Height, in.	1.00	1.00	1.00
At Test	Water Content, %	13.0	13.1	12.5
	Dry Density, pcf	123.1	122.8	124.1
	Saturation, %	100.0	99.8	99.8
	Void Ratio	0.3442	0.3474	0.3329
	Diameter, in.	2.42	2.42	2.42
	Height, in.	0.98	0.98	0.97
Normal Stress, ksf		0.80	1.60	3.20
Fail. Stress, ksf		0.50	0.98	1.96
Strain, %		1.5	10.4	3.6
Ult. Stress, ksf		0.44	0.98	1.75
Strain, %		5.0	10.4	9.6
Strain rate, in./min.		0.005	0.005	0.005

Sample Type:

Description: Reddish Brown, Silty fine to medium Sand

Specific Gravity= 2.65

Remarks:

Client: Robott Land Company

Project: Selina Brand Glamping

Source of Sample: Shear Data

Depth: 0-5'

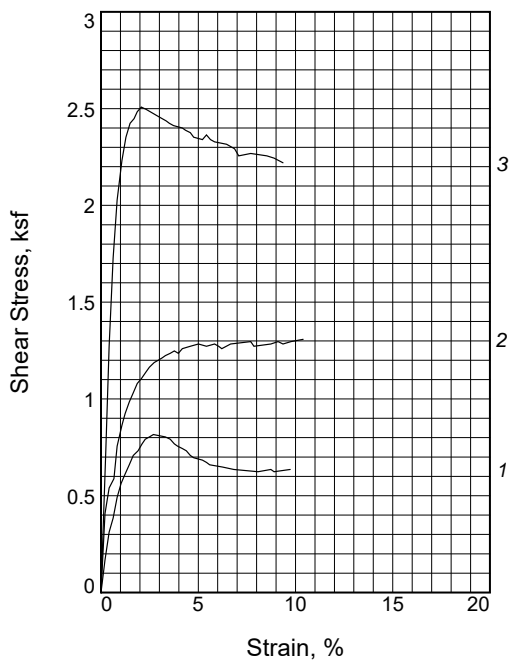
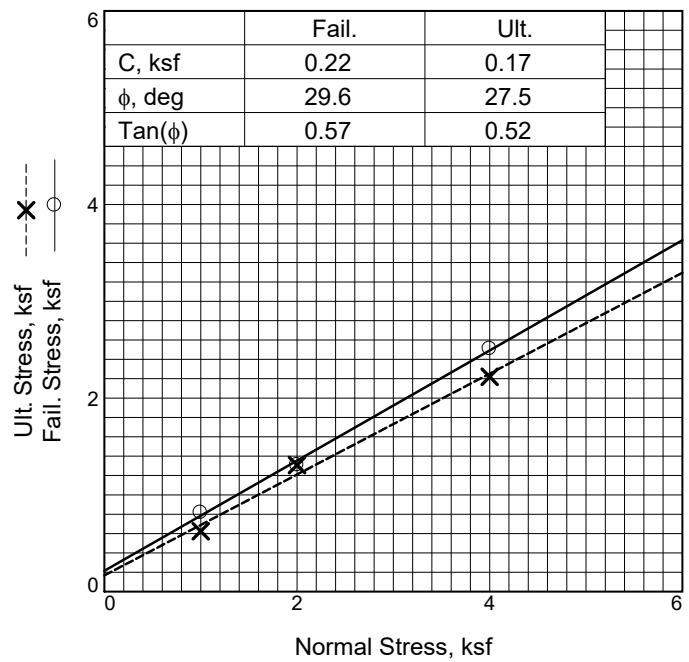
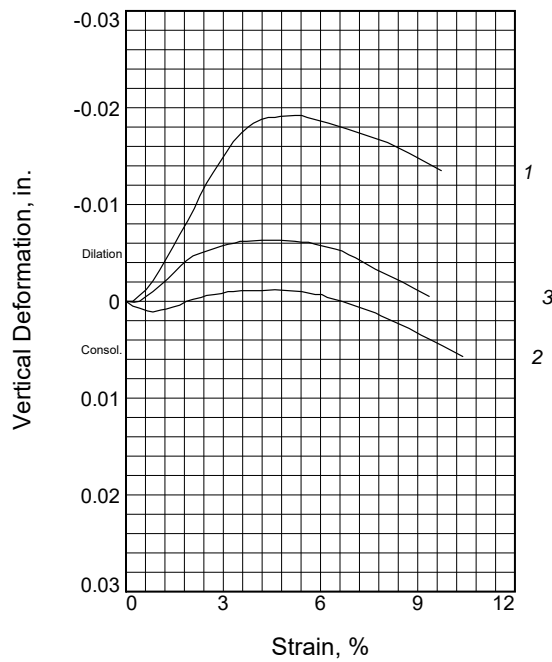
Sample Number: B-4

Proj. No.: 19-309

Date Sampled: 8/25/2020



Plate B-4



Sample No.		1	2	3
Initial	Water Content, %	6.1	6.1	6.1
	Dry Density, pcf	126.1	122.4	123.2
	Saturation, %	51.6	45.8	46.9
	Void Ratio	0.3124	0.3518	0.3433
	Diameter, in.	2.42	2.42	2.42
	Height, in.	0.96	0.99	0.98
At Test	Water Content, %	10.7	12.1	11.8
	Dry Density, pcf	128.8	125.2	125.9
	Saturation, %	99.7	99.7	99.7
	Void Ratio	0.2847	0.3213	0.3143
	Diameter, in.	2.42	2.42	2.42
	Height, in.	0.94	0.96	0.96
Normal Stress, ksf		1.00	2.00	4.00
Fail. Stress, ksf		0.82	1.31	2.51
Strain, %		2.7	10.4	2.1
Ult. Stress, ksf		0.62	1.31	2.22
Strain, %		8.1	10.4	9.4
Strain rate, in./min.		0.001	0.001	0.001

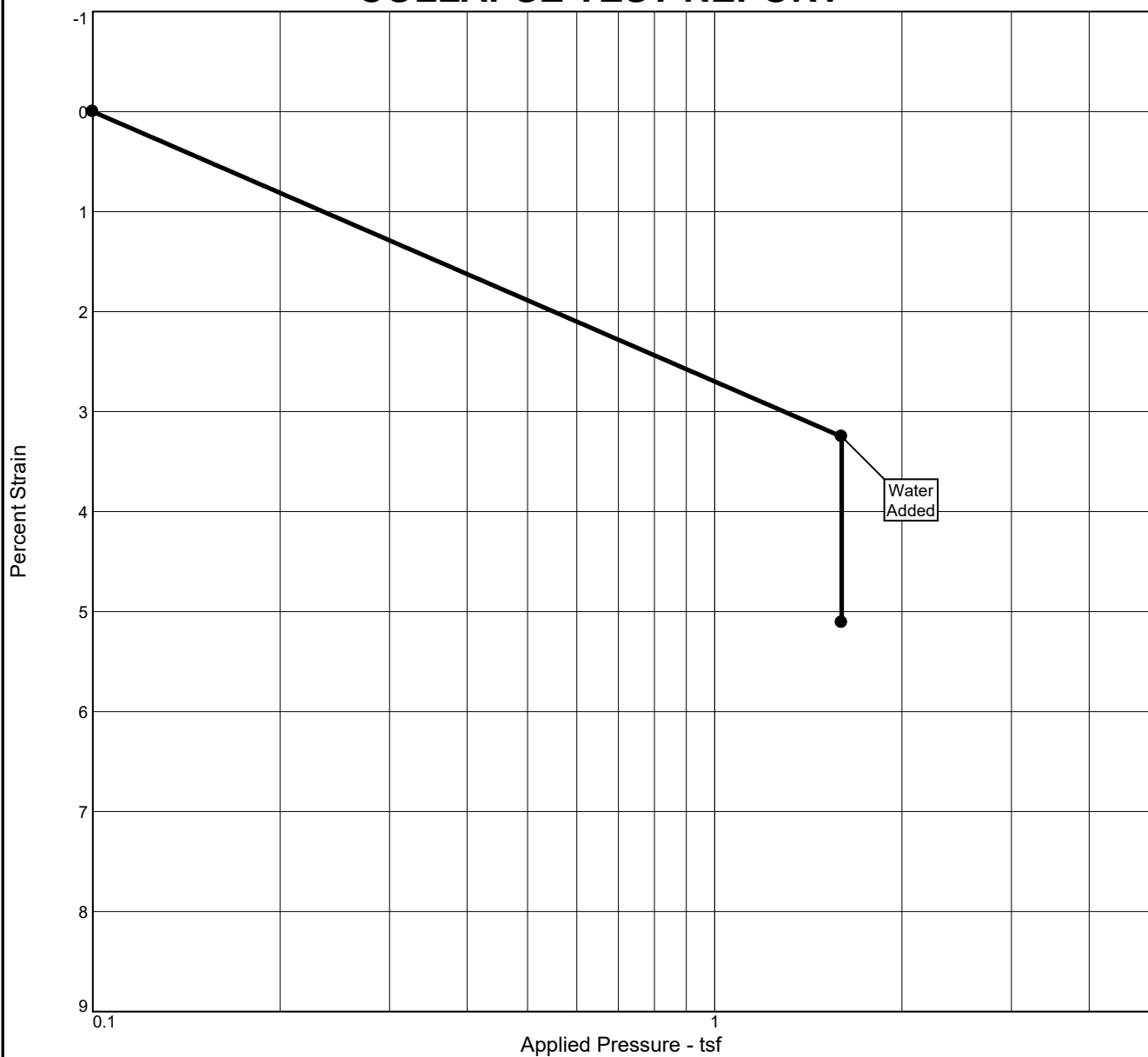
Sample Type: Remolded Sample
Description: Reddish Brown, Silty fine to medium Sand
Specific Gravity= 2.65
Remarks: Retest

Client: Robott Land Company
Project: Selina Brand Glamping
Source of Sample: Shear Data **Depth:** 0-5'
Sample Number: B-4
Proj. No.: 19-309 **Date Sampled:** 11/5/2020



Plate B-5

COLLAPSE TEST REPORT



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (tsf)	P _C (tsf)	C _C	C _r	Swell Press. (tsf)	Clpse. %	e _o
Sat.	Moist.											
10.6 %	1.9 %	112.7			2.65	.57					1.9	0.485

MATERIAL DESCRIPTION										USCS	AASHTO
Silty fine to medium Sand											

Project No. 19-309 Client: Robott Land Company Project: Selina Brand Glamping Source of Sample: Consolidation Data Depth: 5 Sample Number: B-1	Remarks: <div style="text-align: right;">Plate B-6</div>
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The graph displays the relationship between Applied Pressure (tsf) on the x-axis and Percent Strain on the y-axis. The x-axis is logarithmic, ranging from 0.1 to 10 tsf. The y-axis is linear, ranging from -1 to 9 Percent Strain. A line starts at (0.1, 0) and extends linearly to (2.0, 2.0). At 2.0 tsf, there is a vertical drop in strain, labeled 'Water Added', indicating a change in the soil's state.

Applied Pressure (tsf)	Percent Strain
0.1	0
2.0	2.0
2.0	2.7

Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (tsf)	P _c (tsf)	C _c	C _r	Swell Press. (tsf)	Clpse. %	e _o
Sat.	Moist.											
5.0 %	1.4 %	128.5			2.65	.98					0.8	0.755

MATERIAL DESCRIPTION	USCS	AASHTO
Silty fine to medium Sand		


Project No. 19-309	Client: Robott Land Company	Remarks:
Project: Selina Brand Glamping		
Source of Sample: Consolidation Data	Depth: 7.5 Sample Number: B-1	
		Plate B-7

Graph showing Percent Strain (Y-axis, ranging from -1 to 9) versus Applied Pressure - tsf (X-axis, ranging from 0.1 to 10). The curve shows a decrease in strain as pressure increases, reaching a point labeled "Water Added" at approximately 1.5% strain and 1.5 tsf.

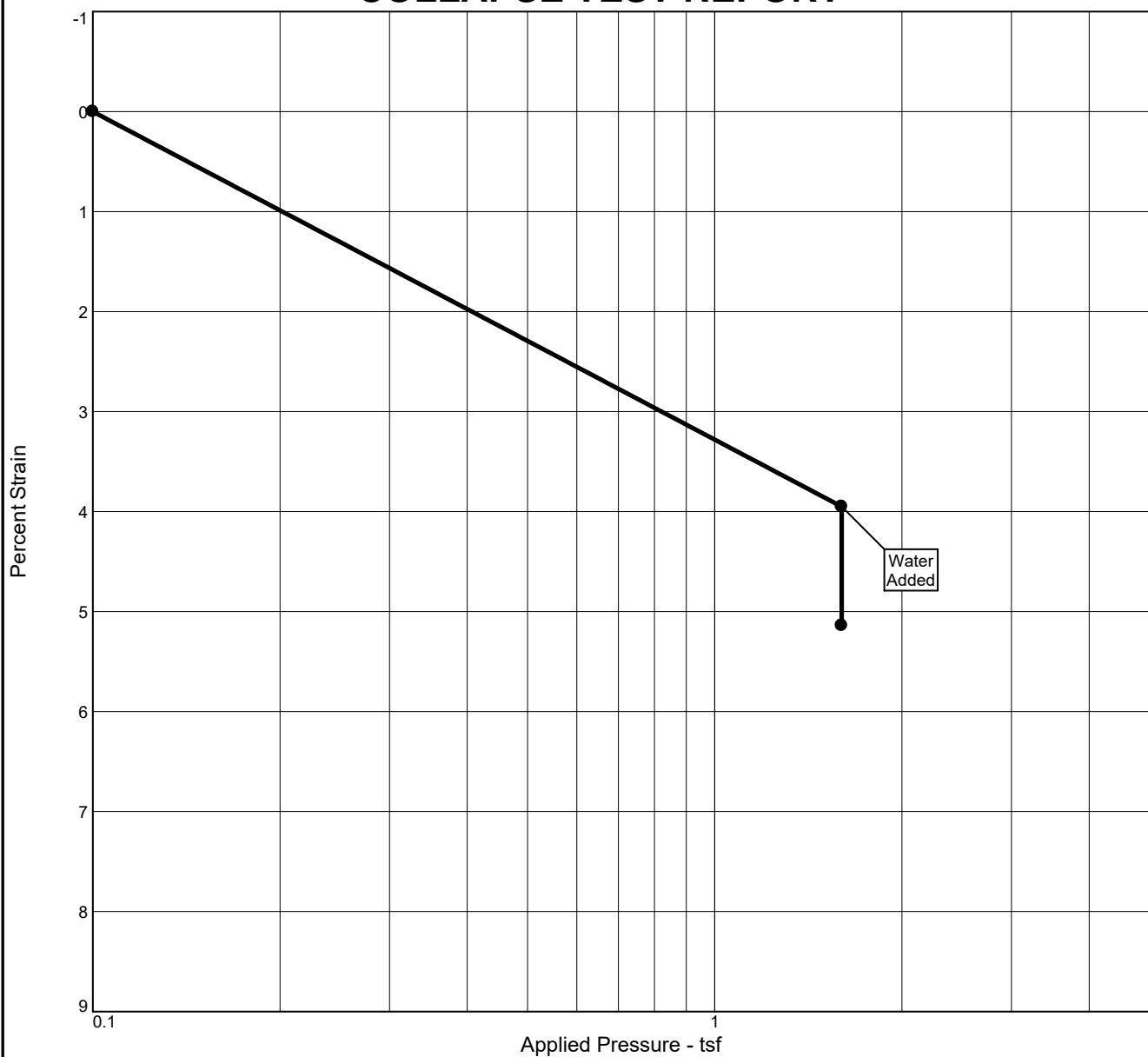
Applied Pressure - tsf	Percent Strain
0.1	0
1.5	1.5
1.5	1.7

Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (tsf)	P _c (tsf)	C _c	C _r	Swell Press. (tsf)	Clpse. %	e _o
Sat.	Moist.											
3.4 %	1.0 %	94.4			2.65	.95					0.2	0.785

MATERIAL DESCRIPTION	USCS	AASHTO
Silty fine to medium Sand		

Project No. 19-309	Client: Robott Land Company	Remarks:
Project: Selina Brand Glamping		
Source of Sample: Consolidation Data	Depth: 10 Sample Number: B-1	
		Plate B-8

COLLAPSE TEST REPORT



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (tsf)	P _C (tsf)	C _C	C _r	Swell Press. (tsf)	Clpse. %	e _o
Sat.	Moist.											
4.7 %	1.1 %	104.5			2.65	.53					1.2	0.603

MATERIAL DESCRIPTION										USCS	AASHTO
Silty fine to medium Sand											


Project No. 19-309			Client: Robott Land Company			Remarks:
Project: Selina Brand Glamping						
Source of Sample: Consolidation Data			Depth: 5		Sample Number: B-3	
<div></div>						
						Plate B-9



Plate B-9

The graph displays the relationship between Applied Pressure (tsf) on the x-axis and Percent Strain on the y-axis. The x-axis is logarithmic, and the y-axis is linear. A vertical line at approximately 1.8 tsf is labeled 'Water Added'.

Applied Pressure (tsf)	Percent Strain
0.1	0
0.2	1
0.4	2
0.6	2.5
0.8	3
1.0	3.2
1.2	3.5
1.4	3.8
1.6	4.0
1.8	4.2
1.8	8.0

Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (tsf)	P _C (tsf)	C _c	C _r	Swell Press. (tsf)	Clpse. %	e _o
Sat.	Moist.											
11.3 %	2.6 %	102.8			2.65	.74					4.2	0.612

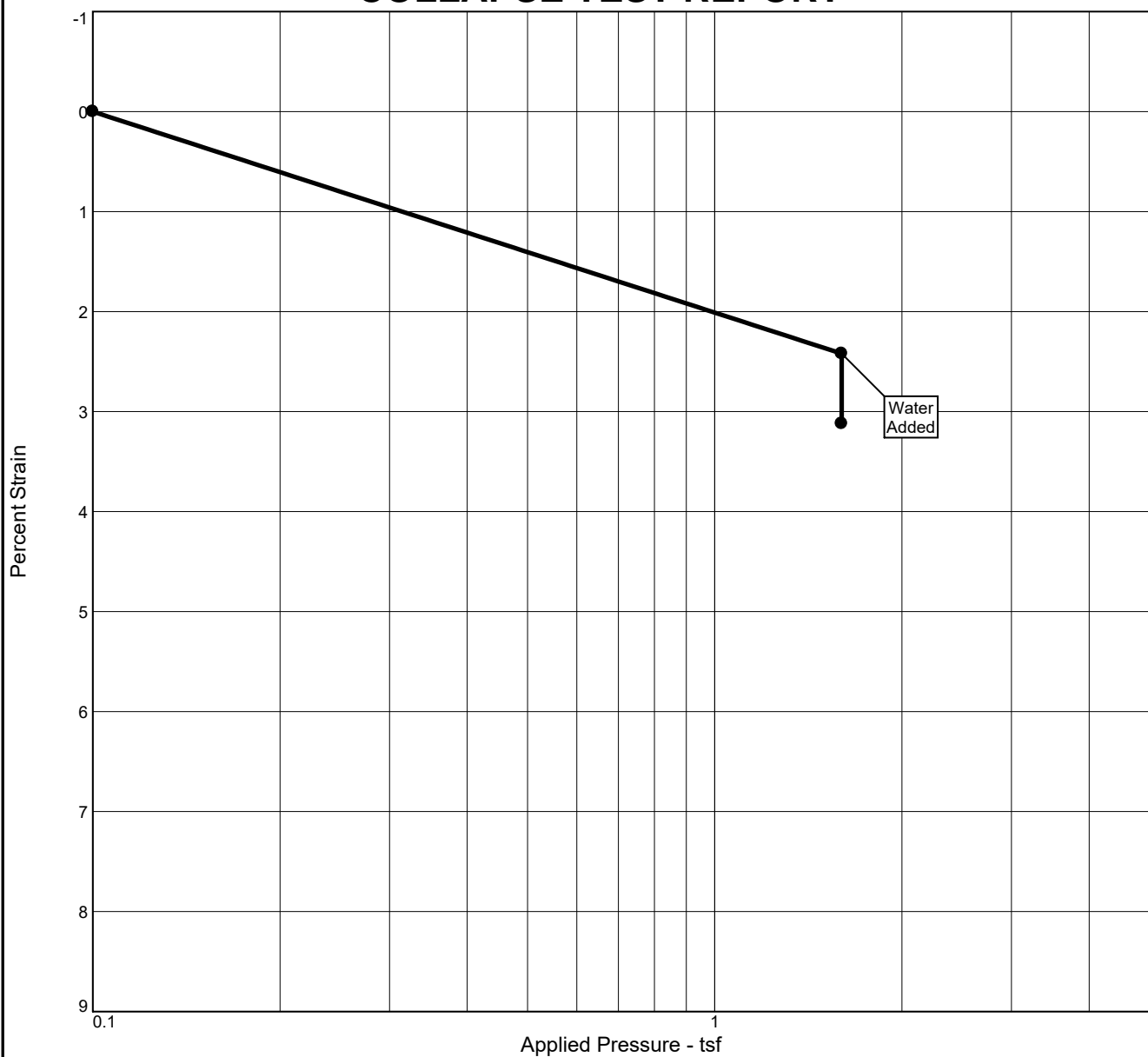
MATERIAL DESCRIPTION	USCS	AASHTO
Silty fine to medium Sand	SM	



PETRA
GEOSCIENCES INC.

Plate B-10

COLLAPSE TEST REPORT



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (tsf)	P _C (tsf)	C _c	C _r	Swell Press. (tsf)	Clpse. %	e _o
Sat.	Moist.											
3.0 %	0.7 %	107.7			2.65	.81					0.7	0.580

MATERIAL DESCRIPTION										USCS	AASHTO
Silty fine to medium Sand											


Project No. 19-309			Client: Robott Land Company			Remarks:
Project: Selina Brand Glamping						
Source of Sample: Consolidation Data			Depth: 7.5		Sample Number: B-4	
<div></div>						
						Plate B-11



Plate B-11

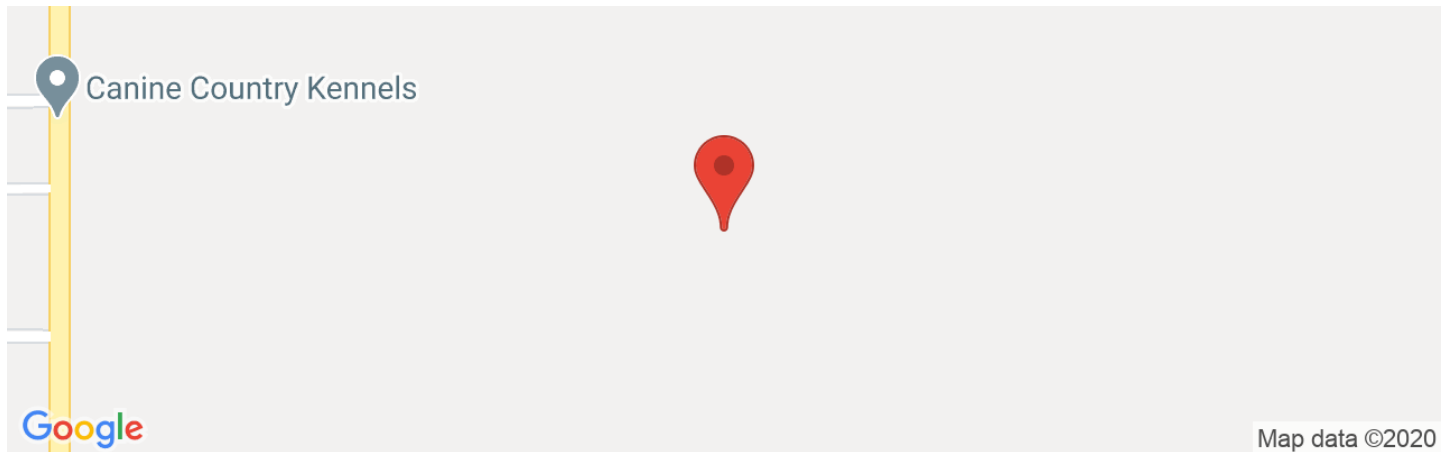
APPENDIX C

SEISMIC DESIGN PARAMETERS



19-309 Selina Glamping

Latitude, Longitude: 34.214848, -116.433234



Date	9/27/2020, 5:29:17 PM
Design Code Reference Document	ASCE7-16
Risk Category	II
Site Class	D - Default (See Section 11.4.3)

Type	Value	Description
S_S	1.95	MCE_R ground motion. (for 0.2 second period)
S_1	0.675	MCE_R ground motion. (for 1.0s period)
S_{MS}	2.34	Site-modified spectral acceleration value
S_{M1}	null -See Section 11.4.8	Site-modified spectral acceleration value
S_{DS}	1.56	Numeric seismic design value at 0.2 second SA
S_{D1}	null -See Section 11.4.8	Numeric seismic design value at 1.0 second SA

Type	Value	Description
SDC	null -See Section 11.4.8	Seismic design category
F_a	1.2	Site amplification factor at 0.2 second
F_v	null -See Section 11.4.8	Site amplification factor at 1.0 second
PGA	0.821	MCE_G peak ground acceleration
F_{PGA}	1.2	Site amplification factor at PGA
PGA_M	0.986	Site modified peak ground acceleration
T_L	8	Long-period transition period in seconds
S_{sRT}	1.95	Probabilistic risk-targeted ground motion. (0.2 second)
S_{sUH}	2.111	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
S_{sD}	2.261	Factored deterministic acceleration value. (0.2 second)
S_{1RT}	0.675	Probabilistic risk-targeted ground motion. (1.0 second)
S_{1UH}	0.741	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S_{1D}	0.802	Factored deterministic acceleration value. (1.0 second)
$PGAd$	0.934	Factored deterministic acceleration value. (Peak Ground Acceleration)
C_{RS}	0.924	Mapped value of the risk coefficient at short periods
C_{R1}	0.911	Mapped value of the risk coefficient at a period of 1 s

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U.S. Geological Survey - Earthquake Hazards Program

Unified Hazard Tool



Please do not use this tool to obtain ground motion parameter values for the design code reference documents covered by the [U.S. Seismic Design Maps web tools](#) (e.g., the International Building Code and the ASCE 7 or 41 Standard). The values returned by the two applications are not identical.

^ Input

Edition

Dynamic: Conterminous U.S. 2014 (upda...

Spectral Period

Peak Ground Acceleration

Latitude

Decimal degrees

34.2244814

Time Horizon

Return period in years

2475

Longitude

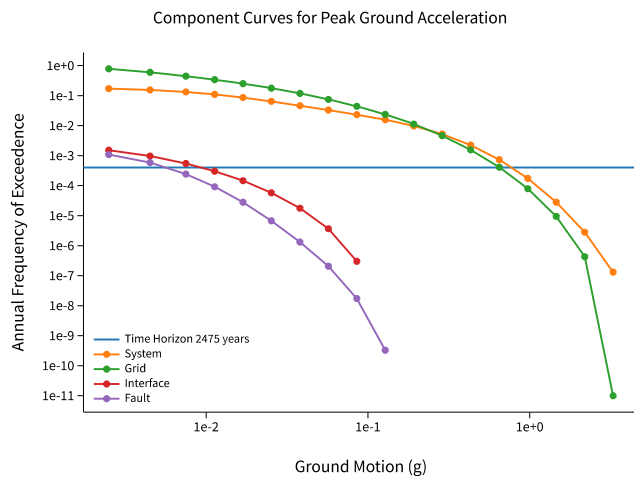
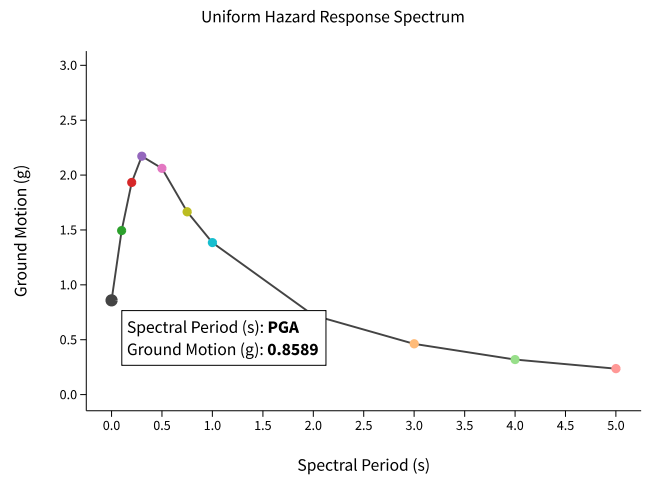
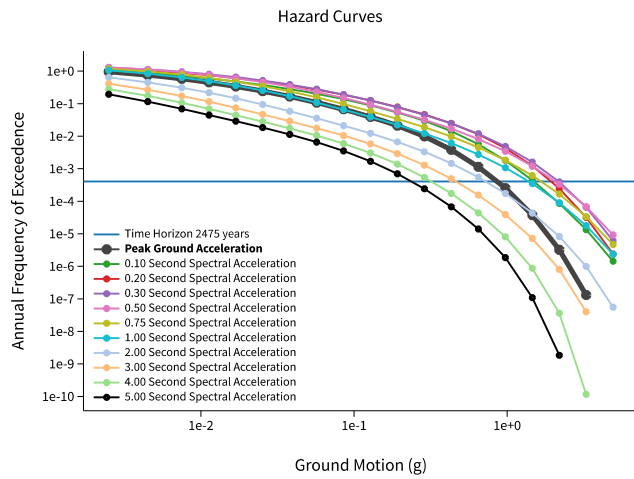
Decimal degrees, negative values for western longitudes

-116.43989902

Site Class

259 m/s (Site class D)

^ Hazard Curve

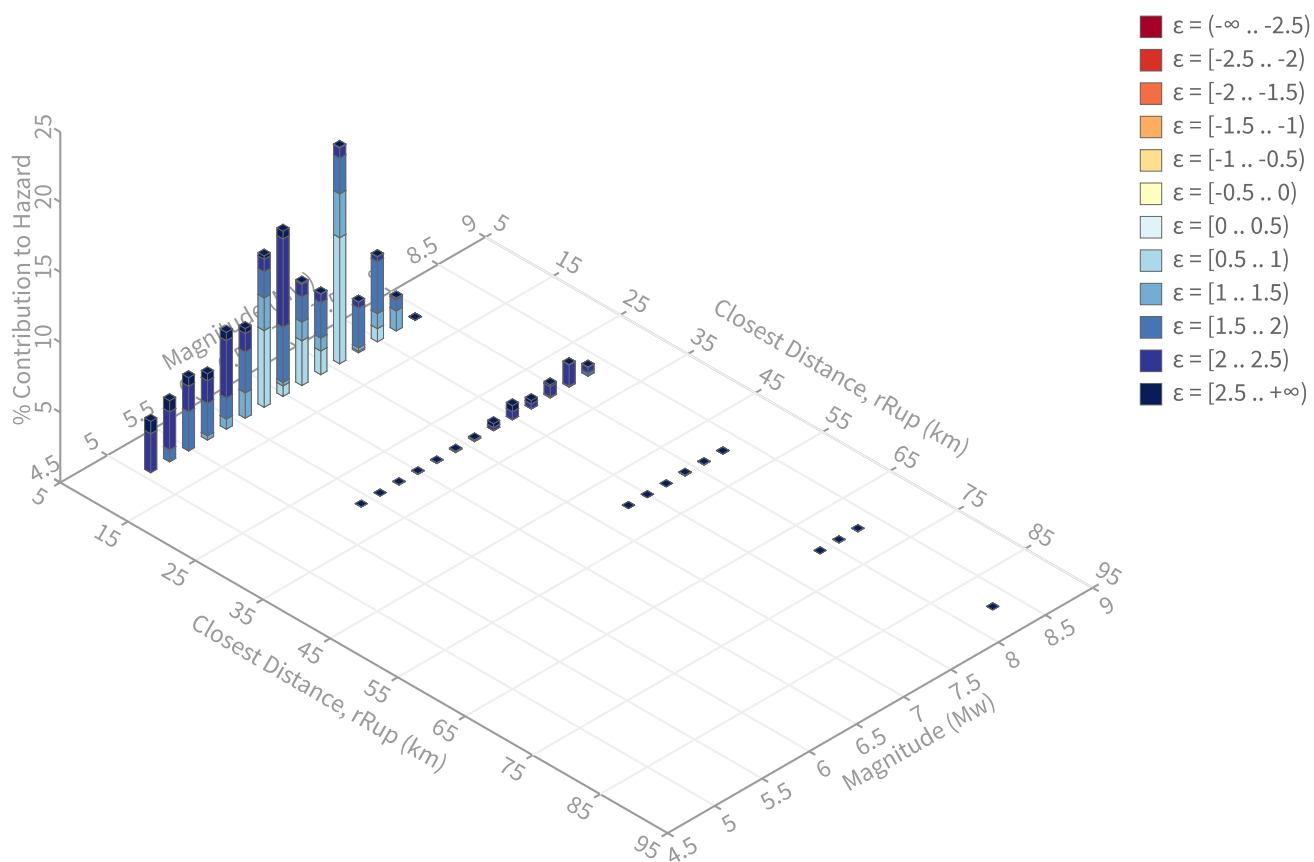


[View Raw Data](#)

Deaggregation

Component

Total



Summary statistics for, Deaggregation: Total

Deaggregation targets

Return period: 2475 yrs
Exceedance rate: 0.0004040404 yr⁻¹
PGA ground motion: 0.85887703 g

Recovered targets

Return period: 3064.1633 yrs
Exceedance rate: 0.00032635336 yr⁻¹

Totals

Binned: 100 %
Residual: 0 %
Trace: 0.03 %

Mean (over all sources)

m: 6.55
r: 8.33 km
ε₀: 1.67 σ

Mode (largest m-r bin)

m: 7.04
r: 3.25 km
ε₀: 1.09 σ
Contribution: 15.42 %

Mode (largest m-r-ε₀ bin)

m: 7.03
r: 1.6 km
ε₀: 0.81 σ
Contribution: 8.99 %

Discretization

r: min = 0.0, max = 1000.0, Δ = 20.0 km
m: min = 4.4, max = 9.4, Δ = 0.2
ε: min = -3.0, max = 3.0, Δ = 0.5 σ

Epsilon keys

ε0: [-∞ .. -2.5)
ε1: [-2.5 .. -2.0)
ε2: [-2.0 .. -1.5)
ε3: [-1.5 .. -1.0)
ε4: [-1.0 .. -0.5)
ε5: [-0.5 .. 0.0)
ε6: [0.0 .. 0.5)
ε7: [0.5 .. 1.0)
ε8: [1.0 .. 1.5)
ε9: [1.5 .. 2.0)
ε10: [2.0 .. 2.5)
ε11: [2.5 .. +∞]

Deaggregation Contributors

Source Set ↴ Source	Type	r	m	ϵ_0	lon	lat	az	%
UC33brAvg_FM31	System							34.84
Johnson Valley (No) 2011 rev [0]		1.60	6.80	1.00	116.438°W	34.224°N	122.38	14.62
Pinto Mtn [3]		10.81	7.42	1.69	116.422°W	34.129°N	171.19	4.23
Homestead Valley 2011 [1]		6.78	6.71	1.63	116.378°W	34.255°N	59.29	3.12
Kickapoo [0]		9.51	6.09	2.16	116.454°W	34.308°N	352.13	1.69
Eureka Peak [2]		12.18	6.48	2.26	116.395°W	34.122°N	159.81	1.65
North Frontal (East) [2]		11.04	7.06	1.69	116.530°W	34.294°N	312.92	1.61
San Andreas (San Gorgonio Pass-Garnet Hill) [4]		32.39	7.93	2.32	116.578°W	33.912°N	200.14	1.53
Burnt Mtn [0]		11.71	6.58	2.12	116.419°W	34.122°N	170.58	1.44
UC33brAvg_FM32	System							34.07
Johnson Valley (No) 2011 rev [0]		1.60	6.80	1.00	116.438°W	34.224°N	122.38	13.67
Pinto Mtn [3]		10.81	7.37	1.72	116.422°W	34.129°N	171.19	4.21
Homestead Valley 2011 [1]		6.78	6.71	1.63	116.378°W	34.255°N	59.29	3.07
Eureka Peak [2]		12.18	6.47	2.26	116.395°W	34.122°N	159.81	1.75
North Frontal (East) [2]		11.04	7.05	1.69	116.530°W	34.294°N	312.92	1.61
Kickapoo [0]		9.51	6.11	2.15	116.454°W	34.308°N	352.13	1.57
San Andreas (San Gorgonio Pass-Garnet Hill) [4]		32.39	7.93	2.32	116.578°W	33.912°N	200.14	1.53
Burnt Mtn [0]		11.71	6.58	2.12	116.419°W	34.122°N	170.58	1.44
Johnson Valley (No) 2011 rev [1]		1.80	6.92	1.00	116.439°W	34.232°N	6.61	1.26
UC33brAvg_FM31 (opt)	Grid							15.54
PointSourceFinite: -116.440, 34.265		6.85	5.62	1.79	116.440°W	34.265°N	0.00	3.57
PointSourceFinite: -116.440, 34.265		6.85	5.62	1.79	116.440°W	34.265°N	0.00	3.57
PointSourceFinite: -116.440, 34.283		8.10	5.67	1.96	116.440°W	34.283°N	0.00	1.72
PointSourceFinite: -116.440, 34.283		8.10	5.67	1.96	116.440°W	34.283°N	0.00	1.72
UC33brAvg_FM32 (opt)	Grid							15.54
PointSourceFinite: -116.440, 34.265		6.85	5.62	1.79	116.440°W	34.265°N	0.00	3.57
PointSourceFinite: -116.440, 34.265		6.85	5.62	1.79	116.440°W	34.265°N	0.00	3.57
PointSourceFinite: -116.440, 34.283		8.10	5.67	1.96	116.440°W	34.283°N	0.00	1.72
PointSourceFinite: -116.440, 34.283		8.10	5.67	1.96	116.440°W	34.283°N	0.00	1.72

APPENDIX D

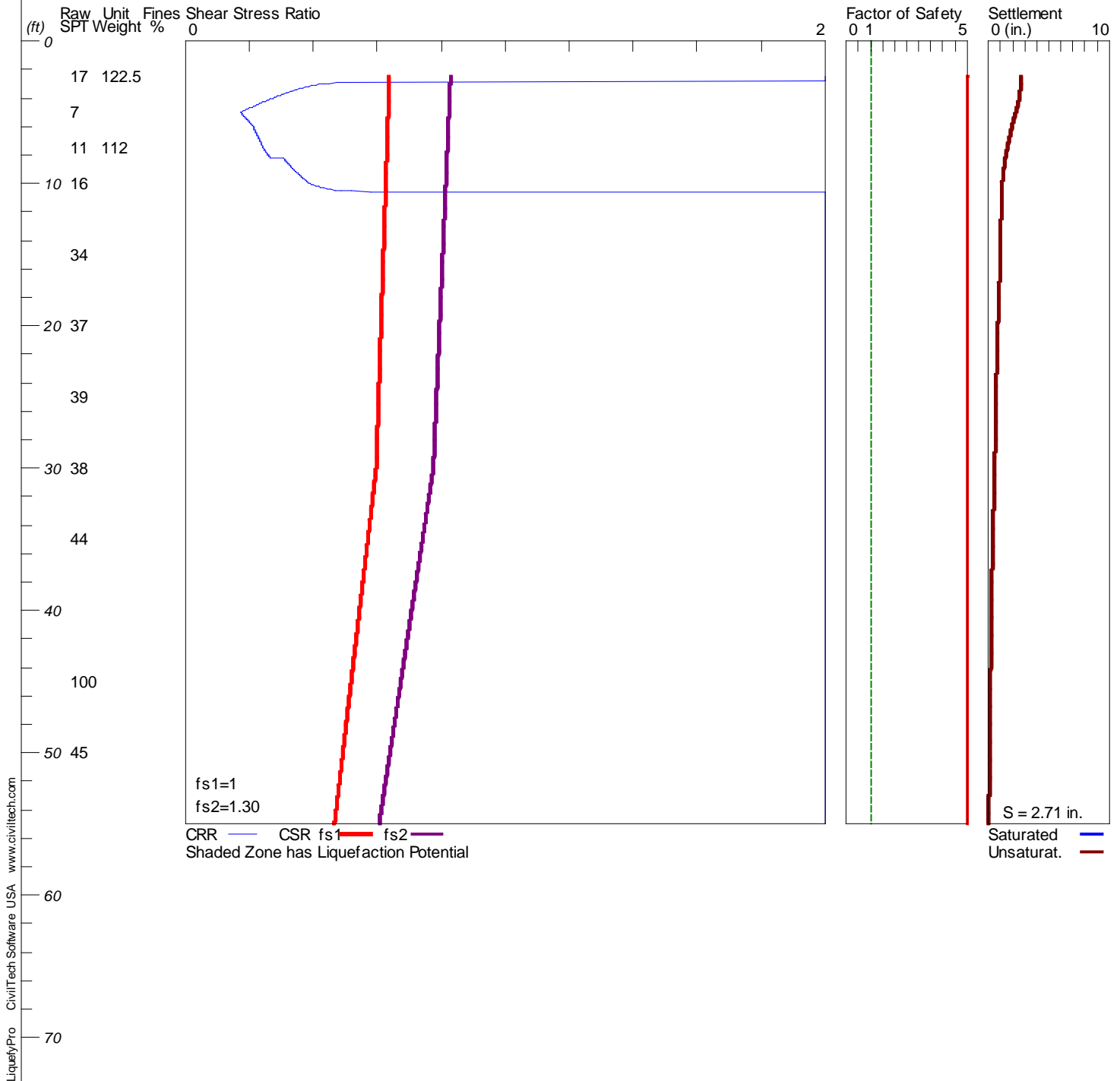
LIQUEFACTION ANALYSIS

DRY SAND SETTLEMENT ANALYSIS

19-309 Selina Glamping

Hole No.=B-1 Water Depth=200 ft Surface Elev.=~3501

Magnitude=7
Acceleration=0.986g



DRY SAND SETTLEMENT ANALYSIS

19-309 Selina Glamping

Hole No.=B-1 Water Depth=200 ft Surface Elev.=~3501

Magnitude=7
Acceleration=0.986g

