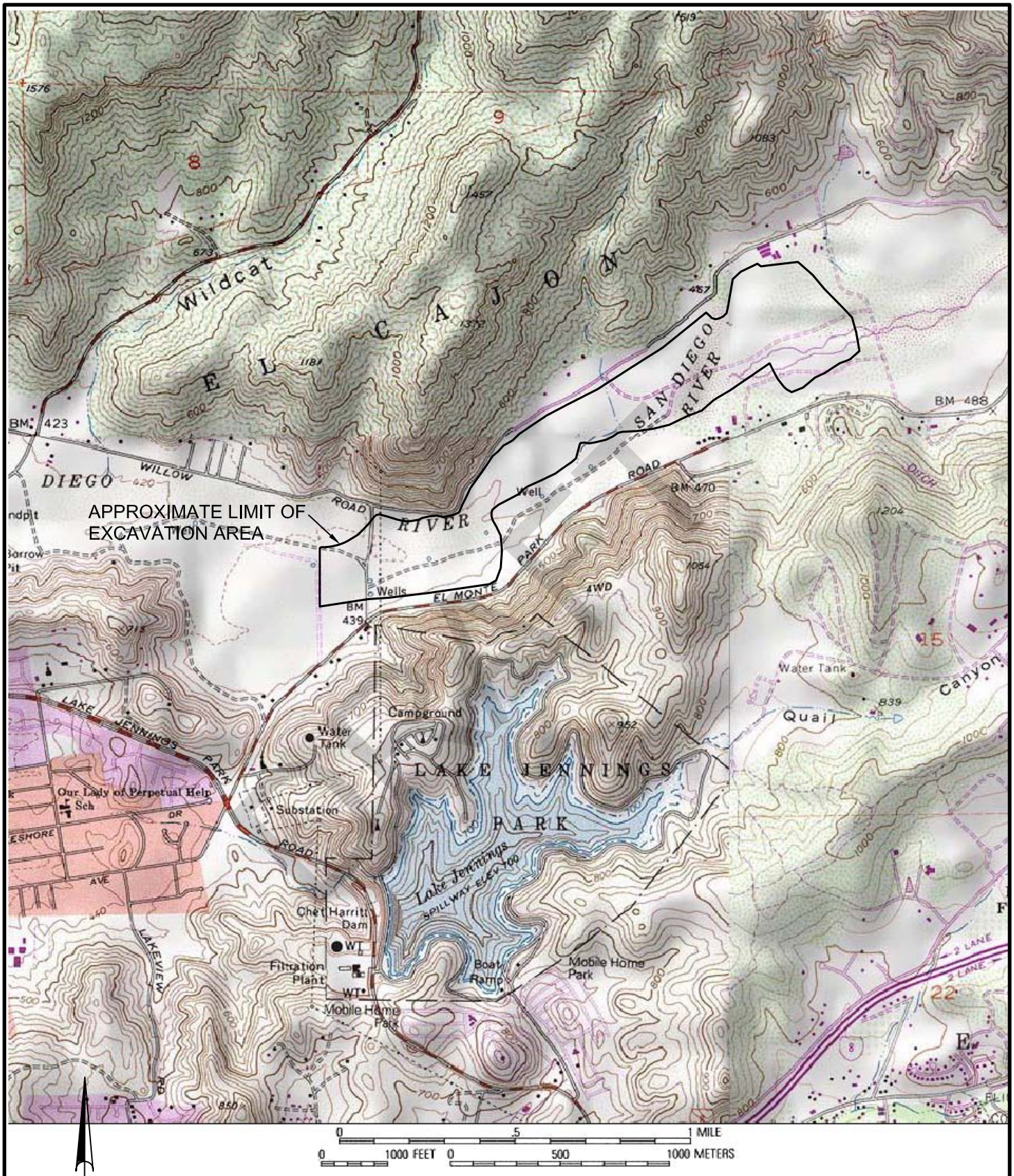
APPENDIX A

MAPS AND CROSS SECTIONS

DRAFT



LOCATION MAP

FOR: EL MONTE NATURE PRESERVE, LLC	SLOPE STABILITY INVESTIGATION PROPOSED EL MONTE SAND MINE AND NATURE PRESERVE PROJECT LAKESIDE, CALIFORNIA	ENCLOSURE "A-1"
DATE: JANUARY 2016		JOB NUMBER 15383-8
		CHJ Consultants

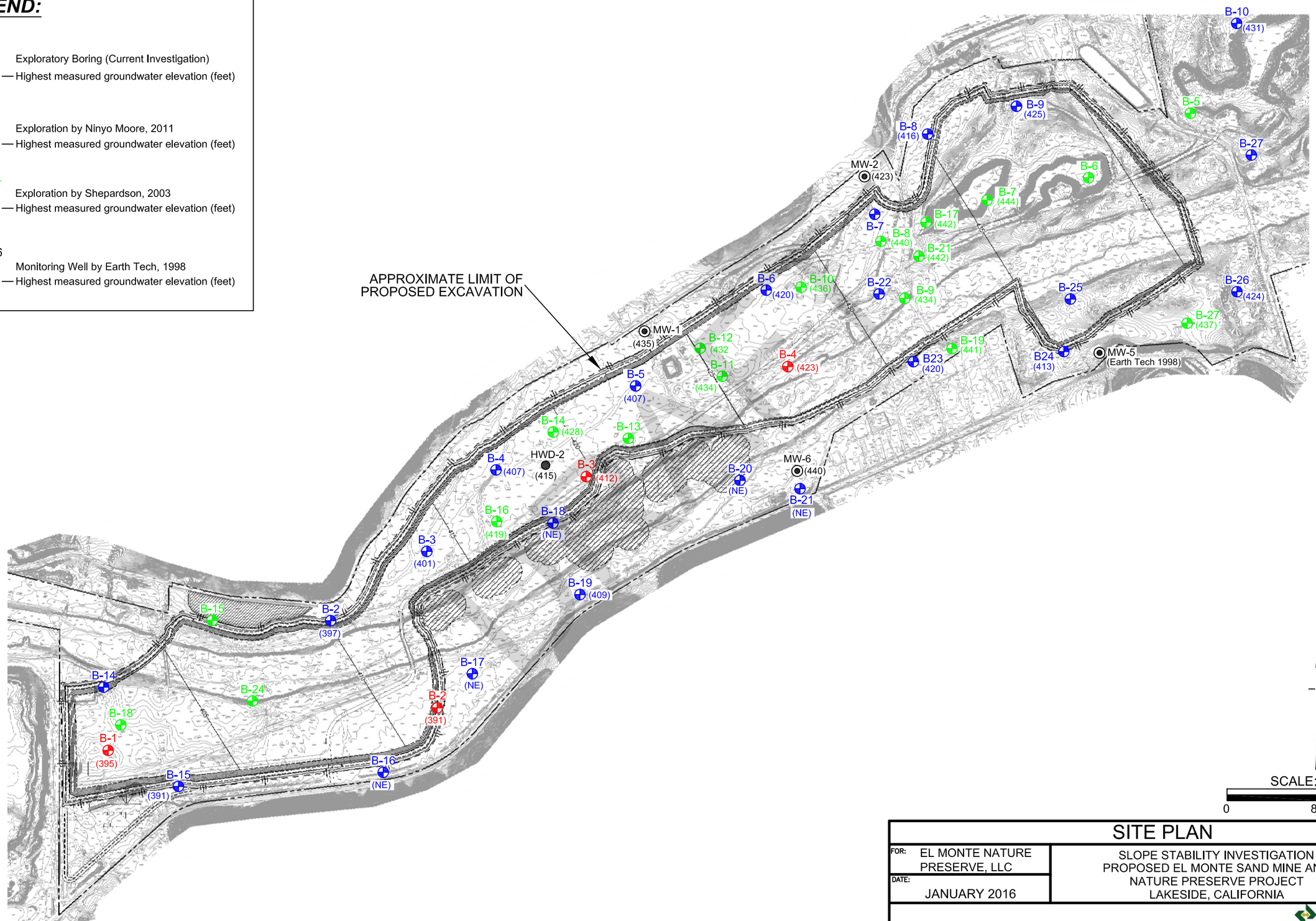
LEGEND:

B-4
(407) — Exploratory Boring (Current Investigation)
Highest measured groundwater elevation (feet)

B-21
(407) — Exploration by Ninyo Moore, 2011
Highest measured groundwater elevation (feet)

B-24
(407) — Exploration by Shepardson, 2003
Highest measured groundwater elevation (feet)

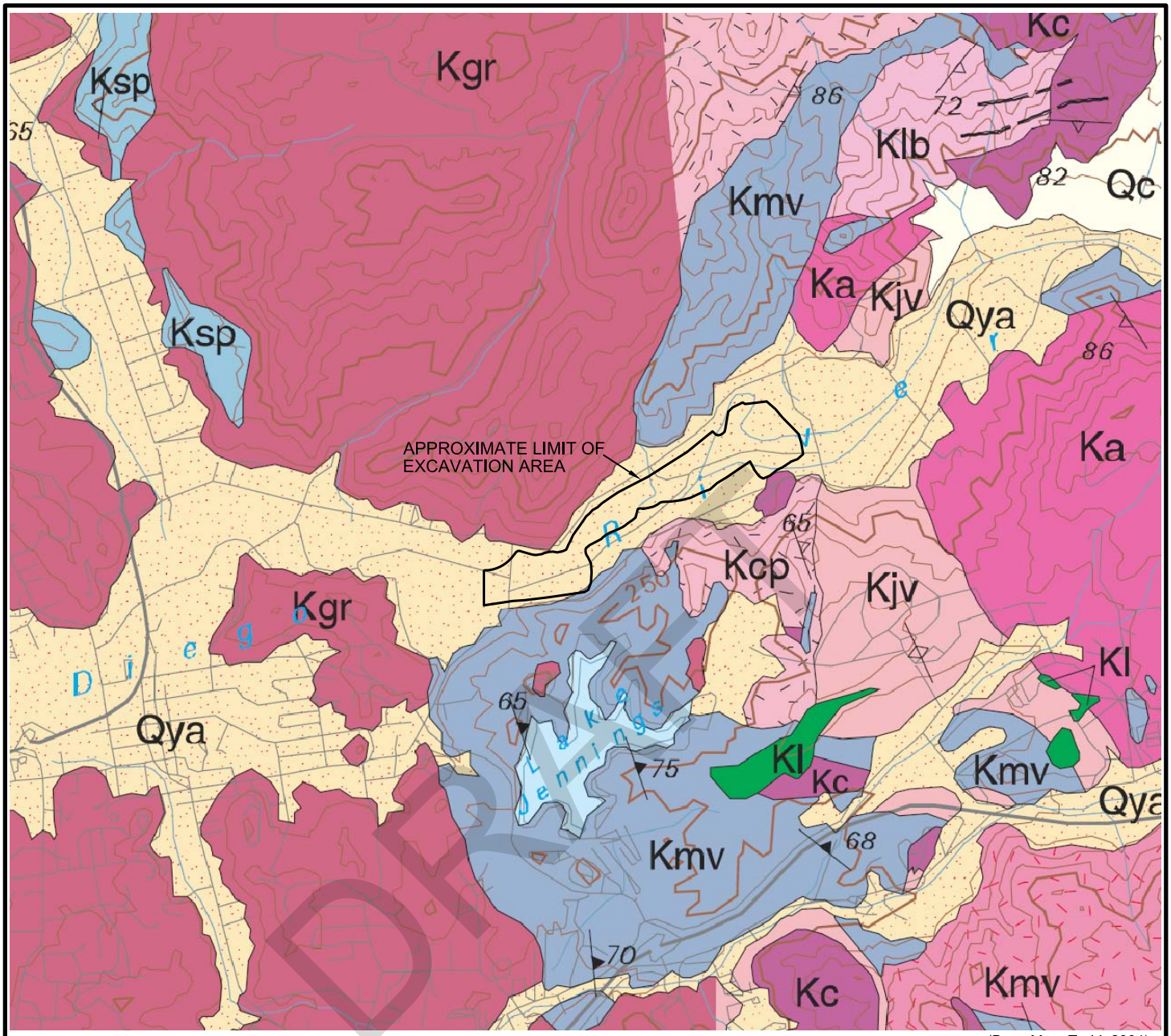
MW-6
(407) — Monitoring Well by Earth Tech, 1998
Highest measured groundwater elevation (feet)



SITE PLAN

FOR: EL MONTE NATURE PRESERVE, LLC	SLOPE STABILITY INVESTIGATION PROPOSED EL MONTE SAND MINE AND NATURE PRESERVE PROJECT LAKESIDE, CALIFORNIA	ENCLOSURE "A-2"
DATE: JANUARY 2016		JOB NUMBER 15383-8

CHJ Consultants



(Base Map: Todd, 2004)

GEOLOGIC UNITS:

Qya - young alluvium
Kcp - Chiquito Peak monzogranite
Kjv - Japatul Valley tonalite
Ka - Tonalite of Alpine
Kgr - granitoid rocks
Kmv - metavolcanic rocks

geologic contact

DRAFT

N

SCALE: 1" = 4000'

GEOLOGIC INDEX MAP

FOR: EL MONTE NATURE PRESERVE, LLC	SLOPE STABILITY INVESTIGATION PROPOSED EL MONTE SAND MINE AND NATURE PRESERVE PROJECT LAKESIDE, CALIFORNIA	ENCLOSURE "A-3"
DATE: JANUARY 2016		JOB NUMBER 15383-8

CHJ Consultants

GEOLOGIC UNITS:

f - fill - Fill associated with prior site use as a borrow area, dirt roads/ tracks, pond/river channel embankments, and golf course development derived from local materials including sand, silt and gravel from young alluvium and topsoil.

Qw - active wash deposits of San Diego River Channel. Primarily medium-to coarse-grained sand with fine-grained sand, silt and gravel. Poorly consolidated.

Qya - young alluvium of San Diego River Valley. Includes sand, silt and gravel derived from granitic and metavolcanic sources of adjacent highlands. Surface locally mantled with brownish-gray micaceous sandy silt. Forms geomorphic bench elevated relative to river channel sediments.

Qoa - older alluvium of isolated terrace. Reddish-brown silty sand with gravel and cobbles forming terrace remnant elevated above Qya surface. Locally with fill and debris along southern margin.

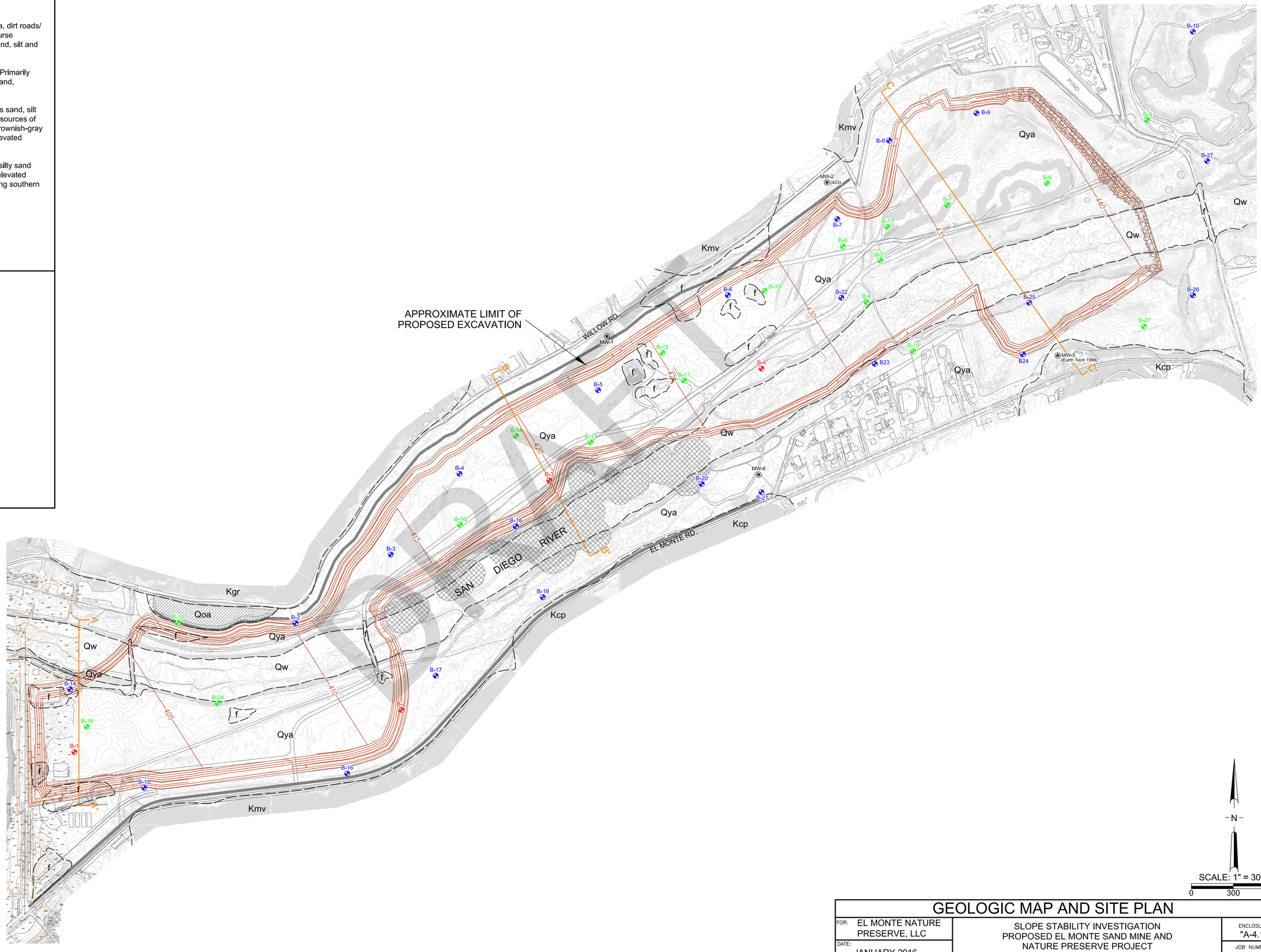
Kmv - metavolcanic bedrock

Kgr - granitic bedrock

Kcp - Chiquito Peak monzogranite

LEGEND:

- B-4 — Exploratory Boring (Current Investigation)
- B-21 — Exploration by Ninyo Moore, 2011
- B-24 — Exploration by Shepardson, 2003
- MW-6 — Monitoring Well by Earth Tech, 1998
- Geologic Contact
- C C' — Geologic Cross Section
- Excavation Area Boundary



N

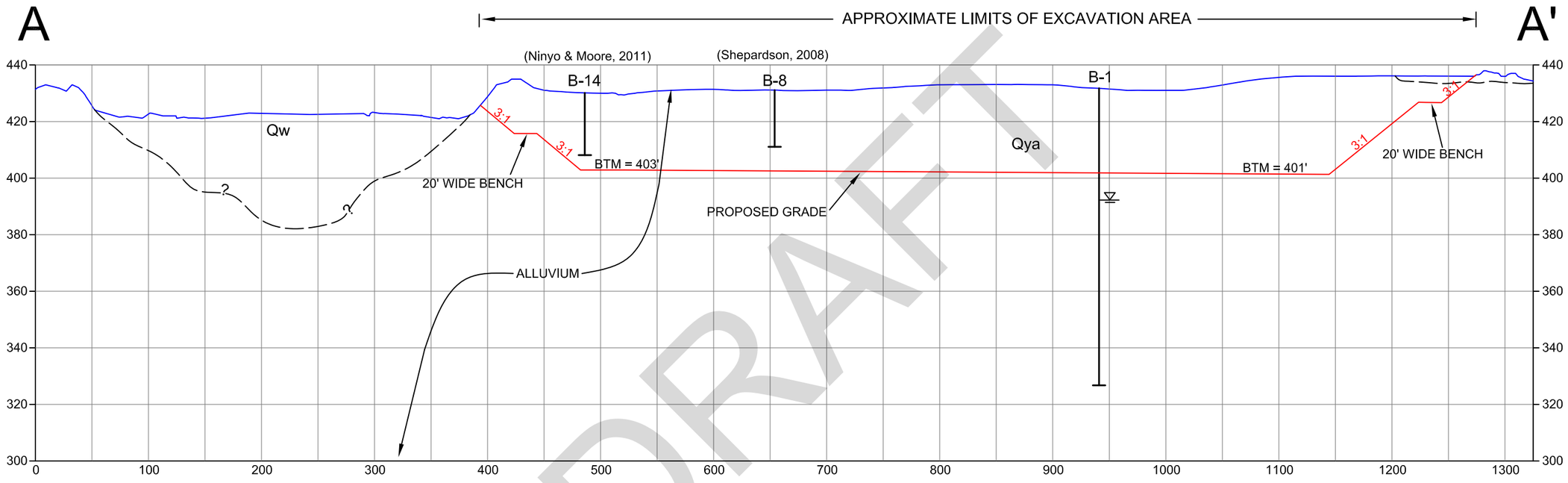
SCALE: 1" = 300'

0 300 600

GEOLOGIC MAP AND SITE PLAN

FOR: EL MONTE NATURE PRESERVE, LLC	SLOPE STABILITY INVESTIGATION PROPOSED EL MONTE SAND MINE AND NATURE PRESERVE PROJECT LAKESIDE, CALIFORNIA	ENCLOSURE "A-4.1"
DATE: JANUARY 2016		JOB NUMBER 15383-8

CHJ Consultants



DRAFT

ELEVATION OF GROUNDWATER IN BORING

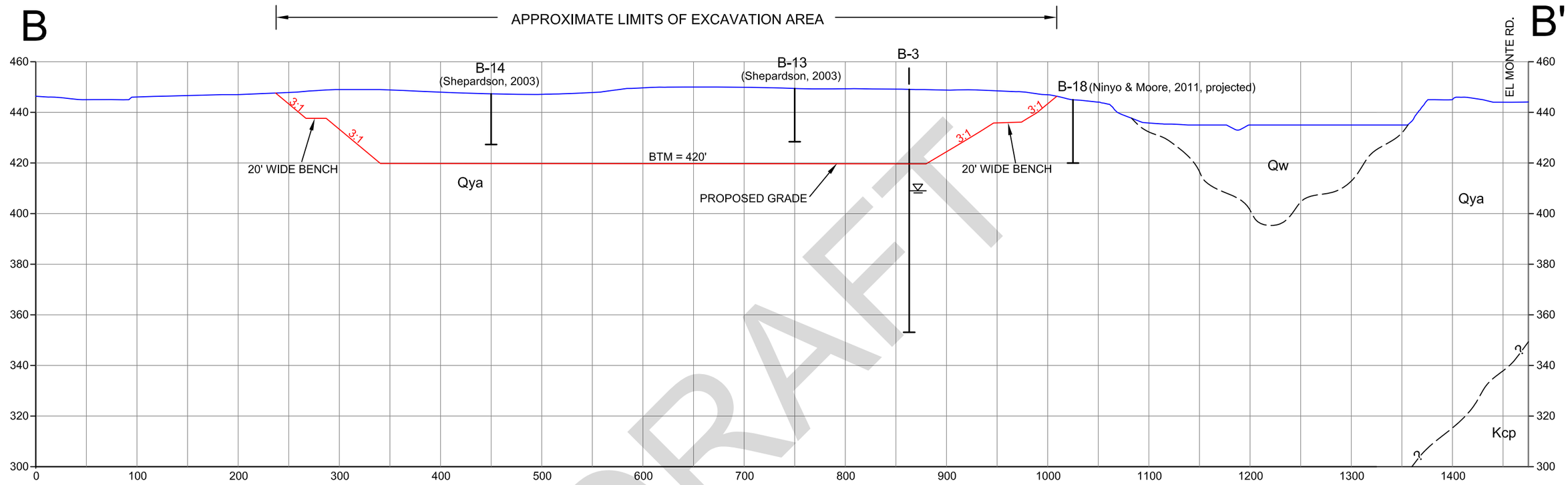
NOTE: SECTION USES VERTICAL EXAGGERATION AT 2.5X

SCALE: V = 40'
H = 100'

GEOLOGIC CROSS SECTION A-A'

FOR: EL MONTE NATURE PRESERVE, LLC	SLOPE STABILITY INVESTIGATION PROPOSED EL MONTE SAND MINE AND NATURE PRESERVE 13964 EL MONTE ROAD LAKESIDE, CALIFORNIA	ENCLOSURE "A-4.2"
DATE: JANUARY 2016		JOB NUMBER 15383-8

CHJ Consultants



DRAFT

ELEVATION OF GROUNDWATER IN BORING

NOTE: SECTION USES VERTICAL EXAGGERATION AT 2.5X

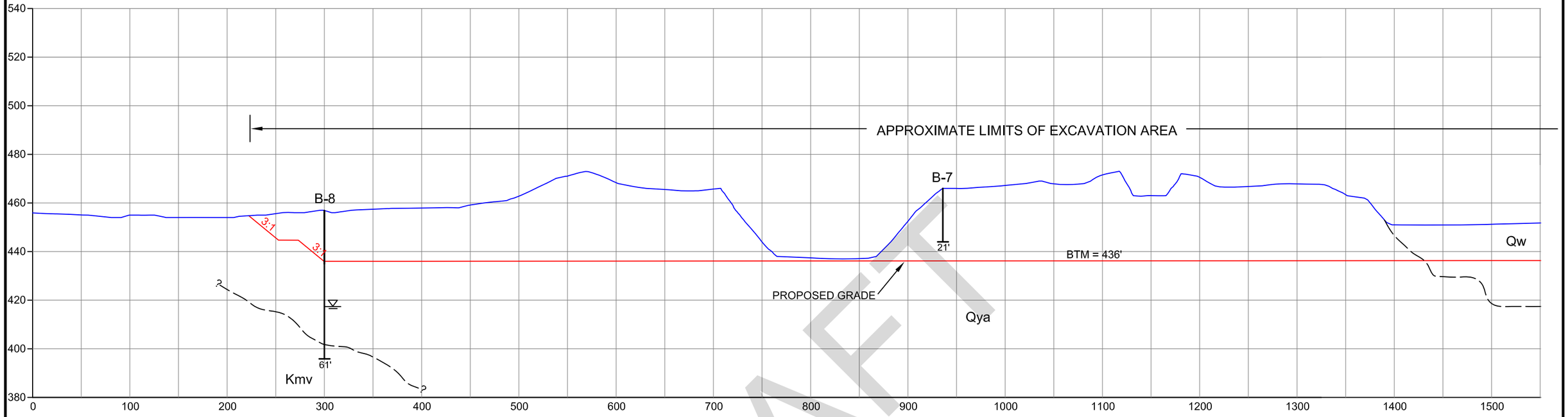
SCALE: V = 40'
H = 100'

GEOLOGIC CROSS SECTION B-B'

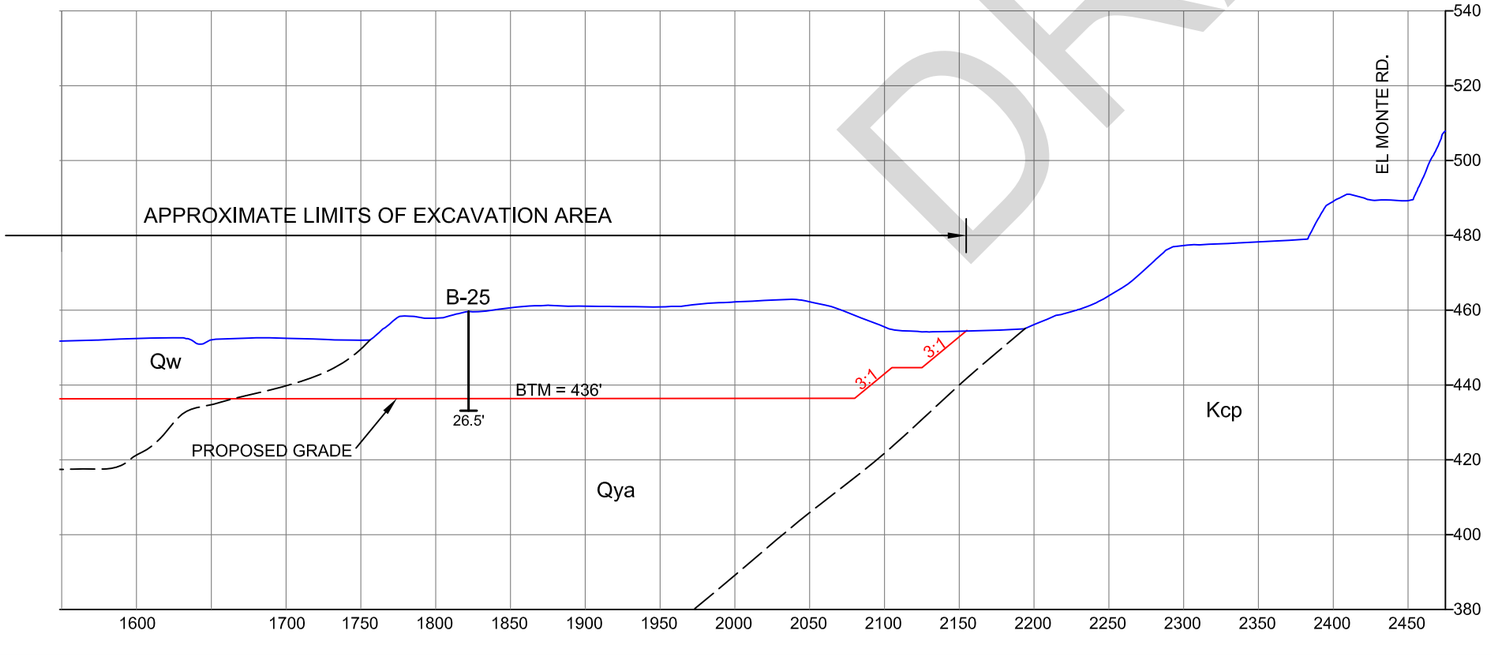
FOR: EL MONTE NATURE PRESERVE, LLC	SLOPE STABILITY INVESTIGATION PROPOSED EL MONTE SAND MINE AND NATURE PRESERVE 13964 EL MONTE ROAD LAKESIDE, CALIFORNIA	ENCLOSURE "A-4.3"
DATE: JANUARY 2016		JOB NUMBER 15383-8

CHJ Consultants

C



C'



ELEVATION OF GROUNDWATER IN BORING

NOTE: SECTION USES VERTICAL EXAGGERATION AT 2.5X

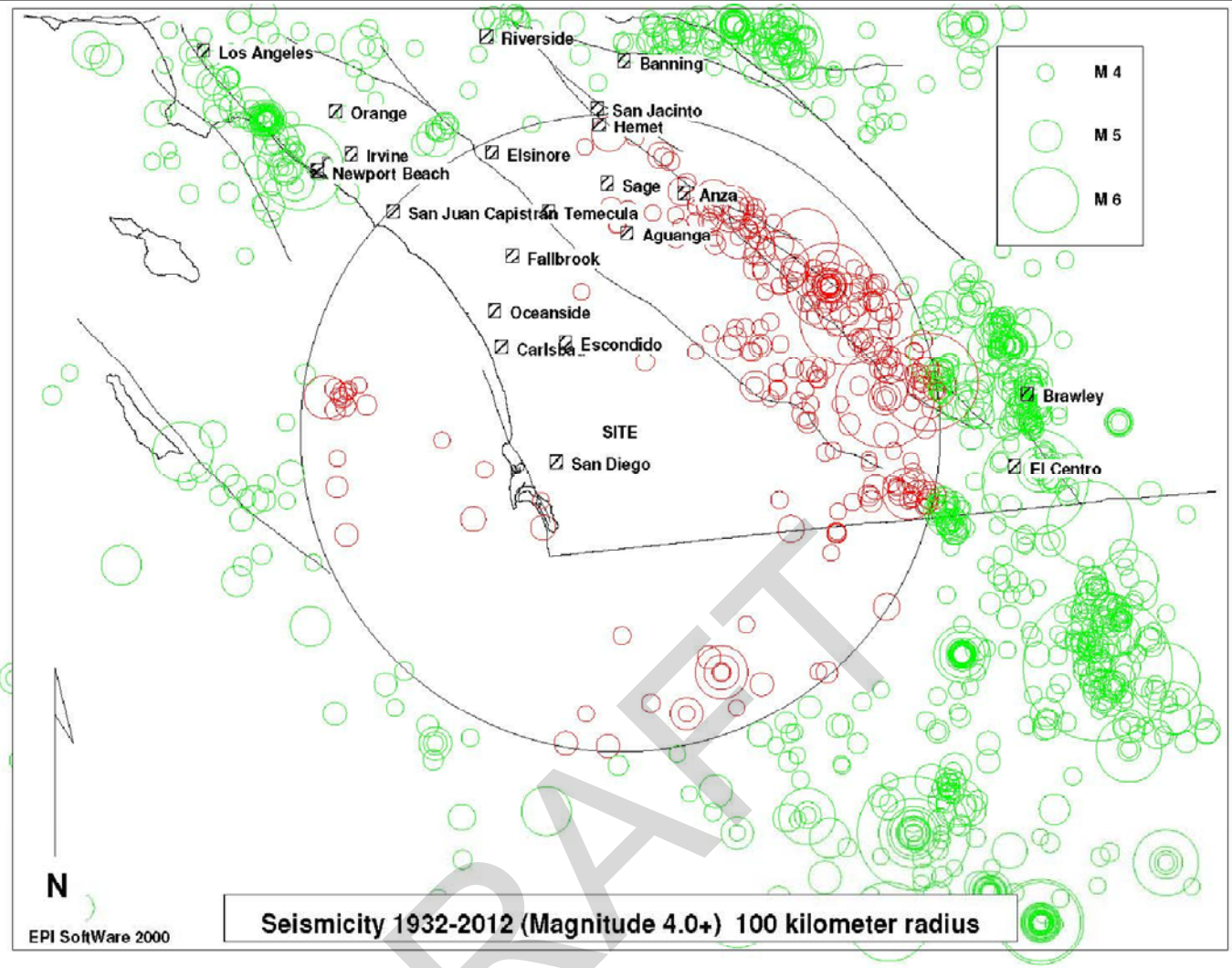
SCALE: V = 40'
H = 100'

GEOLOGIC CROSS SECTION C-C'

FOR: EL MONTE NATURE PRESERVE, LLC	SLOPE STABILITY INVESTIGATION PROPOSED EL MONTE SAND MINE AND NATURE PRESERVE 13964 EL MONTE ROAD LAKESIDE, CALIFORNIA	ENCLOSURE "A-4.4"
DATE: JANUARY 2016		JOB NUMBER 15383-8

CHJ Consultants

DRAFT



DRAFT

SITE LOCATION: 32.8723 LAT. -116.8863 LONG.

MINIMUM LOCATION QUALITY: C

TOTAL # OF EVENTS ON PLOT: 1373

TOTAL # OF EVENTS WITHIN SEARCH RADIUS: 310

MAGNITUDE DISTRIBUTION OF SEARCH RADIUS EVENTS:

4.0- 4.9 : 283
5.0- 5.9 : 22
6.0- 6.9 : 5
7.0- 7.9 : 0
8.0- 8.9 : 0

0 50 100
KILOMETERS

CLOSEST EVENT: 4.2 ON WEDNESDAY, DECEMBER 04, 1991 LOCATED APPROX. 23 KILOMETERS NORTH OF THE SITE

LARGEST 5 EVENTS:

6.6 ON TUESDAY, NOVEMBER 24, 1987 LOCATED APPROX. 97 KILOMETERS EAST OF THE SITE
6.6 ON WEDNESDAY, OCTOBER 21, 1942 LOCATED APPROX. 83 KILOMETERS EAST OF THE SITE
6.5 ON TUESDAY, APRIL 09, 1968 LOCATED APPROX. 78 KILOMETERS NORTHEAST OF THE SITE
6.4 ON FRIDAY, MARCH 19, 1954 LOCATED APPROX. 79 KILOMETERS NORTHEAST OF THE SITE
6.0 ON THURSDAY, MARCH 25, 1937 LOCATED APPROX. 83 KILOMETERS NORTHEAST OF THE SITE

EARTHQUAKE EPICENTER MAP

FOR: EL MONTE NATURE PRESERVE, LLC	SLOPE STABILITY INVESTIGATION PROPOSED EL MONTE SAND MINE AND NATURE PRESERVE PROJECT LAKESIDE, CALIFORNIA	ENCLOSURE "A-5"
DATE: JANUARY 2016		JOB NUMBER 15383-8

CHJ Consultants

APPENDIX B

BORING LOGS

DRAFT

EXPLORATORY BORING NO. 1

Date Drilled: 8/17/15 Client: El Monte NP

Equipment: CME75 Truck Rig Driving Weight / Drop / Sampler Size: 140lbs./30in./3.0" O.D.

Surface Elevation(ft): 435 Logged by: VJR Measured Depth to Water(ft): 40.1

DEPTH (ft)	GRAPHIC LOG	VISUAL CLASSIFICATION	REMARKS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/6 IN.	FIELD MOISTURE (%)	DRY UNIT WT. (pcf)	LAB/FIELD TESTS
		(SM) Silty Sand, fine to medium, few gravel to 2", dark brown	Native	X		8 8 8	2.4	Dist.	Ring
					▨		2.5		
		(SP-SM) Sand, fine to coarse, with silt and gravel to 2", dark brown	Auger Chatter	X		11 19 22	1.2	Dist.	Ring
5					▨		2.6		SA
10				X		7 9 14	2.5	117	Ring
15				X		6 10 14	4.5	104	Ring
20				X		11 11 15	2.1	108	DS, Ring
25		(SM) Silty Sand, fine to medium, dark grayish brown		X		3 7 13	8.0 23.9	117	Ring
30		(SP-SM) Sand, fine to coarse, with silt and few gravel to 1/2", light brownish gray	Iron Oxide Staining	X		6 11 15	2.8 4.1	106	Ring

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10331-3 15383-8.GPJ CHJ.GDT 9/10/15

CHJ

SLOPE STABILITY INVESTIGATION
13964 EL MONTE ROAD, LAKESIDE, CALIFORNIA

Job No. 15383-8 Enclosure B-1a

EXPLORATORY BORING NO. 1

Date Drilled: 8/17/15 Client: El Monte NP

Equipment: CME75 Truck Rig Driving Weight / Drop / Sampler Size: 140lbs./30in./3.0" O.D.

Surface Elevation(ft): 435 Logged by: VJR Measured Depth to Water(ft): 40.1

DEPTH (ft)	GRAPHIC LOG	VISUAL CLASSIFICATION	REMARKS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/6 IN.	FIELD MOISTURE (%)	DRY UNIT WT. (pcf)	LAB/FIELD TESTS
		(SP-SM) Sand, fine to coarse, with silt and few gravel to 1/2", light brownish gray		X		9 14 16	4.1	107	Ring
40		(SM) Silty Sand, fine to medium with coarse, grayish brown	▼ Groundwater	X		8 11 16	23.0 28.7	103	Ring
45			Sand Plug	X		5 6 9	25.7	97	Ring
50				X		4 9 21	24.7	99	Ring
55		(SP-SM) Sand, fine to coarse, with silt and gravel to 1", dark olive gray	Sand Plug	X		5 11 14	11.9	115	Ring
60				X		8 15 28	10.5 17.4	124	Ring
65				X		12 16 21	15.4	113	Ring

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10331-3 15383-8.GPJ CHJ.GDT 9/10/15

CHJ

SLOPE STABILITY INVESTIGATION
13964 EL MONTE ROAD, LAKESIDE, CALIFORNIA

Job No. 15383-8 Enclosure B-1b

EXPLORATORY BORING NO. 1

Date Drilled: 8/17/15 Client: El Monte NP

Equipment: CME75 Truck Rig Driving Weight / Drop / Sampler Size: 140lbs./30in./3.0" O.D.

Surface Elevation(ft): 435 Logged by: VJR Measured Depth to Water(ft): 40.1

DEPTH (ft)	GRAPHIC LOG	VISUAL CLASSIFICATION	REMARKS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/6 IN.	FIELD MOISTURE (%)	DRY UNIT WT. (pcf)	LAB/FIELD TESTS
		(SP-SM) Sand, fine to coarse, with silt and gravel to 1", dark olive gray		X		6 10 16	N.R.	N.R.	Ring
75		(SM) Silty Sand, fine to medium, with gravel to 2", black	Gravel lens	X	▨	8 17 25	14.4 21.3	118	Ring
80		(SP-SM) Sand, fine to coarse, with silt and gravel to 1", dark yellowish olive		X	▨	18 23 27	9.3 10.3	149	Ring
85		(SM) Silty Sand, fine to coarse, with clay and gravel to 2", gray [Consolidated Sediment]	Very Hard drilling, chatter	X		23 50/1"	17.9	110	Ring
90				X		17 38 50/3"	18.6	116	DS, Ring
95				X		50/5"	13.5	127	Ring
100		END OF BORING AT 105.25'		X		30 50/4"	21.6	115	Ring
		NO REFUSAL, NO FILL, NO BEDROCK MODERATE CAVING IN UPPER 10' GROUNDWATER AT 40'		X		50/2"	N.R.	N.R.	Ring

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10331-3 15383-8.GPJ CHJ.GDT 9/10/15

CHJ

SLOPE STABILITY INVESTIGATION
13964 EL MONTE ROAD, LAKESIDE, CALIFORNIA

Job No. 15383-8 Enclosure B-1c

EXPLORATORY BORING NO. 2

Date Drilled: 8/19/15 Client: El Monte NP

Equipment: CME75 Truck Rig Driving Weight / Drop / Sampler Size: 140lbs./30in./3.0" O.D.

Surface Elevation(ft): 440 Logged by: VJR Measured Depth to Water(ft): 42.3

DEPTH (ft)	GRAPHIC LOG	VISUAL CLASSIFICATION	REMARKS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/6 IN.	FIELD MOISTURE (%)	DRY UNIT WT. (pcf)	LAB/FIELD TESTS
		(SM) Silty Sand, fine with medium, brown	Native	X		2 3 3	2.1	92	Ring
					▨		2.8		
5		(SP-SM) Sand, fine to coarse, with silt and gravel to 1", light olive brown		X		4 8 8	1.5	Dist.	Ring
					▨		2.0		
10				X		5 9 13	5.3	98	Ring
15				X		6 8 11	3.3	101	Ring
20		(SM) Silty Sand, fine to medIum, dark grayish brown		X		4 6 7	18.0	97	Ring
					▨		12.4		SA
25				X		4 5 8	19.7	92	Ring
30		(SP-SM) Sand, fine to coarse, with silt, light olive brown		X		7 10 17	2.7	104	Ring
					▨		2.8		

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10331-3 15383-8.GPJ CHJ.GDT 9/10/15

CHJ

SLOPE STABILITY INVESTIGATION
13964 EL MONTE ROAD, LAKESIDE, CALIFORNIA

Job No. 15383-8

Enclosure B-2a

EXPLORATORY BORING NO. 2

Date Drilled: 8/19/15 Client: El Monte NP

Equipment: CME75 Truck Rig Driving Weight / Drop / Sampler Size: 140lbs./30in./3.0" O.D.

Surface Elevation(ft): 440 Logged by: VJR Measured Depth to Water(ft): 42.3

DEPTH (ft)	GRAPHIC LOG	VISUAL CLASSIFICATION	REMARKS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/6 IN.	FIELD MOISTURE (%)	DRY UNIT WT. (pcf)	LAB/FIELD TESTS
		(SM) Silty Sand, fine to medium, few clay, olive gray		X	▨	7 9 11	11.8 12.0	88	Ring
40				X		4 7 8	33.0	88	Ring
		(SP-SM) Sand, fine to coarse, with silt and gravel to 1", dark olive gray	▼ Groundwater Auger Chatter						
45				X	▨	6 11 15	21.0 19.5	100	DS, Ring
50		(SM) Silty Sand, fine to medium, few clay, gray		X	▨	2 7 14	27.4 27.2	95	Ring
55				X		3 6 7	35.1	87	Ring
60				X		3 7 12	30.5	91	DS, Ring
65				X		6 17 28	22.0	106	Ring
		(SP-SM) Sand, fine to coarse, with silt, dark gray							

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10331-3 15383-8.GPJ CHJ.GDT 9/10/15

CHJ

SLOPE STABILITY INVESTIGATION
13964 EL MONTE ROAD, LAKESIDE, CALIFORNIA

Job No. 15383-8 Enclosure B-2b

EXPLORATORY BORING NO. 2

Date Drilled: 8/19/15 Client: El Monte NP

Equipment: CME75 Truck Rig Driving Weight / Drop / Sampler Size: 140lbs./30in./3.0" O.D.

Surface Elevation(ft): 440 Logged by: VJR Measured Depth to Water(ft): 42.3

DEPTH (ft)	GRAPHIC LOG	VISUAL CLASSIFICATION	REMARKS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/6 IN.	FIELD MOISTURE (%)	DRY UNIT WT. (pcf)	LAB/FIELD TESTS
		(SP-SM) Sand, fine to coarse, with silt, dark gray		X		7 12 18	20.9 22.0	107	Ring
75			Sand Plug	X		10 21 45	24.2	101	Ring
80				X		10 12 50/5"	13.9	123	Ring
		(SM) Silty Sand, fine to coarse, with clay and gravel to 2", gray [Consolidated Sediment]	Very Hard Drilling						
85				X		50/4"	N.R.	N.R.	Ring
					X				
90		END OF BORING		X		50/3"	N.R.	N.R.	Ring
		NO REFUSAL, NO FILL, NO BEDROCK SLIGHT CAVING IN UPPER 10' GROUNDWATER AT 42.25'							
95									
100									

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10331-3 15383-8.GPJ CHJ.GDT 9/10/15

CHJ

SLOPE STABILITY INVESTIGATION
13964 EL MONTE ROAD, LAKESIDE, CALIFORNIA

Job No. 15383-8

Enclosure B-2c

EXPLORATORY BORING NO. 3

Date Drilled: 8/18/15 Client: El Monte NP

Equipment: CME75 Truck Rig Driving Weight / Drop / Sampler Size: 140lbs./30in./2.0" O.D.

Surface Elevation(ft): 448 Logged by: VJR Measured Depth to Water(ft): 42.3

DEPTH (ft)	GRAPHIC LOG	VISUAL CLASSIFICATION	REMARKS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/6 IN.	FIELD MOISTURE (%)	DRY UNIT WT. (pcf)	LAB/FIELD TESTS
		(SM) Silty Sand, fine, brown	Native	X		5 6 5			Pass #200, SPT
					▨		2.6		
5		(SP) Sand, fine to coarse, few gravel to 1/2", dark brown		X		2 2 3			Pass #200, SPT
10				X		2 2 2			Pass #200, SPT
					▨		1.9		
15				X		1 2 3			Pass #200, SPT
20				X		4 4 3			Pass #200, SPT
25		(ML) Sandy Silt, fine with medium, dark brown		X		3 3 4			Pass #200, SPT
30		(SP-SM) Sand, fine to coarse, with silt and few gravel to 1/2", light yellowish brown		X		3 5 6			Pass #200, SPT

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10331-3 15383-8.GPJ CHJ.GDT 9/10/15

CHJ

SLOPE STABILITY INVESTIGATION
13964 EL MONTE ROAD, LAKESIDE, CALIFORNIA

Job No. 15383-8

Enclosure B-3a

EXPLORATORY BORING NO. 3

Date Drilled: 8/18/15 Client: El Monte NP

Equipment: CME75 Truck Rig Driving Weight / Drop / Sampler Size: 140lbs./30in./2.0" O.D.

Surface Elevation(ft): 448 Logged by: VJR Measured Depth to Water(ft): 42.3

DEPTH (ft)	GRAPHIC LOG	VISUAL CLASSIFICATION	REMARKS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/6 IN.	FIELD MOISTURE (%)	DRY UNIT WT. (pcf)	LAB/FIELD TESTS
		(SP) Sand, fine to coarse, few gravel to 1/2", light yellowish brown		X		3 1 3			Pass #200, SPT
		(ML) Sandy Silt, fine, with clay, olive brown	Iron Oxide Staining						
40		(ML) Sandy Silt, fine to coarse, with clay and gravel to 1", dark grayish brown	Interbedded sand and silt lenses ▼ Groundwater	X		3 3 2			DS, Pass #200, SPT
45		(SM) Silty Sand, fine to medium with coarse, grayish brown		X		3 6 8			Pass #200, SPT
50			Interbedded coarse sand lenses	X		4 9 11			Pass #200, SPT
55				X		3 5 5			Pass #200, SPT
60		(SM) Silty Sand, fine with medium, black		X		3 5 5			Pass #200, SPT
65		(SP-SM) Sand, fine to coarse, with silt and gravel to 1/2", black		X		4 7 12			Pass #200, SPT

DRAFT

10331-3 15383-8.GPJ CHJ.GDT 9/10/15

CHJ

SLOPE STABILITY INVESTIGATION
13964 EL MONTE ROAD, LAKESIDE, CALIFORNIA

Job No. 15383-8

Enclosure B-3b

EXPLORATORY BORING NO. 3

Date Drilled: 8/18/15 Client: El Monte NP

Equipment: CME75 Truck Rig Driving Weight / Drop / Sampler Size: 140lbs./30in./2.0" O.D.

Surface Elevation(ft): 448 Logged by: VJR Measured Depth to Water(ft): 42.3

DEPTH (ft)	GRAPHIC LOG	VISUAL CLASSIFICATION	REMARKS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/6 IN.	FIELD MOISTURE (%)	DRY UNIT WT. (pcf)	LAB/FIELD TESTS
		(SP-SM) Sand, fine to coarse, with silt and gravel to 1/2", black	Sand Plug	X		2 4 5			Pass #200, SPT
75				X		5 7 10			Pass #200, SPT
80				X		9 10 14			Pass #200, SPT
85				X		6 9 13			Pass #200, SPT
		(SM) Silty Sand, fine to coarse, with clay and gravel to 2", gray [Consolidated Sediment]	Very Hard Drilling						
90				X		39 43 25			Pass #200, SPT
				X		11 12 18			Pass #200, SPT
95		END OF BORING PRACTICAL REFUSAL ON HARD SOIL NO BEDROCK, NO FILL, SLIGHT CAVING GROUNDWATER AT 42.25'							
100									

DRAFT

10331-3 15383-8.GPJ CHJ.GDT 9/10/15

CHJ

SLOPE STABILITY INVESTIGATION
13964 EL MONTE ROAD, LAKESIDE, CALIFORNIA

Job No. 15383-8

Enclosure B-3c

EXPLORATORY BORING NO. 4

Date Drilled: 8/18/15 Client: El Monte NP

Equipment: CME75 Truck Rig Driving Weight / Drop / Sampler Size: 140lbs./30in./3.0" O.D.

Surface Elevation(ft): 443 Logged by: VJR Measured Depth to Water(ft): 36.7

DEPTH (ft)	GRAPHIC LOG	VISUAL CLASSIFICATION	REMARKS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/6 IN.	FIELD MOISTURE (%)	DRY UNIT WT. (pcf)	LAB/FIELD TESTS
		(SM) Silty Sand, fine, brown	Native	X		9 15 19	4.1	108	Ring
					▨		4.8		
5		(SM) Silty Sand, fine to medium, dark yellowish brown		X		5 7 9	5.1	104	Ring
10				X		6 11 11	6.3	107	Ring
					▨		6.4		SA
15				X		4 5 6	4.3	99	DS, Ring
20		(SP-SM) Sand, fine to coarse, with silt, light yellowish brown		X		6 13 13	16.1	Dist.	Ring
		(ML) Sandy Silt, fine, few clay, brown							
25		(SP-SM) Sand, fine to coarse, with silt, light olive brown		X		5 8 12	1.7	Dist.	Ring
30				X		6 8 12	N.R.	N.R.	Ring

DRAFT

10331-3 15383-8.GPJ CHJ.GDT 9/10/15

CHJ

SLOPE STABILITY INVESTIGATION
13964 EL MONTE ROAD, LAKESIDE, CALIFORNIA

Job No. 15383-8 Enclosure B-4a

EXPLORATORY BORING NO. 4

Date Drilled: 8/18/15 Client: El Monte NP

Equipment: CME75 Truck Rig Driving Weight / Drop / Sampler Size: 140lbs./30in./3.0" O.D.

Surface Elevation(ft): 443 Logged by: VJR Measured Depth to Water(ft): 36.7

DEPTH (ft)	GRAPHIC LOG	VISUAL CLASSIFICATION	REMARKS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/6 IN.	FIELD MOISTURE (%)	DRY UNIT WT. (pcf)	LAB/FIELD TESTS
		(SP-SM) Sand, fine to coarse, with silt, light olive brown	▼ Groundwater	X		7 8 11	23.2	97	Ring
40				X		3 6 9	20.2	100	Ring
45				X		3 4 9	N.R.	N.R.	Ring
50		(SP-SM) Sand, fine to coarse, with silt and gravel to 1", dark gray		X		5 11 19	14.6	117	Ring
55				X		4 18 20	13.6	116	Ring
60				X		3 12 13	16.6	110	Ring
65				X		7 17 46	17.2	115	Ring

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10331-3 15383-8.GPJ CHJ.GDT 9/10/15

CHJ

SLOPE STABILITY INVESTIGATION
13964 EL MONTE ROAD, LAKESIDE, CALIFORNIA

Job No. 15383-8 Enclosure B-4b

EXPLORATORY BORING NO. 4

Date Drilled: 8/18/15 Client: El Monte NP

Equipment: CME75 Truck Rig Driving Weight / Drop / Sampler Size: 140lbs./30in./3.0" O.D.

Surface Elevation(ft): 443 Logged by: VJR Measured Depth to Water(ft): 36.7

DEPTH (ft)	GRAPHIC LOG	VISUAL CLASSIFICATION	REMARKS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/6 IN.	FIELD MOISTURE (%)	DRY UNIT WT. (pcf)	LAB/FIELD TESTS
		(SP-SM) Sand, fine to coarse, with silt and gravel to 1", dark gray	Sand Plug	X		4 4 7	N.R.	N.R.	Ring
75				X		8 23 40	16.2	115	Ring
80			Sand Plug	X		9 12 50	9.9	126	Ring
		(SM) Silty Sand, fine to medium with coarse, with clay and gravel to 2", dark gray [Consolidated Sediment]	Very Hard Drilling						
85				X		50/4"	6.1	135	Ring
90		END OF BORING NO REFUSAL, NO FILL, NO BEDROCK SLIGHT CAVING IN UPPER 10' GROUNDWATER AT 36.67'		X		50	10.1	123	Ring
95									
100									

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10331-3 15383-8.GPJ CHJ.GDT 9/10/15

CHJ

SLOPE STABILITY INVESTIGATION
13964 EL MONTE ROAD, LAKESIDE, CALIFORNIA

Job No. 15383-8

Enclosure B-4c

LOG OF TEST BORING NO. B- 5

Drilling Date(s): 01/22/98 Drilling Equipment: MOBILE B-57 Surface Elevation: ~475'

Logged By: KLS Method/Hole Size: HOLLOW STEM AUGER/8" Bottom Elevation: ~453'

Depth (feet)	Sample Type	Blow Count (/foot)	Dry Density (pcf)	Moisture Content (%)	Lab Tests	USCS	Graphic Log	MATERIAL DESCRIPTION
0						SM		TOPSOIL: silty sand, loose, moist, brown.
2						SW		ALLUVIUM (Qal): medium to coarse grained sand, loose, damp, gray brown to gray.
6	H	7	98	2.7	GS			
8								
10	B							
	H	13						:Becomes medium grained sand.
12								
14								
16	H	12	95	24.0	GS	SM-SP		(Qal): very silty fine grained micaceous sand, loose to medium dense, wet, gray brown.
18								:Becomes fine grained micaceous sand with silt.
20	H	16						
22								End of boring at -21 ft. No free water encountered.
24								

Drive Energy Data: Hammer Type CAT HEAD
Weight 140 lbs.
Drop 30 in.

Please refer to symbols and note limitations shown on "Explanation of Logs"

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SHEPARDSON ENGINEERING ASSOCIATES INC.
Geotechnical Consultants: Engineers-Geologists

Date: May, 1998 | Project No.: 97157-01

Log of Test Boring No. B- 5
El Monte Golf Course

Plate B6 1 of 1

BL3 98

LOG OF TEST BORING NO. B- 6

Drilling Date(s): 01/22/98 Drilling Equipment: MOBILE B-57 Surface Elevation: ~469'

Logged By: KLS Method/Hole Size: HOLLOW STEM AUGER/8" Bottom Elevation: ~447'

Depth (feet)	Sample Type	Blow Count (/foot)	Dry Density (pcf)	Moisture Content (%)	Lab Tests	USCS	Graphic Log	MATERIAL DESCRIPTION
						SM		TOPSOIL: silty sand, loose, moist, brown.
						SM-SW		ALLUVIUM (Qal): fine grained micaceous sand to silty sand, loose, gray brown.
2								
						SW		c(Qal): fine to coarse grained sand, loose, damp, gray.
4								
6	H	9	105	4.6	GS			
8								
10	H	11						
12								
14								
16	H	14			GS			:Becomes medium to coarse grained sand.
18								
20	H	15						:Becomes fine to medium grained sand.
22								End of boring at -21 ft. No free water encountered.
24								

Drive Energy Data: Hammer Type CAT HEAD
Weight 140 lbs.
Drop 30 in.

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Please refer to symbols and note limitations shown on "Explanation of Logs"

SHEPARDSON ENGINEERING ASSOCIATES INC.
Geotechnical Consultants: Engineers-Geologists

Date: May, 1998 | Project No.: 97157-01

Log of Test Boring No. B- 6
El Monte Golf Course

Plate B7
1 of 1

BL3 98

LOG OF TEST BORING NO. B- 7

Drilling Date(s): 01/22/98 Drilling Equipment: MOBILE B-57 Surface Elevation: ~465'

Logged By: KLS Method/Hole Size: HOLLOW STEM AUGER/8" Bottom Elevation: ~443'

Depth (feet)	Sample Type	Blow Count (/foot)	Dry Density (pcf)	Moisture Content (%)	Lab Tests	USCS	Graphic Log	MATERIAL DESCRIPTION
0						SW		ALLUVIUM: fine grained micaceous silty sand to sand, loose, moist to wet, gray brown to olive.
2								
4								
6	H	11			GS			:Becomes fine to coarse grained sand and drier.
8					GS			
10	B H	16						:Becomes damp.
12								
14								
16	H	10						:Becomes moist.
18								:Becomes fine to medium grained.
20								
	H	17						:Becomes very wet to saturated.
22								End of boring at -21 ft. Free intergranular moisture at bottom of boring, near the water table.
24								

Drive Energy Data: Hammer Type CAT HEAD
Weight 140 lbs.
Drop 30 in.

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Please refer to symbols and note limitations shown on "Explanation of Logs"

SHEPARDSON ENGINEERING ASSOCIATES INC.
Geotechnical Consultants:
Engineers-Geologists

Date: May, 1998 Project No.: 97157-01

Log of Test Boring No. B- 7
El Monte Golf Course

Plate B8
1 of 1

BL3 98

LOG OF TEST BORING NO. B- 8

Drilling Date(s): 01/22/98 Drilling Equipment: MOBILE B-57 Surface Elevation: ~455'

Logged By: KLS Method/Hole Size: HOLLOW STEM AUGER/8" Bottom Elevation: ~433'

Depth (feet)	Sample Type	Blow Count (/foot)	Dry Density (pcf)	Moisture Content (%)	Lab Tests	USCS	Graphic Log	MATERIAL DESCRIPTION
0						SW		ALLUVIUM (Qal): medium to coarse grained sand, loose, medium dense, gray.
6	H	10	103	2.9	GS			:Occasional scattered small gravel.
10	H	15			GS			:Becomes fine to coarse grained sand.
16	H	12						:Water table measured at -15.4 ft.
20	H	11						:Becomes very coarse grained sand.

Drive Energy Data: Hammer Type CAT HEAD
Weight 140 lbs.
Drop 30 in.

Please refer to symbols and note limitations shown on "Explanation of Logs"

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SHEPARDSON ENGINEERING ASSOCIATES INC.
Geotechnical Consultants: Engineers-Geologists

Date: May, 1998 | Project No.: 97157-01

Log of Test Boring No. B- 8
El Monte Golf Course

Plate B9 1 of 1

BL3 98

LOG OF TEST BORING NO. B- 9

Drilling Date(s): 01/23/98 Drilling Equipment: MOBILE B-57 Surface Elevation: ~457'

Logged By: BMH Method/Hole Size: HOLLOW STEM AUGER/8" Bottom Elevation: ~435'

Depth (feet)	Sample Type	Blow Count (/foot)	Dry Density (pcf)	Moisture Content (%)	Lab Tests	USCS	Graphic Log	MATERIAL DESCRIPTION
0						SW		ALLUVIUM (Qal): fine to coarse grained sand, loose, damp, light gray. Contains gravel at -1 ft.
2								: Layer of 1" gravels at -3 ft.
4								
6	H	13			GS			
8	B							
10	H	12						:Becomes moist.
12								: 1" diameter gravels present between -11 ft. and -12ft..
14								Becomes coarser grained, micaceous.
16	H	20			GS	SM-SW		(Qal): fine to medium grained sand to silty sand, medium dense to loose, wet to saturated, medium gray.
18								
20	H	14						▽ :Water standing at -22.8 ft..
22								End of boring at -21 ft. Water table at -22.8 ft.
24								

Drive Energy Data: Hammer Type CAT HEAD
Weight 140 lbs.
Drop 30 in.

Please refer to symbols and note limitations shown on "Explanation of Logs"

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SHEPARDSON ENGINEERING ASSOCIATES INC.
Geotechnical Consultants: Engineers-Geologists

Date: May, 1998 | Project No.: 97157-01

Log of Test Boring No. B- 9
El Monte Golf Course

Plate B10 1 of 1

BL3 98

LOG OF TEST BORING NO. B-10

Drilling Date(s): 01/23/98 Drilling Equipment: MOBILE B-57 Surface Elevation: ~455'

Logged By: BMH Method/Hole Size: HOLLOW STEM AUGER/8" Bottom Elevation: ~433'

Depth (feet)	Sample Type	Blow Count (/foot)	Dry Density (pcf)	Moisture Content (%)	Lab Tests	USCS	Graphic Log	MATERIAL DESCRIPTION
0						SW		ALLUVIUM (Qal): fine to coarse grained sand, loose, damp to dry, light gray.
2								
4								:Scattered gravel at - 3 ft..
6	H	2			GS			:Becomes gray-tan.
8								
10	H	7			GS			
12						SM		(Qal): silty fine grained sand, loose, moist, medium dark brown.
14	B							
16	H	20				SW		(Qal): fine to coarse grained sand, loose, wet to saturated, gray. :Contains scattered gravel.
18								
20								▽ :Water table measured at -19 ft.
	H	8				ML		(Qal): sandy silt, soft, saturated, dark brown.
22								End of boring at -21 ft.. Water table at -19 ft.
24								

Drive Energy Data: Hammer Type CAT HEAD
Weight 140 lbs.
Drop 30 in.

Please refer to symbols and note limitations shown on "Explanation of Logs"

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SHEPARDSON ENGINEERING ASSOCIATES INC.
Geotechnical Consultants: Engineers-Geologists

Date: June, 1998 | Project No.: 97157-01

Log of Test Boring No. B-10
El Monte Golf Course

Plate B11 1 of 1

BL3 98

LOG OF TEST BORING NO. B-11

Drilling Date(s): 01/23/98 Drilling Equipment: MOBILE B-57 Surface Elevation: ~453'

Logged By: BMHKLS Method/Hole Size: HOLLOW STEM AUGER/8" Bottom Elevation: ~431'

Depth (feet)	Sample Type	Blow Count (/foot)	Dry Density (pcf)	Moisture Content (%)	Lab Tests	USCS	Graphic Log	MATERIAL DESCRIPTION
0						SM-SW		ALLUVIUM (Qal): medium to coarse grained sand, loose, moist, yellow brown.
6	H	10	104	6.5	GS			:Becomes interlayered with silty sand.
10	H	7	94	4.2	GS			:Becomes light gray. Interlayered silty sand layers are 1" to 2" thick.
16	H	14						
18								▽ :Water table measured at -18.6 ft..
20	H	20						
21								End of boring at -21 ft.. Water table at -18.6 ft..

Drive Energy Data: Hammer Type CAT HEAD
Weight 140 lbs.
Drop 30 in.

Please refer to symbols and note limitations shown on "Explanation of Logs"

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LOG OF TEST BORING NO. B-12

Drilling Date(s): 01/23/98 Drilling Equipment: MOBILE B-57 Surface Elevation: ~449'

Logged By: BMH Method/Hole Size: HOLLOW STEM AUGER/8" Bottom Elevation: ~427'

Depth (feet)	Sample Type	Blow Count (/foot)	Dry Density (pcf)	Moisture Content (%)	Lab Tests	USCS	Graphic Log	MATERIAL DESCRIPTION
0					GS	SW		ALLUVIUM (Qal): fine to coarse grained sand, loose, damp, light gray. Contains scattered 1" diameter gravel.
2	B							
4								
6	H	12						:Contains 1" size gravel between -5 ft. and -6 ft.
8								
10	H	8			GS			:Below -11 ft. contains thin layers or lenses of dark brown silt.
12								
14								
16	H	17						▽ :Water table measured at -16.8 ft.
18								
20	H	26						:Becomes coarse grained sand.
22								End of boring at -21 ft. Water table measured at -16.8 ft.
24								

Drive Energy Data: Hammer Type CAT HEAD
Weight 140 lbs.
Drop 30 in.

Please refer to symbols and note limitations shown on "Explanation of Logs"

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SHEPARDSON ENGINEERING ASSOCIATES INC.
Geotechnical Consultants: Engineers-Geologists

Date: May, 1998 | Project No.: 97157-01

Log of Test Boring No. B-12
El Monte Golf Course

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BL3 98

LOG OF TEST BORING NO. B-14

Drilling Date(s): 01/23/98 Drilling Equipment: MOBILE B-57 Surface Elevation: ~447'
Logged By: BMH Method/Hole Size: HOLLOW STEM AUGER/8" Bottom Elevation: ~425'

Depth (feet)	Sample Type	Blow Count (/foot)	Dry Density (pcf)	Moisture Content (%)	Lab Tests	USCS	Graphic Log	MATERIAL DESCRIPTION
0						SW		ALLUVIUM (Qal): fine to coarse grained sand, loose, damp, yellow brown.
2								
4								
6	H	6	103	2.2	GS			
8						SW		(Qal): fine to coarse grained micaceous sand, loose, damp to saturated, orange brown.
10	H	9	114	1.4	GS			:Becomes medium brown with scattered blebs of silt.
12								
14								
16	H	6						
18								▽ :Water table measured at -18.8 ft.
20	H	10						:Contains little to no silt.
22								End of boring at -21 ft. Water table at -18.8 ft.
24								

Drive Energy Data: Hammer Type CAT HEAD
Weight 140 lbs.
Drop 30 in.

Please refer to symbols and note limitations shown on "Explanation of Logs"

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LOG OF TEST BORING NO. B-15

Drilling Date(s): 01/23/98 Drilling Equipment: MOBILE B-57 Surface Elevation: ~436'

Logged By: BMH Method/Hole Size: HOLLOW STEM AUGER/8" Bottom Elevation: ~414'

Depth (feet)	Sample Type	Blow Count (/foot)	Dry Density (pcf)	Moisture Content (%)	Lab Tests	USCS	Graphic Log	MATERIAL DESCRIPTION
0						SW		ALLUVIUM (Qal): fine to medium grained slightly silty sand, loose, medium brown.
4						SW		(Qal): medium to coarse grained sand, loose, moist, brownish gray to olive gray.
6	H	7			GS			
8	B							
10	H	13			GS			
14								
16	H	14				SM		(Qal): silty fine grained sand, loose, moist, olive gray.
18								:Contains some silt lenses.
20	H	9						Becomes wet.
21								End of boring at -21 ft. No free water encountered.
22								
24								

Drive Energy Data: Hammer Type CAT HEAD
Weight 140 lbs.
Drop 30 in.

Please refer to symbols and note limitations shown on "Explanation of Logs"

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Geotechnical Consultants: Engineers-Geologists

Date: May, 1998 | Project No.: 97157-01

Log of Test Boring No. B-15
El Monte Golf Course

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BL3 98

LOG OF TEST BORING NO. B-16

Drilling Date(s): 01/26/98 Drilling Equipment: MOBILE B-57 Surface Elevation: ~447'

Logged By: BMH Method/Hole Size: HOLLOW STEM AUGER/8" Bottom Elevation: ~371'

Depth (feet)	Sample Type	Blow Count (/foot)	Dry Density (pcf)	Moisture Content (%)	Lab Tests	USCS	Graphic Log	MATERIAL DESCRIPTION
0						SM		TOPSOIL/ALLUVIUM (Qal): silty fine grained sand, loose, medium dense, silty sand.
4						SW		ALLUVIUM (Qal): fine to coarse grained sand, loose, dry, brown gray.
6	H	7			GS			
10	H	8			GS			
16	H	13						:Becomes coarser grained.
20	H	18						
26						SM-SW		▽(Qal): variable well graded to silty sand,loose to medium dense, wet to saturated, gray brown. :Water table measured at -28.2 ft.
32						SW		(Qal): fine to coarse grained sand, loose to medium dense, saturated, gray. Contains occasional small amounts of gravel.

Drive Energy Data: Hammer Type CAT HEAD
Weight 140 lbs.
Drop 30 in.

Please refer to symbols and note limitations shown on "Explanation of Logs"

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LOG OF TEST BORING NO. B-16

Drilling Date(s): 01/26/98 Drilling Equipment: MOBILE B-57 Surface Elevation: ~447'
Logged By: BMH Method/Hole Size: HOLLOW STEM AUGER/8" Bottom Elevation: ~371'

Depth (feet)	Sample Type	Blow Count (/foot)	Dry Density (pcf)	Moisture Content (%)	Lab Tests	USCS	Graphic Log	MATERIAL DESCRIPTION
42								(Qal): fine to coarse-grained sand, loose to medium dense, saturated, gray. Contains occasional small amounts of gravel
44								
46								
48								(Qal): fine to coarse-grained sand, loose to medium dense, saturated, gray. Contains occasional small amounts of gravel
50								
52								
54								
56								
58								
60								
62								
64								
66								
68								
70								
72								
74								
76								End of boring at -75 ft. Water table measured at -28.2 ft.
78								

Drive Energy Data: Hammer Type CAT HEAD
Weight 140 lbs.
Drop 30 in.

Please refer to symbols and note limitations shown on "Explanation of Logs"

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LOG OF TEST BORING NO. B-17

Drilling Date(s): 01/26/98 Drilling Equipment: MOBILE B-57 Surface Elevation: ~470'

Logged By: BMH Method/Hole Size: HOLLOW STEM AUGER/8" Bottom Elevation: ~393'

Depth (feet)	Sample Type	Blow Count (/foot)	Dry Density (pcf)	Moisture Content (%)	Lab Tests	USCS	Graphic Log	MATERIAL DESCRIPTION
2	B					SM		ALLUVIUM (Qal): silty fine grained sand, loose, moist, medium dense.
4		8	74	5.3	GS	SM		Qal: silty fine grained micaceous sand, loose, dry, medium brown. Contains organic fragments, porous.
6	H	10						
8						SM-ML		Qal: interbedded silt and sand, loose, dry, light gray to medium brown with orange staining, porous.
10	H	13			GS			
12						SM-SW		(Qal): clean sand with interbeds of silty sand, loose, dry, light gray.
14								
16	H	14				SW-SP		(Qal): medium to coarse grained sand, loose, dry, light gray.
18								:Becomes mostly fine grained sand, damp to moist.
20	H	15						
22								:Becomes fine to coarse grained sand, wet.
24								
26	H	18						
28								▽ :Water table measured at -27.6 ft.
30	SS	19						
32								
34								
36								
38								:Becomes medium gray.

Drive Energy Data: Hammer Type CAT HEAD
Weight 140 lbs.
Drop 30 in.

Please refer to symbols and note limitations shown on "Explanation of Logs"

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SHEPARDSON ENGINEERING ASSOCIATES INC.
Geotechnical Consultants: Engineers-Geologists

Date: May, 1998 | Project No.: 97157-01

Log of Test Boring No. B-17
El Monte Golf Course

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1 of 2

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LOG OF TEST BORING NO. B-17

Drilling Date(s): 01/26/98 Drilling Equipment: MOBILE B-57 Surface Elevation: ~470'

Logged By: BMH Method/Hole Size: HOLLOW STEM AUGER/8" Bottom Elevation: ~393'

Depth (feet)	Sample Type	Blow Count (/foot)	Dry Density (pcf)	Moisture Content (%)	Lab Tests	USCS	Graphic Log	MATERIAL DESCRIPTION
42	SS	18						(Qal): medium to coarse-grained sand, medium dense, saturated, dry, light gray
50	SS	19						:Contains dark gray to black silt interbeds.
66	SS	20						:Laminated layers of fine to very fine grained sand, dark gray.
76	SS	47						End of boring at -76.5 ft. Water table measured at -27.6 ft.

Drive Energy Data: Hammer Type CAT HEAD
Weight 140 lbs.
Drop 30 in.

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Please refer to symbols and note limitations shown on "Explanation of Logs"

LOG OF TEST BORING NO. B-18

Drilling Date(s): 01/28/98 Drilling Equipment: JEEP RIG Surface Elevation: ~437'

Logged By: BMH Method/Hole Size: FLIGHT AUGER/6" Bottom Elevation: ~415'

Depth (feet)	Sample Type	Blow Count (/foot)	Dry Density (pcf)	Moisture Content (%)	Lab Tests	USCS	Graphic Log	MATERIAL DESCRIPTION
0	B				GS	SM		TOPSOIL/ALLUVIUM ?: silty fine grained sand, loose, moist, medium to dark brown.
8	B					SW		ALLUVIUM: medium to coarse grained sand, loose, moist, yellow to brownish gray. Contains scattered 1" size gravel.
10					GS			
12	B							
16	B							
20								End of boring at -20 ft. No free water encountered.

Drive Energy Data: Hammer Type
Weight lbs.
Drop in.

Please refer to symbols and note limitations shown on "Explanation of Logs"

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LOG OF TEST BORING NO. B-19

Drilling Date(s): 02/10/98 Drilling Equipment: ROTARY WASH Surface Elevation: ~457'

Logged By: BMH Method/Hole Size: WASH BORING/3.5" Bottom Elevation: ~347'

Depth (feet)	Sample Type	Blow Count (/foot)	Dry Density (pcf)	Moisture Content (%)	Lab Tests	USCS	Graphic Log	MATERIAL DESCRIPTION
2						SW		ALLUVIUM (Qal): welll-graded sand, fine to medium -grained, loose, humid, light gray
4						GM		Qal: gravelly sand, medium dense, moist, light gray, contains 1" rounded gravels
6	H	31	119	14.3		SW		Qal: well-graded sand, medium dense, moist, light gray; contains scattered 3/4" gravel
10	H	30	116	10.9				
14	H	44	113	14.1				
18								water table at 16.5 feet
20	H	16	112	18.2				: saturated, contains intermittent silt layers, medium stiff
24	SS	21						:well-graded sand, medium dense, saturated, medium gray, contains interlayered fine and coarse sand
28	SS	21						:1 to 4 inch layers of silt, to 32 feet
34	SS	20						:well-graded sand, minor amounts of silt and gravel, medium dense, saturated, light gray
38	SS	23						
48	SS	10						ALLUVIUM (Qal): well-graded sand, medium dense, saturated, medium gray
								:becomes loose

Drive Energy Data: Hammer Type Cable winch
Weight 140 lbs.
Drop 30 in.

Please refer to symbols and note limitations shown on "Explanation of Logs"

DRAFT

LOG OF TEST BORING NO. B-19

Drilling Date(s): 02/10/98 Drilling Equipment: ROTARY WASH Surface Elevation: ~457'

Logged By: BMH Method/Hole Size: WASH BORING/3.5" Bottom Elevation: ~347'

Depth (feet)	Sample Type	Blow Count (/foot)	Dry Density (pcf)	Moisture Content (%)	Lab Tests	USCS	Graphic Log	MATERIAL DESCRIPTION
60	SS	22						:medium dense
62								
64								
66								
68	SS	42						:medium-grained sand with silt, poorly graded, dense, saturated, dark gray
70								
72								
74								
76								
78	SS	15						:contains 1/2" gravel; well-graded but coarser
80								
82						GW		ALLUVIUM (Qal): well-graded sand, medium dense, saturated, dark gray
84								(Qal): sandy gravels, dense, saturated, medium gray
86								
88								
90								
92								:heavy gravels
94						CL		ALLUVIUM: :clay layer, soft, saturated, blue gray
96						GW-SW		(Qal): gravel and sand, dense, saturated, medium gray
98								
100						SM		DECOMPOSED GRANITE BEDROCK: silty sand, coarse, very dense, saturated, dark gray
102								
104								
106	SS	50 50/2"						
108								
110		50/2"						End of boring at 110.2 feet
112								
114								

Drive Energy Data: Hammer Type Cable winch
Weight 140 lbs.
Drop 30 in.

Please refer to symbols and note limitations shown on "Explanation of Logs"

DRAFT

LOG OF TEST BORING NO. B-21

Drilling Date(s): 02/18/98 Drilling Equipment: MOBILE B-61 Surface Elevation: ~466'

Logged By: BMH Method/Hole Size: HOLLOW STEM AUGER/8" Bottom Elevation: ~440'

Depth (feet)	Sample Type	Blow Count (/foot)	Dry Density (pcf)	Moisture Content (%)	Lab Tests	USCS	Graphic Log	MATERIAL DESCRIPTION
0						ML		ALLUVIUM(Qal): sandy silt, medium stiff, moist, dark brown
2								
4						SM-ML		Qal: sandy silt to silty sand, medium dense, moist, yellow brown and medium brown, porous
6	H	20	72	12.1	CN	SM		Qal: silty fine sand, medium dense, moist, medium gray and medium brown
8								
10						SW		Qal: well-graded sand, medium dense, moist, light gray
12								:gravelly layer to 13 feet
14								
16	SS	26						:becomes more coarse-grained
18								
20	SS	32				SP		Qal: poorly-graded fine sand, medium dense, moist, light gray
22								
24							▽	:water table encountered at 24.5 feet
26	SS	22						
28								End of boring at 26.5 feet

Remarks:

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Please refer to symbols and note limitations shown on "Explanation of Logs"

LOG OF TEST BORING NO. B-24

Drilling Date(s): 02/20/98 Drilling Equipment: ROTARY WASH Surface Elevation: ~436'

Logged By: BMH Method/Hole Size: WASH BORING/3.5" Bottom Elevation: ~331'

Depth (feet)	Sample Type	Blow Count (/foot)	Dry Density (pcf)	Moisture Content (%)	Lab Tests	USCS	Graphic Log	MATERIAL DESCRIPTION
2-54						SW		ALLUVIUM (Qal): well graded sand, fine to coarse-grained, medium dense, moist, brownish-gray to light gray :contains thin silt layers :gravelly at 25 feet :silt layers at 37-38 feet :gravel layer at 42 to 43 feet

Drive Energy Data: Hammer Type Cable winch
Weight 140 lbs.
Drop 30 in.

Please refer to symbols and note limitations shown on "Explanation of Logs"

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LOG OF TEST BORING NO. B-24

Drilling Date(s): 02/20/98 Drilling Equipment: ROTARY WASH Surface Elevation: ~436'

Logged By: BMH Method/Hole Size: WASH BORING/3.5" Bottom Elevation: ~331'

Depth (feet)	Sample Type	Blow Count (/foot)	Dry Density (pcf)	Moisture Content (%)	Lab Tests	USCS	Graphic Log	MATERIAL DESCRIPTION
58–68								ALLUVIUM (Qal): well graded sand, fine to coarse-grained, medium dense, moist, brownish-gray to light gray :silt layers
70–74						GW		Qal: sandy gravels, dense, saturated, gray
76–82						SW		Qal: well-graded sand
84–92						GW		Qal: Gravel and cobble in a sandy matrix; dense, saturated, gray :layer of sand or smaller gravels to 92 feet
94–104	SS	69				SM		DECOMPOSED GRANITE BEDROCK: silty sand, dense to very dense, saturated, yellow gray :hard rock veins or inclusions to 97.5 feet
106								End of boring at 105.5 feet

Drive Energy Data: Hammer Type Cable winch
Weight 140 lbs.
Drop 30 in.

Please refer to symbols and note limitations shown on "Explanation of Logs"

DRAFT

LOG OF TEST BORING NO. B-27

Drilling Date(s): 2/7/03 | Drilling Equipment: B-61 | Surface Elevation: ~465'

Logged By: BMH | Method/Hole Size: Hollow stem auger/8" | Bottom Elevation: ~435'

Depth (feet)	Sample Type	Blow Count (/foot)	Dry Density (pcf)	Moisture Content (%)	Lab Tests	USCS	Graphic Log	MATERIAL DESCRIPTION
0	B				MD DS	SW		**ALLUVIUM (Qal):** well-graded sand, medium to coarse-grained, medium dense, moist, medium brown to medium gray
2								
4	H	32	96	8.6				
6	H	16						
8								
10	SS	4						
12								
14								
16	SS	26						
18								
20	SS	25			GS			:cobble layer, approximately one foot thick
22								
24								
26	SS	50/6"				SM		**DECOMPOSED GRANITE (Kgr):** bedrock, silty fine to coarse sand, dense to very dense, moist, orange-gray
28								:groundwater at 28 feet
30	SS	50/2"						End of boring at 30.2 feet; boring backfilled with bentonite chips

Remarks:

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Please refer to symbols and note limitations shown on "Explanation of Logs"

DATE DRILLED 2/24/11 BORING NO. B-2

GROUND ELEVATION 438' ± (MSL) SHEET 2 OF 5

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
20		17				SP	ALLUVIUM: (Continued) Grayish brown, moist, medium dense, poorly-graded, fine to coarse SAND; few gravel.
25		12				SP-SM	Grayish brown, moist, medium dense, poorly-graded, fine to medium SAND with silt.
30		18				SM	Light brown, moist, medium dense, silty fine to medium SAND.
35		25					Fine to coarse, silty sand.
40							

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BORING LOG

EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-4

DATE DRILLED 2/24/11 BORING NO. B-2

GROUND ELEVATION 438' ± (MSL) SHEET 3 OF 5

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
40		8	▽			SM	ALLUVIUM: (Continued) Light brown, saturated, medium dense, silty fine to coarse SAND.
						SP	Light brown, saturated, very dense, poorly-graded, medium SAND.
45		67/10"					
						SW-SM	Light brown, saturated, medium dense, well-graded, fine to coarse SAND with silt; trace fine gravel.
50		18					
		25					Dense with fine gravel.
55							
60							

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BORING LOG

EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-5

DATE DRILLED 2/24/11 BORING NO. B-2

GROUND ELEVATION 438' ± (MSL) SHEET 4 OF 5

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
60		15				SW-SM	ALLUVIUM: (Continued) Light brown, saturated, medium dense, well-graded, fine to medium SAND with silt.
						SP-SM	Light brown, saturated, dense, poorly-graded, fine SAND with silt.
65		49					
						SW-SM	Gray, saturated, dense, well-graded, fine to medium SAND with silt.
70		21					
75		23					Dark gray; fine to coarse sand; trace fine gravel.
80							

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BORING LOG

EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-6

DATE DRILLED 2/24/11 BORING NO. B-2

GROUND ELEVATION 438' ± (MSL) SHEET 5 OF 5

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
80		25				SM	ALLUVIUM: (Continued) Brownish black, saturated, medium dense, silty fine SAND.
							Gray; very dense; fine to medium sand.
85		50/1"					Refusal to further drilling.
							Total Depth = 85.5 feet. Groundwater encountered at approximately 41 feet during drilling. Backfilled with approximately 30 cubic feet of bentonite grout shortly after drilling on 2/24/11. Note: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.
90							
95							
100							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-7

DATE DRILLED 3/11/11 BORING NO. B-3

GROUND ELEVATION 440' ± (MSL) SHEET 1 OF 4

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SP	ALLUVIUM: Gray, moist, loose, poorly-graded, fine to medium SAND; trace subangular gravel (up to ½ inch).
5		6					
						SM	Brown, moist, medium dense, silty fine SAND.
10		18					
						SW	Gray, moist, loose, well-graded, fine to coarse SAND.
15		12					
20							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-8

DATE DRILLED 3/11/11 BORING NO. B-3

GROUND ELEVATION 440' ± (MSL) SHEET 2 OF 4

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
20		14				SW-SM	ALLUVIUM: (Continued) Light brown, moist, medium dense, well-graded, fine to medium SAND with silt.
25		9				ML	Dark brown, moist, medium dense, fine sandy SILT.
						SM	Light brown, moist, medium dense, silty fine SAND.
30		28					
						ML	Dark brown, wet, loose, fine sandy SILT.
35		5					
			▽				Saturated.
40							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-9

DATE DRILLED 3/11/11 BORING NO. B-3

GROUND ELEVATION 440' ± (MSL) SHEET 3 OF 4

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
40		9				SM	ALLUVIUM: (Continued) Dark brown, saturated, medium dense, silty fine SAND; trace fine gravel.
45		26				SP-SM	Gray, saturated, medium dense, poorly-graded, fine to medium SAND with silt; few fine gravel.
50		30				SM	Dark brown, saturated, dense, silty fine to medium SAND.
55		26					Becomes finer.
60							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-10

DATE DRILLED 3/11/11 BORING NO. B-3

GROUND ELEVATION 440' ± (MSL) SHEET 4 OF 4

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES Bulk	SAMPLES Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
60		■	46			▒	SP	ALLUVIUM: (Continued) Brown, saturated, dense, poorly-graded, fine to medium SAND.
								Total Depth = 61.5 feet. Groundwater encountered at approximately 39 feet during drilling. Backfilled with approximately 21 cubic feet of bentonite grout on shortly after drilling on 3/11/11. Note: Groundwater may rise to a level higher than that measured in borehole due to seasonal variations in precipitation and several other factors as discussed in the report.
65								
70								
75								
80								

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-11

DATE DRILLED 3/11/11 and 3/14/11 BORING NO. B-4

GROUND ELEVATION 442' ± (MSL) SHEET 1 OF 4

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SP	ALLUVIUM: Light brown, moist, loose, poorly-graded, fine to medium SAND.
5		7					Loose to medium dense.
10		18					Gray; medium dense; fine to coarse sand.
15		25				SW-SM	Grayish brown, moist, dense, well graded, fine to medium SAND with silt; few coarse sand.
20							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-12

DATE DRILLED 3/11/11 and 3/14/11 BORING NO. B-4

GROUND ELEVATION 442' ± (MSL) SHEET 2 OF 4

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
20		17				SP-SM	ALLUVIUM: (Continued) Gray, moist, medium dense, poorly-graded, fine to coarse SAND; with few fine gravel.
25		25					
						SM	Dark brown, moist, medium dense, silty fine SAND.
30		9					Boring terminated on 3/11/11. Boring resumed on 3/14/11.
						ML	Dark brown, moist, medium dense, fine sandy SILT.
35		5	▽				Saturated; loose.
40							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-13

DATE DRILLED 3/11/11 and 3/14/11 BORING NO. B-4

GROUND ELEVATION 442' ± (MSL) SHEET 3 OF 4

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
40		21				SM	ALLUVIUM: (Continued) Brown, saturated, medium dense, silty fine to medium SAND.
45		17				SP-SM	Brown, saturated, medium dense, poorly-graded, fine to coarse SAND with silt.
50		29				SM	Brown, saturated, medium dense, silty fine to coarse SAND.
55		15				SW-SM	Brown, saturated, medium dense, well-graded, fine to coarse SAND with silt.
60							

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BORING LOG

EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-14

DATE DRILLED 3/11/11 and 3/14/11 BORING NO. B-4

GROUND ELEVATION 442' ± (MSL) SHEET 4 OF 4

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
60		77/9"	127			SP-SM	ALLUVIUM: (Continued) Grayish brown, saturated, very dense, poorly-graded, fine SAND with silt
							Total Depth = 61.5 feet. Groundwater encountered at approximately 35 feet during drilling. Backfilled with approximately 21 cubic feet of bentonite grout shortly after drilling on 3/14/11. Note: Groundwater may rise to a level higher than that measured in borehole due to seasonal variations in precipitation and several other factors as discussed in the report.
65							
70							
75							
80							

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BORING LOG

EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-15

DATE DRILLED 3/14/11 BORING NO. B-5

GROUND ELEVATION 450' ± (MSL) SHEET 1 OF 4

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	ALLUVIUM: Dark brown, moist, loose, silty fine SAND; trace roots.
5		8				SP-SM	Grayish brown, moist, loose, poorly-graded, fine to medium SAND with silt.
10		5				SM	Dark brown, moist, loose, silty fine SAND.
15		16				SP-SM	Gray, moist, medium dense, poorly-graded, fine to medium SAND with silt; trace coarse sand.
20							

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BORING LOG

EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-16

DATE DRILLED 3/14/11 BORING NO. B-5

GROUND ELEVATION 450' ± (MSL) SHEET 2 OF 4

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
20		20				SP	ALLUVIUM: (Continued) Gray, moist, medium dense, poorly-graded, fine to medium SAND.
25		11				SW-SM	Gray, moist, medium dense, well-graded, fine to coarse SAND with silt; trace angular gravel.
30		7				ML	Dark brown, moist, loose to medium dense, fine sandy SILT.
35		16				SM	Dark brown, moist, medium dense, silty fine SAND.
40							

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BORING LOG

EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-17

DATE DRILLED 3/14/11 BORING NO. B-5

GROUND ELEVATION 450' ± (MSL) SHEET 3 OF 4

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
40		6	▽			ML	ALLUVIUM: (Continued) Dark brown, moist, loose, fine sandy SILT. Saturated.
45		20				SM	Dark brown, saturated, medium dense to dense, silty fine SAND.
50		22				SP-SM	Dark brown, saturated, medium dense, poorly-graded, fine SAND with silt.
55		23				SW-SM	Brown, saturated, dense, well-graded, fine to medium SAND with silt.
60							

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BORING LOG

EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-18

DATE DRILLED 3/14/11 BORING NO. B-5

GROUND ELEVATION 450' ± (MSL) SHEET 4 OF 4

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
60		39				SP-SM	ALLUVIUM: (Continued) Dark brown, saturated, medium dense, poorly-graded, fine to medium SAND with silt; trace coarse sand.
							Total Depth = 61.5 feet. Groundwater encountered at approximately 43 feet during drilling. Backfilled with approximately 21 cubic feet of bentonite grout shortly after drilling on 3/14/11. Note: Groundwater may rise to a level higher than that measured in borehole due to seasonal variations in precipitation and several other factors as discussed in the report.
65							
70							
75							
80							

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BORING LOG

EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-19

DATE DRILLED 2/25/11 BORING NO. B-6

GROUND ELEVATION 455' ± (MSL) SHEET 1 OF 4

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	ALLUVIUM: Light brown, damp, loose, silty, fine to medium SAND.
						SW	Grayish brown, damp, loose, well-graded, medium to coarse SAND.
5		9					
						SM	Brown, moist, loose, silty SAND; trace roots.
10		12				SW-SM	Gray, damp, loose, well-graded, fine to medium SAND with silt.
						SP-SM	Gray and light brown, moist, medium dense, poorly-graded, fine to medium SAND with silt.
15		13					
20							

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BORING LOG

EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-20

DATE DRILLED 2/25/11 BORING NO. B-6

GROUND ELEVATION 455' ± (MSL) SHEET 2 OF 4

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
20		19				SW-SM	ALLUVIUM: (Continued) Dark brown, moist, medium dense, well-graded, fine to coarse SAND with silt and gravel.
25		20				SP-SM	Grayish brown, moist, medium dense to dense, poorly-graded, fine to medium SAND with silt.
30		16					Medium dense.
35		10	▽				Saturated.
40							

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BORING LOG

EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-21

DATE DRILLED 2/25/11 BORING NO. B-6

GROUND ELEVATION 455' ± (MSL) SHEET 3 OF 4

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
40		8				ML	ALLUVIUM: (Continued) Dark brown, saturated, loose, fine sandy SILT.
45		50/2"					Very dense.
							METAVOLCANIC ROCK: Dark brown, saturated, soft, weathered METAVOLCANIC ROCK.
50		50/2"					
55		50/5"					Light brown and gray.
60							

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BORING LOG

EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-22

DATE DRILLED 2/25/11 BORING NO. B-6

GROUND ELEVATION 455' ± (MSL) SHEET 4 OF 4

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
60		50/4"					METAVOLCANIC ROCK: (Continued) Light brown and gray, saturated, soft, weathered METAVOLCANIC ROCK. Total Depth = 60.3 feet. Groundwater encountered at approximately 35 feet during drilling. Backfilled with approximately 21 cubic feet of bentonite grout shortly after drilling on 2/25/11. Note: Groundwater may rise to a level higher than that measured in borehole due to seasonal variations in precipitation and several other factors as discussed in the report.
65							
70							
75							
80							

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BORING LOG

EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-23

DATE DRILLED 3/1/11 BORING NO. B-7

GROUND ELEVATION 453' ± (MSL) SHEET 1 OF 5

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	ALLUVIUM: Brown, moist, loose, silty fine to medium SAND.
5		15				SP	Grayish brown, damp, medium dense, poorly-graded, fine to coarse SAND with fine gravel.
10		15				SP-SM	Light brown, moist, medium dense, poorly-graded, fine to medium SAND with silt; trace roots.
15		11				SW-SM	Gray to light brown, moist, medium dense, well-graded, fine to medium SAND with silt.
20							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-24

DATE DRILLED 3/1/11 BORING NO. B-7

GROUND ELEVATION 453' ± (MSL) SHEET 2 OF 5

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
20		18				SW-SM	ALLUVIUM: (Continued) Gray to light brown, moist, medium dense, well-graded, fine to coarse SAND with silt.
25		19					
30		17				SP-SM	Gray to light brown, saturated, medium dense, poorly-graded, fine to medium SAND with silt; micaceous
35		17				ML	Brown, saturated, medium dense, fine sandy SILT; micaceous.
40							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-25

DATE DRILLED 3/1/11 BORING NO. B-7

GROUND ELEVATION 453' ± (MSL) SHEET 3 OF 5

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
40						ML	ALLUVIUM: (Continued)
		25				SP-SM	Brown, saturated, medium dense, fine sandy SILT; micaceous. Brown, saturated, dense, poorly-graded, fine to medium SAND with silt.
45		22				SM	Brown, saturate, dense, silty fine SAND; micaceous.
						SP	Light brown, saturated, medium dense, poorly-graded, fine to coarse SAND.
50							
55		27				SW-SM	Light brown, saturated, dense, well-graded, fine to coarse SAND with silt.
60							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-26

DATE DRILLED 3/1/11 BORING NO. B-7

GROUND ELEVATION 453' ± (MSL) SHEET 4 OF 5

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
60		26				SM	ALLUVIUM: (Continued) Reddish brown, saturated, dense, silty fine to coarse SAND; few gravel.
						ML	Reddish brown, saturated, medium dense, fine sandy SILT.
65		19					
70		18				SM	Reddish brown, saturated, medium dense, silty fine to coarse SAND with fine gravel.
75		23					Dense; no gravel.
80							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-27

DATE DRILLED 3/1/11 BORING NO. B-7

GROUND ELEVATION 453' ± (MSL) SHEET 5 OF 5

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
80		89/11"				SM	ALLUVIUM: (Continued) Dark brown, saturated, very dense, silty fine to medium SAND; with fine gravel.
							METAVOLCANIC ROCK: Yellow and brown, saturated, soft, weathered METAVOLCANIC ROCK.
85		76					
							Total Depth = 86.5 feet. Groundwater encountered at approximately 30 feet during drilling. Backfilled with approximately 30 cubic feet of bentonite grout shortly after drilling on 3/1/11. Note: Groundwater may rise to a level higher than that measured in borehole due to seasonal variations in precipitation and several other factors as discussed in the report.
90							
95							
100							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-28

DATE DRILLED 3/3/11 BORING NO. B-8

GROUND ELEVATION 456' ± (MSL) SHEET 1 OF 4

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	ALLUVIUM: Brown, moist, loose, silty fine SAND.
						SP	Gray, moist, medium dense, poorly-graded, fine to medium SAND; trace coarse sand and gravel (up to ½ inch).
5		22					
10		12				SP-SM	Gray, moist, medium dense, poorly-graded, fine to medium SAND with silt.
15		20					Medium dense to dense.
20							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-29

DATE DRILLED 3/3/11 BORING NO. B-8

GROUND ELEVATION 456' ± (MSL) SHEET 2 OF 4

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
20		27				SP	ALLUVIUM: (Continued) Gray, moist, medium dense, poorly-graded, fine to medium SAND. Reddish brown; fine to coarse sand.
						SM	Brown, wet, dense to very dense, silty fine SAND; with gravel.
25		36				SW	Gray, moist, very dense, well-graded, fine to coarse SAND with some gravel (up to 1 inch).
						ML	Reddish brown, wet, dense, fine sandy SILT; micaceous.
30		29					
35		51					
40							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-30

DATE DRILLED 3/3/11 BORING NO. B-8

GROUND ELEVATION 456' ± (MSL) SHEET 3 OF 4

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
40		15	▽			ML	ALLUVIUM: (Continued) Reddish brown, saturated, medium dense, fine sandy SILT.
45		27				SM	Grayish brown, saturated, dense, silty fine to coarse SAND. Trace gravel (up to ½ inch).
50		55					Reddish brown; silty fine sand.
55		79/8"					METAVOLCANIC ROCK: Dark gray, saturated, soft, weathered METAVOLCANIC ROCK.
60							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-31

DATE DRILLED 3/3/11 BORING NO. B-8

GROUND ELEVATION 456' ± (MSL) SHEET 4 OF 4

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES Bulk	SAMPLES Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
60			50/5"					METAVOLCANIC ROCK: (Continued) Dark gray, saturated, soft, weathered METAVOLCANIC ROCK.
								Total Depth = 61.0 feet. Groundwater encountered at approximately 40 feet during drilling. Backfilled with approximately 21 cubic feet of bentonite grout shortly after drilling on 3/3/11. Note: Groundwater may rise to a level higher than that measured in borehole due to seasonal variations in precipitation and several other factors as discussed in the report.
65								
70								
75								
80								

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-32

DATE DRILLED 3/2/11 BORING NO. B-9

GROUND ELEVATION 460' ± (MSL) SHEET 1 OF 4

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SP	ALLUVIUM: Brown, moist, loose, silty fine to medium SAND.
						SP	Gray, moist, medium dense, poorly-graded, fine to medium SAND; trace fine to coarse gravel.
5		18					
						SW-SM	Gray, moist, dense, well-graded, fine to coarse SAND with silt.
10		22					
15		16					Medium dense.
20							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-33

DATE DRILLED 3/2/11 BORING NO. B-9

GROUND ELEVATION 460' ± (MSL) SHEET 2 OF 4

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
20		6				ML	ALLUVIUM: (Continued) Dark brown, wet, loose, fine sandy SILT; micaceous.
25		17				SM	Grayish brown, moist, medium dense, silty, fine to medium SAND.
						SW-SM	Yellowish brown, dense, well-graded, fine to coarse SAND with silt.
30		24					
35		28	▽			SP-SM	Gray to dark brown, saturated, medium dense, poorly-graded, fine SAND with silt; micaceous.
						SW-SM	Gray, saturated, very dense, well-graded, fine to coarse SAND with silt.
40							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-34

DATE DRILLED 3/2/11 BORING NO. B-9

GROUND ELEVATION 460' ± (MSL) SHEET 3 OF 4

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
40		51				SW-SM	ALLUVIUM: (Continued) Gray, saturated, very dense, well-graded, fine to coarse SAND with silt; trace fine to coarse gravel.
45		23				SM	Reddish brown, saturated, dense, silty fine SAND; micaceous.
50		59				ML	Reddish brown, saturated, dense, fine sandy SILT.
55		31					
60							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-35

DATE DRILLED 3/2/11 BORING NO. B-9

GROUND ELEVATION 460' ± (MSL) SHEET 4 OF 4

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
60		18				ML	ALLUVIUM: (Continued) Reddish brown, saturated, medium dense, fine sandy SILT.
65		50/6"				SP-SM	Brown, saturated, very dense, poorly-graded, fine to medium SAND with silt; some fine to coarse gravel.
70		65				SM	Brown, saturated, dense, silty fine SAND.
75		53					METAVOLCANIC ROCK: Yellow and gray, saturated, soft, weathered METAVOLCANIC ROCK.
80							Total Depth = 76.5 feet. Groundwater encountered at approximately 35 feet during drilling. Backfilled with approximately 27 cubic feet of bentonite grout shortly after drilling on 3/2/11. Note: Groundwater may rise to a level higher than that measured in borehole due to seasonal variations in precipitation and several other factors as discussed in the report.

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-36

DATE DRILLED 3/9/11 - 3/10/11 BORING NO. B-10

GROUND ELEVATION 475' ± (MSL) SHEET 1 OF 4

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	ALLUVIUM: Grayish brown, moist, loose, silty fine SAND.
5		6					
10		16					Medium dense; few coarse sand.
						SW	Gray, moist, medium dense, well-graded, fine to coarse SAND.
						SM	Brown, moist, medium dense, silty fine SAND.
15		8				ML	Dark brown, moist, medium dense, fine sandy SILT.
20							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-37

DATE DRILLED 3/9/11 - 3/10/11 BORING NO. B-10

GROUND ELEVATION 475' ± (MSL) SHEET 2 OF 4

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
20		7				ML	ALLUVIUM: (Continued) Dark brown, moist, loose to medium dense, fine sandy SILT.
						SM	Light brown, moist, medium dense, silty fine SAND.
25		29					
30		21					Dense; trace medium to coarse sand. Boring terminated on 3/9/11. Boring resumed on 3/10/11.
35		16				SW-SM	Light brown, moist, medium dense, well-graded, fine to medium SAND with silt; little coarse sand.
						SM	Grayish brown, moist, medium dense, silty fine to coarse SAND.
40							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-38

DATE DRILLED 3/9/11 - 3/10/11 BORING NO. B-10

GROUND ELEVATION 475' ± (MSL) SHEET 3 OF 4

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
40		15				SM	ALLUVIUM: (Continued) Grayish brown to dark brown, wet, medium dense, silty fine SAND.
			▽				Brown, saturated, medium dense to dense, silty fine to medium SAND; trace coarse sand.
45		20					
50		26				SW-SM	Brown, saturated, dense, well-graded, fine to medium SAND with silt.
						SM	Dark brown, saturated, very dense, silty fine SAND; trace gravel (up to 1¼ inches).
55		50/3"					
60							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-39

DATE DRILLED 3/9/11 - 3/10/11 BORING NO. B-10

GROUND ELEVATION 475' ± (MSL) SHEET 4 OF 4

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
60		34				SM	ALLUVIUM: (Continued) Dark brown, saturated, very dense, silty fine SAND.
							Total Depth = 61.5 feet. Groundwater encountered at approximately 44 feet during drilling. Backfilled with approximately 21 cubic feet of bentonite grout shortly after drilling on 3/10/11. Note: Groundwater may rise to a level higher than that measured in borehole due to seasonal variations in precipitation and several other factors as discussed in the report.
65							
70							
75							
80							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-40

DATE DRILLED 2/23/11 BORING NO. B-14

GROUND ELEVATION 431' ± (MSL) SHEET 1 OF 2

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MJB LOGGED BY MJB REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SW	ALLUVIUM: Grayish and yellowish brown, damp, loose, well-graded, fine to medium SAND; trace silt; micaceous.
5		11	10.6	91.1			
10		7					Loose to medium dense; well-graded, fine to coarse SAND; fewer silt.
15		17	3.2	103.3			Dry to damp; medium dense.
20							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-52

DATE DRILLED 2/23/11 BORING NO. B-14

GROUND ELEVATION 431' ± (MSL) SHEET 2 OF 2

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MJB LOGGED BY MJB REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
20		7				SM	ALLUVIUM: (Continued) Dark brown, damp to moist, loose to medium dense, silty fine SAND; micaceous.
						SW	Grayish brown, dry to damp, medium dense, well-graded, fine to coarse SAND; micaceous.
25		28	4.1	100.7			
							Total Depth = 26.5 feet. Groundwater not encountered. Backfilled with approximately 9 cubic feet of bentonite grout shortly after drilling on 2/23/11. Note: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.
30							
35							
40							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-53

DATE DRILLED 2/23/11 BORING NO. B-15

GROUND ELEVATION 436' ± (MSL) SHEET 1 OF 5

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MJB LOGGED BY MJB REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						ML	ALLUVIUM: Dark brown, damp, loose to medium dense, fine sandy SILT; scattered medium to coarse sand; micaceous.
10						SM	Dark brown, damp, loose to medium dense, silty fine SAND; scattered medium to coarse sand; micaceous.
20							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-54

DATE DRILLED 2/23/11 BORING NO. B-15

GROUND ELEVATION 436' ± (MSL) SHEET 2 OF 5

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MJB LOGGED BY MJB REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
20						SM	ALLUVIUM: (Continued) Dark brown, damp, loose to medium dense, silty fine SAND; scattered medium to coarse sand; micaceous.
25							Few medium to coarse sand; fewer silt.
30							
35							
40							

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BORING LOG

EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-55

DATE DRILLED 2/23/11 BORING NO. B-15

GROUND ELEVATION 436' ± (MSL) SHEET 3 OF 5

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MJB LOGGED BY MJB REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
40						SM	ALLUVIUM: (Continued) Brown, damp, medium dense, silty fine SAND; some medium to coarse sand; micaceous.
45			▽			SW	Grayish brown, saturated, medium dense to dense, well-graded, fine to coarse SAND; micaceous.
50							
55							
60							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-56

DATE DRILLED 2/23/11 BORING NO. B-15

GROUND ELEVATION 436' ± (MSL) SHEET 4 OF 5

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MJB LOGGED BY MJB REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
60						SW-SM	ALLUVIUM: (Continued) Grayish brown, saturated, medium dense to dense, well-graded, fine to coarse SAND with silt; micaceous.
		20					
65		51					Dense.
70		21					
75		39					Medium dense.
						SW+GW	Gray to grayish brown, saturated, very dense, well-graded, fine to coarse SAND and GRAVEL; micaceous.
80							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-57

DATE DRILLED 2/23/11 BORING NO. B-15

GROUND ELEVATION 436' ± (MSL) SHEET 5 OF 5

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MJB LOGGED BY MJB REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
80		38				SW+GW	ALLUVIUM: (Continued) Gray to grayish brown, saturated, very dense, well-graded, fine to coarse SAND and GRAVEL; micaceous.
						SP	Gray to grayish brown, saturated, very dense, poorly-graded, medium SAND; scattered gravel; micaceous.
85		50/4"					
90		50/4"				GP-GM	Gray, saturated, very dense, poorly-graded, fine to coarse GRAVEL with silt; some cobbles. Refusal to further drilling.
							Total Depth = 91.0 feet. Groundwater encountered at approximately 45 feet during drilling. Backfilled with approximately 32 cubic feet of bentonite grout shortly after drilling on 2/23/11. Note: Groundwater may rise to a level higher than that measured in borehole due to seasonal variations in precipitation and several other factors as discussed in the report.
95							
100							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-58

DATE DRILLED 3/14/11 BORING NO. B-16

GROUND ELEVATION 444' ± (MSL) SHEET 1 OF 3

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	ALLUVIUM: Brown, moist, loose, silty fine SAND.
5		8					Dark brown; medium dense.
10		15					
15		4				SP	Gray, moist, loose, poorly-graded, fine SAND; some medium sand; trace coarse sand.
20							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-59

DATE DRILLED 3/14/11 BORING NO. B-16

GROUND ELEVATION 444' ± (MSL) SHEET 2 OF 3

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
20		12				SP-SM	ALLUVIUM: (Continued) Gray, damp, medium dense, fine sandy SILT; trace medium sand.
25		9				SM	Brown to gray, moist, medium dense, silty fine SAND.
						SP	Gray, moist, medium dense, poorly-graded, fine SAND.
30		16					
						SM	Gray to brown, moist, medium dense, silty fine SAND.
35		9					
							METAVOLCANIC ROCK: Yellow, moist, soft, weathered METAVOLCANIC ROCK.
40							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-60

DATE DRILLED 3/14/11 BORING NO. B-16

GROUND ELEVATION 444' ± (MSL) SHEET 3 OF 3

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
40		55					METAVOLCANIC ROCK: (Continued) Yellow, moist, soft, weathered METAVOLCANIC ROCK.
45		50/2"					Refusal to further drilling. Total Depth = 45.2 feet. Groundwater not encountered. Backfilled with approximately 16 cubic feet of bentonite grout shortly after drilling on 3/14/11. Note: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.
50							
55							
60							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-61

DATE DRILLED 2/25/11 BORING NO. B-17

GROUND ELEVATION 443' ± (MSL) SHEET 1 OF 2

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	ALLUVIUM: Grayish brown, damp, loose to medium dense, silty SAND.
						SW	Gray, dry to damp, loose, well-graded, fine to coarse SAND.
5	Driven	9	3.8	100.0			
						SM	Light brown, moist, medium dense, silty, fine to coarse SAND; trace roots.
10	Driven	14	15.2	97.4			
15	Driven	14	15.2	97.4			Brown.
20							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-62

DATE DRILLED 2/25/11 BORING NO. B-17

GROUND ELEVATION 443' ± (MSL) SHEET 2 OF 2

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
20		8				SM	ALLUVIUM: (Continued) Brown, moist, medium dense, silty fine to coarse SAND.
						SW	Gray, dry to damp, medium dense, well-graded, fine to medium SAND.
25		22	3.2	101.0		SM	Brown, moist, medium dense, silty SAND.
							Total Depth = 26.5 feet. Groundwater not encountered. Backfilled with approximately 9 cubic feet of bentonite grout shortly after drilling on 2/25/11. Note: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.
30							
35							
40							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-63

DATE DRILLED 3/10/11 - 3/11/11 BORING NO. B-19

GROUND ELEVATION 444' ± (MSL) SHEET 1 OF 3

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SW	ALLUVIUM: Light brown, moist, loose, well-graded, fine to coarse SAND.
5	Driven	20					Medium dense; trace gravel (up to ½ inch).
10	Driven	10				SW-SM	Gray, moist, medium dense, well-graded, fine to medium SAND with silt.
15	Driven	18					Silty fine sand; trace subangular gravel (up to ¾ inch).
20							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-66

DATE DRILLED 3/10/11 - 3/11/11 BORING NO. B-19

GROUND ELEVATION 444' ± (MSL) SHEET 2 OF 3

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
20		7				SM	ALLUVIUM: (Continued) Dark brown, moist, loose to medium dense, silty fine SAND.
25		27				SW-SM	Grayish brown, moist, medium dense, well-graded, fine to medium SAND with silt. Boring terminated on 3/10/11. Boring resumed on 3/11/11.
30		4				SM	Grayish brown, moist, loose, silty fine to medium SAND.
35		17	▽			SP	Grayish brown, saturated, medium dense, poorly-graded, fine to medium SAND.
40							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-67

DATE DRILLED 3/10/11 - 3/11/11 BORING NO. B-19

GROUND ELEVATION 444' ± (MSL) SHEET 3 OF 3

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
40		19				SP	ALLUVIUM: (Continued) Dark brown, saturated, medium dense, poorly-graded, fine to medium SAND; little coarse sand.
45		9				SM	Dark brown, saturated, medium dense, silty fine SAND.
50		10					Loose.
55		21					Dense.
		50/1"					Refusal on gravel and cobbles. Total Depth = 57.1 feet. Groundwater encountered at approximately 35 feet during drilling. Backfilled with approximately 20 cubic feet of bentonite grout shortly after drilling on 3/11/11. Note: Groundwater may rise to a level higher than that measured in borehole due to seasonal variations in precipitation and several other factors as discussed in the report.
60							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-68

DATE DRILLED 3/10/11 BORING NO. B-20

GROUND ELEVATION 445' ± (MSL) SHEET 1 OF 2

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	ALLUVIUM: Light brown, moist, loose, silty fine to medium SAND.
5		10	7.0	95.3			Silty fine to coarse sand.
10		6					
15		22	6.2	101.4			Medium dense; silty fine sand.
20							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-69

DATE DRILLED 3/10/11 BORING NO. B-20

GROUND ELEVATION 445' ± (MSL) SHEET 2 OF 2

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
20		21				SM	ALLUVIUM: (Continued) Light brown, moist, dense, silty fine SAND.
						ML	Dark brown, moist, loose, fine sandy SILT; some fine to medium sand.
25		12					
							Total Depth = 26.5 feet. Groundwater not encountered. Backfilled with approximately 9 cubic feet of bentonite grout shortly after drilling on 3/10/11. Note: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.
30							
35							
40							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-70

DATE DRILLED 3/10/11 BORING NO. B-21

GROUND ELEVATION 450' ± (MSL) SHEET 1 OF 2

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	ALLUVIUM: Brown, moist, loose, silty fine SAND.
5							Trace coarse sand; trace roots.
10							Trace gravel (up to ¾ inch); micaceous.
15							Silty fine to medium sand; little coarse sand.
20							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-71

DATE DRILLED 3/10/11 BORING NO. B-21

GROUND ELEVATION 450' ± (MSL) SHEET 2 OF 2

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
20						SM	ALLUVIUM: (Continued) Brown, moist, loose to medium dense, silty fine SAND; trace roots.
25							METAVOLCANIC ROCK: Gray, dry, soft, weathered METAVOLCANIC ROCK.
30		50/4"					Refusal to further drilling. Total Depth = 30.3 feet. Groundwater not encountered. Backfilled with approximately 10 cubic feet of bentonite grout shortly after drilling on 3/10/11. Note: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.
35							
40							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-72

DATE DRILLED 2/24/11 BORING NO. B-22

GROUND ELEVATION 454' ± (MSL) SHEET 1 OF 2

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	ALLUVIUM: Brown, moist, loose, silty, fine to medium SAND.
						SW	Gray, moist, medium dense, well-graded, fine to coarse SAND.
5		18					
10		9					Loose.
15		24	3.6	103.7			Dry to damp; medium dense.
20							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-73

DATE DRILLED 2/24/11 BORING NO. B-22

GROUND ELEVATION 454' ± (MSL) SHEET 2 OF 2

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
20		18				ML	ALLUVIUM: (Continued) Gray to grayish brown, moist, medium dense, fine sandy SILT.
25		19				SC	Brown, moist, stiff, clayey fine SAND.
30							Total Depth = 26.5 feet. Groundwater not encountered. Backfilled with approximately 9 cubic feet of bentonite grout shortly after drilling on 2/24/11. Note: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.
35							
40							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-74

DATE DRILLED 2/28/11 and 3/1/11 BORING NO. B-23

GROUND ELEVATION 455' ± (MSL) SHEET 1 OF 5

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	ALLUVIUM: Brown, damp, loose, silty fine to medium SAND.
5							
10							
15							Medium dense; scattered coarse sand.
20							Micaceous.

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-75

DATE DRILLED 2/28/11 and 3/1/11 BORING NO. B-23

GROUND ELEVATION 455' ± (MSL) SHEET 2 OF 5

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
20						SM	ALLUVIUM: (Continued) Brown, damp, medium dense, silty fine to medium SAND.
25							Scattered fine to coarse gravel.
30							
35			▽				Saturated.
40							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-76

DATE DRILLED 2/28/11 and 3/1/11 BORING NO. B-23

GROUND ELEVATION 455' ± (MSL) SHEET 3 OF 5

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
40						SM	ALLUVIUM: (Continued) Brown, saturated, medium dense, silty fine to medium SAND.
45							
50							
55							Dense.
60							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-77

DATE DRILLED 2/28/11 and 3/1/11 BORING NO. B-23

GROUND ELEVATION 455' ± (MSL) SHEET 4 OF 5

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
60		43				SP-SM	ALLUVIUM: (Continued) Brown to grayish brown, saturated, dense, poorly-graded, fine to medium SAND with silt.
65		41					Very dense; fine to coarse sand; scattered gravel; trace roots.
70		50				SW-SM	Brown to grayish brown, saturated, very dense, well-graded, fine to coarse SAND with silt.
75		34					Gray.
80							

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EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-78

DATE DRILLED 2/28/11 and 3/1/11 BORING NO. B-23

GROUND ELEVATION 455' ± (MSL) SHEET 5 OF 5

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
80		59				SP	ALLUVIUM: (Continued) Gray, saturated, very dense, poorly-graded, fine to medium SAND. Boring terminated on 2/28/11. Boring resumed on 3/1/11.
85		61				SW-SM	Gray. saturated, very dense, well-graded, fine to coarse SAND with silt. Trace cobbles. Refusal to further drilling. Total Depth = 88.0 feet. Groundwater encountered at approximately 35 feet during drilling. Backfilled with approximately 31 cubic feet of bentonite grout shortly after drilling on 3/1/11. Note: Groundwater may rise to a level higher than that measured in borehole due to seasonal variations in precipitation and several other factors as discussed in the report.
90							
95							
100							

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BORING LOG

EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-79

DATE DRILLED 3/3/11 BORING NO. B-24

GROUND ELEVATION 453' ± (MSL) SHEET 1 OF 5

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SP	ALLUVIUM: Light brown, damp, loose, poorly-graded, fine SAND.
5	Driven	35					Medium dense; trace gravel (up to ½ inch).
10						SM	Light brown, damp, medium dense, silty fine SAND; little coarse sand.
15							Moist; trace roots.
20							

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BORING LOG

EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-80

DATE DRILLED 3/3/11 BORING NO. B-24

GROUND ELEVATION 453' ± (MSL) SHEET 2 OF 5

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
20						SM	ALLUVIUM: (Continued) Light brown, moist, medium dense, silty fine SAND; little medium to coarse sand; trace gravel (up to ½ inch); trace roots.
25							Brown; wet.
30							Fine to medium sand; little coarse sand; trace roots. Dense.
35						SW	Brown, moist, dense, well-graded, fine to coarse SAND.
40							

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BORING LOG

EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-81

DATE DRILLED 3/3/11 BORING NO. B-24

GROUND ELEVATION 453' ± (MSL) SHEET 3 OF 5

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
40			▽			SW	ALLUVIUM: (Continued) Brown, saturated, dense, well-graded, fine to coarse SAND.
45							
50							
55							Grayish brown; micaceous.
60							Trace silt.

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BORING LOG

EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-82

DATE DRILLED 3/3/11 BORING NO. B-24

GROUND ELEVATION 453' ± (MSL) SHEET 4 OF 5

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
60						SM	ALLUVIUM: (Continued) Brown, saturated, medium dense, silty fine SAND.
		31					
65		13					
70		26					Dense.
75		14					Medium dense.
80							

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BORING LOG

EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-83

DATE DRILLED 3/3/11 BORING NO. B-24

GROUND ELEVATION 453' ± (MSL) SHEET 5 OF 5

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
80		12				SM	ALLUVIUM: (Continued) Brown, saturated, medium dense, silty fine SAND.
		22				SP-SM	Brown, saturated, medium dense, poorly-graded, fine SAND with silt. Refusal to further drilling. Total Depth = 87.0 feet. Groundwater encountered at approximately 40 feet during drilling. Backfilled with approximately 30 cubic feet of bentonite grout shortly after drilling on 3/3/11. Note: Groundwater may rise to a level higher than that measured in borehole due to seasonal variations in precipitation and several other factors as discussed in the report.
85							
90							
95							
100							

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BORING LOG

EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-84

DATE DRILLED 3/4/11 BORING NO. B-25

GROUND ELEVATION 465' ± (MSL) SHEET 1 OF 2

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	ALLUVIUM: Gray, damp, loose, silty fine to medium SAND.
						SW-SM	Gray, damp, medium dense, well-graded, fine to coarse SAND with silt.
5	Driven	19	3.5	110.5			
10	Driven	16					
15	Driven	45	6.2	100.0			Dense.
20							

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BORING LOG

EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-85

DATE DRILLED 3/4/11 BORING NO. B-25

GROUND ELEVATION 465' ± (MSL) SHEET 2 OF 2

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
20		13				SM	ALLUVIUM: (Continued) Gray, damp, medium dense, silty fine SAND.
						ML	Brown, moist, medium dense, fine sandy SILT.
25		6					Loose.
							Total Depth = 26.5 feet. Groundwater not encountered. Backfilled with approximately 9 cubic feet of bentonite grout shortly after drilling on 3/4/11. Note: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.
30							
35							
40							

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BORING LOG

EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-86

DATE DRILLED 3/4/11 BORING NO. B-26

GROUND ELEVATION 469' ± (MSL) SHEET 1 OF 6

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						ML	ALLUVIUM: Brown, moist, loose, fine sandy SILT.
5							
						SM	Brown, moist, loose to medium dense, silty fine SAND.
10							
15							Trace coarse sand.
20							

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BORING LOG

EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-87

DATE DRILLED 3/4/11 BORING NO. B-26

GROUND ELEVATION 469' ± (MSL) SHEET 2 OF 6

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
20						SM	ALLUVIUM: (Continued) Light brown, moist, loose to medium dense, silty fine SAND; few coarse sand.
							Medium dense.
25							Silty fine to medium sand.
30							Some coarse sand.
35							Silty fine to coarse sand.
40							

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BORING LOG

EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-88

DATE DRILLED 3/4/11 BORING NO. B-26

GROUND ELEVATION 469' ± (MSL) SHEET 3 OF 6

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
40						SM	ALLUVIUM: (Continued) Brown, wet, medium dense, silty fine to coarse SAND.
45			▽				Saturated; micaceous.
50							Trace gravel (up to ½ inch).
55							Silty fine sand; trace coarse sand.
						ML	Dark brown, saturated, dense, fine sandy SILT.
60							

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BORING LOG

EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-89

DATE DRILLED 3/4/11 BORING NO. B-26

GROUND ELEVATION 469' ± (MSL) SHEET 4 OF 6

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
60		20				SM	ALLUVIUM: (Continued) Dark brown, saturated, medium dense, silty fine SAND.
						SW	Dark gray, saturated, medium dense to dense, well-graded, fine to coarse SAND.
						SM	Grayish brown, saturated, dense, silty fine SAND.
65		23					
70		55				SW-SM	Grayish brown, saturated, dense, well-graded, fine to coarse SAND with silt.
75		42					Very dense; few gravel up to (1½ inch).
80							

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BORING LOG

EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-90

DATE DRILLED 3/4/11 BORING NO. B-26

GROUND ELEVATION 469' ± (MSL) SHEET 5 OF 6

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
80		38				SP-SM	ALLUVIUM: (Continued) Grayish brown, saturated, very dense, poorly-graded, fine to medium SAND with silt; micaceous.
85		50/4"				SW-SM	Gray, saturated, very dense, well-graded, fine to coarse SAND with silt.
90		78/10"				SM	Grayish brown, saturated, very dense, silty fine to medium SAND. Fine to coarse sand.
95		24					Dense. Dark brown; silty fine sand.
100							

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BORING LOG

EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-91

DATE DRILLED 3/4/11 BORING NO. B-26

GROUND ELEVATION 469' ± (MSL) SHEET 6 OF 6

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES Bulk	SAMPLES Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
100		■	50/3"			▒	SM	ALLUVIUM: (Continued) Dark brown, saturated, very dense, silty fine SAND; some gravel (up to 2 inches). Refusal to further drilling.
								Total Depth = 101.0 feet. Groundwater encountered at approximately 45 feet during drilling. Backfilled with approximately 35 cubic feet of bentonite grout shortly after drilling on 3/4/11. Note: Groundwater may rise to a level higher than that measured in borehole due to seasonal variations in precipitation and several other factors as discussed in the report.
105								
110								
115								
120								

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BORING LOG

EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-92

DATE DRILLED 2/25/11 BORING NO. B-27

GROUND ELEVATION 477' ± (MSL) SHEET 1 OF 2

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	ALLUVIUM: Brown, damp, medium dense, silty SAND.
							Scattered gravel (up to 1 inch).
5		52	6.0	121.2			Dense; trace gravel (up to 1 inch).
10		20					Medium dense to dense; trace roots; few gravel.
15		34					Medium dense.
20							

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BORING LOG

EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-93

DATE DRILLED 2/25/11 BORING NO. B-27

GROUND ELEVATION 477' ± (MSL) SHEET 2 OF 2

METHOD OF DRILLING 8" Hollow-Stem Auger (Diedrich D-120) (Tri-County Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY MBG LOGGED BY MBG REVIEWED BY GTF

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
20		24	3.1	103.1		SW	ALLUVIUM: (Continued) Gray, dry to damp, medium dense, well-graded, fine to coarse SAND.
25		22				SM	Grayish brown, damp, dense, silty fine to coarse SAND.
30							Total Depth = 26.5 feet. Groundwater not encountered. Backfilled with approximately 9 cubic feet of bentonite grout shortly after drilling on 2/25/11. Note: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.
35							
40							

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BORING LOG

EL MONTE VALLEY MINING, RECLAMATION, AND GROUNDWATER RECHARGE PROJECT, LAKESIDE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106200005	7/11	A-94

APPENDIX C

LABORATORY TEST RESULTS

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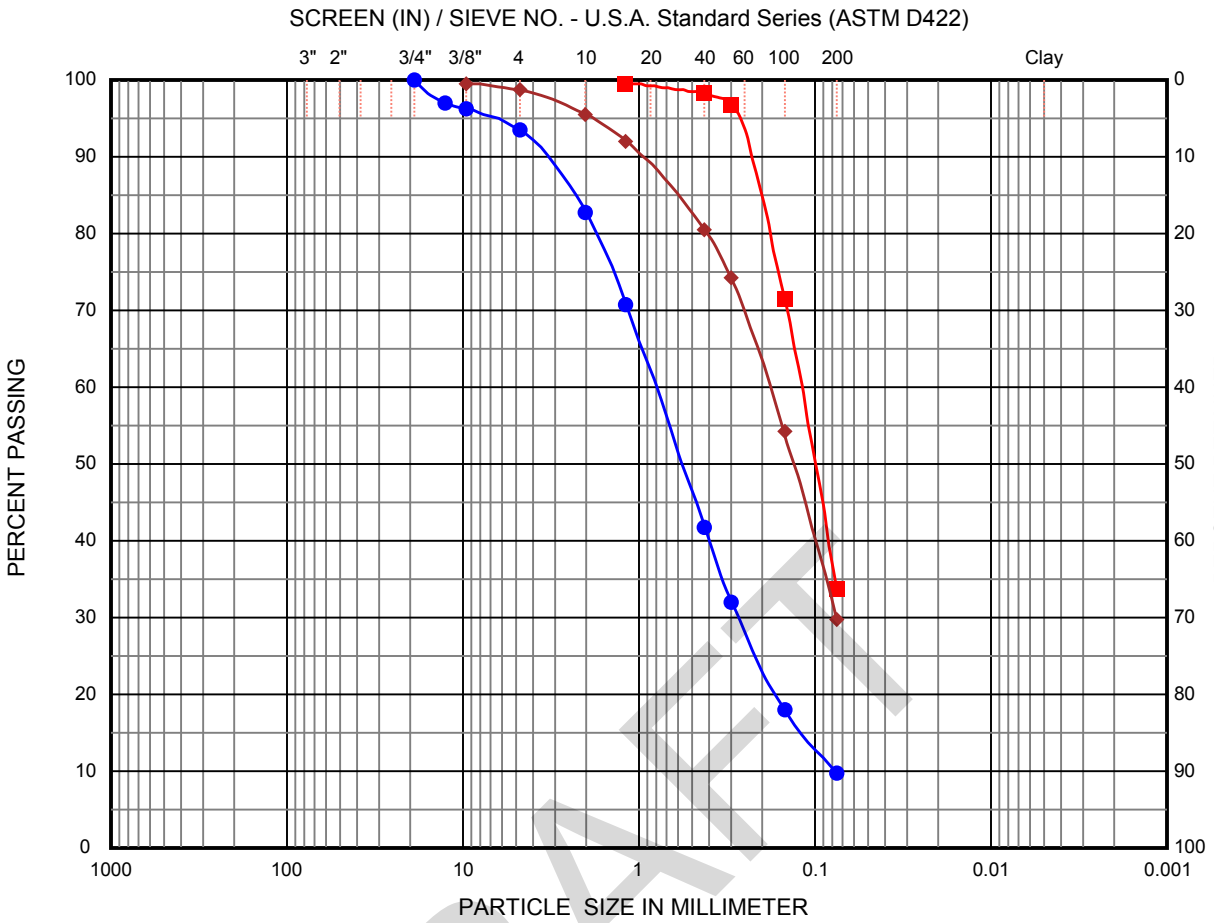

Cobbles & Boulders	Gravel		Sand			Silt	Clay
	Coarse	Fine	Coarse	Medium	Fine		

	Sample No.	Gravel	Sand	Fines	Clay	D_{10}	D_{30}	D_{50}	D_{60}	C_u	C_c
●	1B (10 - 13 ft)	6.5	83.8	9.8		0.0768	0.275	0.565	0.798	10.4	1.2
	(SW-SM) Well-graded sand with silt, fine to coarse										
■	2C (20 - 22 ft)		66.2	33.8			0.070	0.099	0.118		
	(SM) Silty sand, fine										
◆	4B (10 - 13 ft)	1.3	69.0	29.8			0.075	0.132	0.179		
	(SM) Silty sand, fine to medium										

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PARTICLE SIZE DISTRIBUTION (ASTM D422)

Project:	Slope Stability Investigation				
Location:	13964 El MOnte Road, Lakeside, California				
Job Number:	15383-8	Engineer:	fy	Enclosure:	C-1

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FINES CONTENT (ASTM C117)

Boring No.	3	3	3	3	3
Depth (ft)	0 - 5	5 - 25	25 - 30	30 - 35	35 - 40
Original Dry Mass	189.9	195.8	165.4	197.2	153.1
Dry Mass after Washing	122.1	189.3	78.9	190.2	48.1
Fine Contents (%)	35.7	3.3	52.3	3.5	68.6
Classification	SM	SP	ML	SP	ML
Boring No.	3	3	3	3	3
Depth (ft)	40 - 45	45 - 60	60 - 65	65 - 87	87 - 95
Original Dry Mass	158.7	158.2	151.2	168.8	166
Dry Mass after Washing	76.7	118.6	90.9	156.8	129.7
Fine Contents (%)	51.7	25.0	39.9	7.1	21.9
Classification	ML	SM	SM	SP-SM	SM

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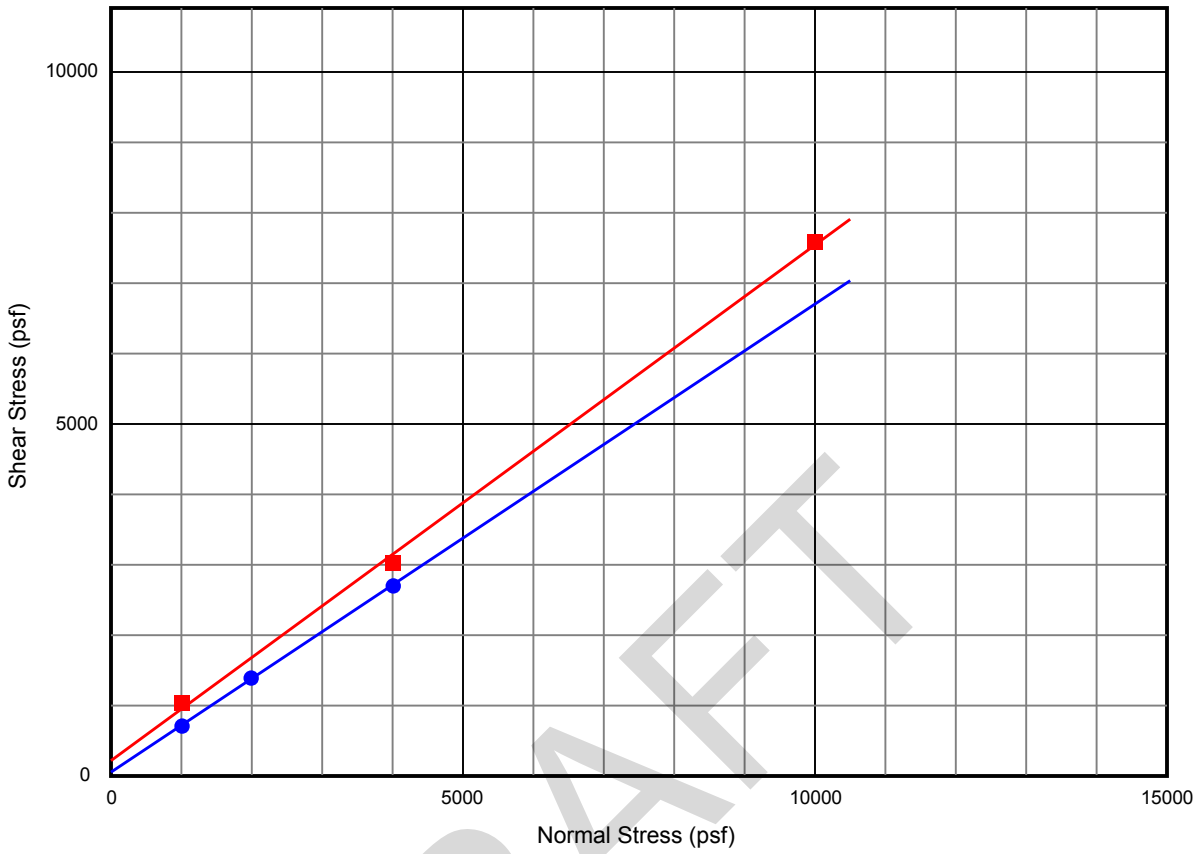

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	Boring No.	Depth (ft)	γ_d (pcf)	w (%)	C_{pk} (psf)	ϕ_{pk} (°)	C_{rs} (psf)	ϕ_{rs} (°)
●	1	20	108.0	2.1	134.0	36.8	57.5	33.6
	(SP-SM) Sand, fine to coarse / Undisturbed							
■	1	90	116.0	18.6	362.2	40.7	229.9	36.2
	(SM) Silty sand, fine to coarse / Undisturbed							

DIRECT SHEAR TESTS (ASTM D3080)

Project:	Slope Stability Investigation				
Location:	13964 El MOnte Road, Lakeside, California				
Job Number:	15383-8	Engineer:	fy	Enclosure:	C-3

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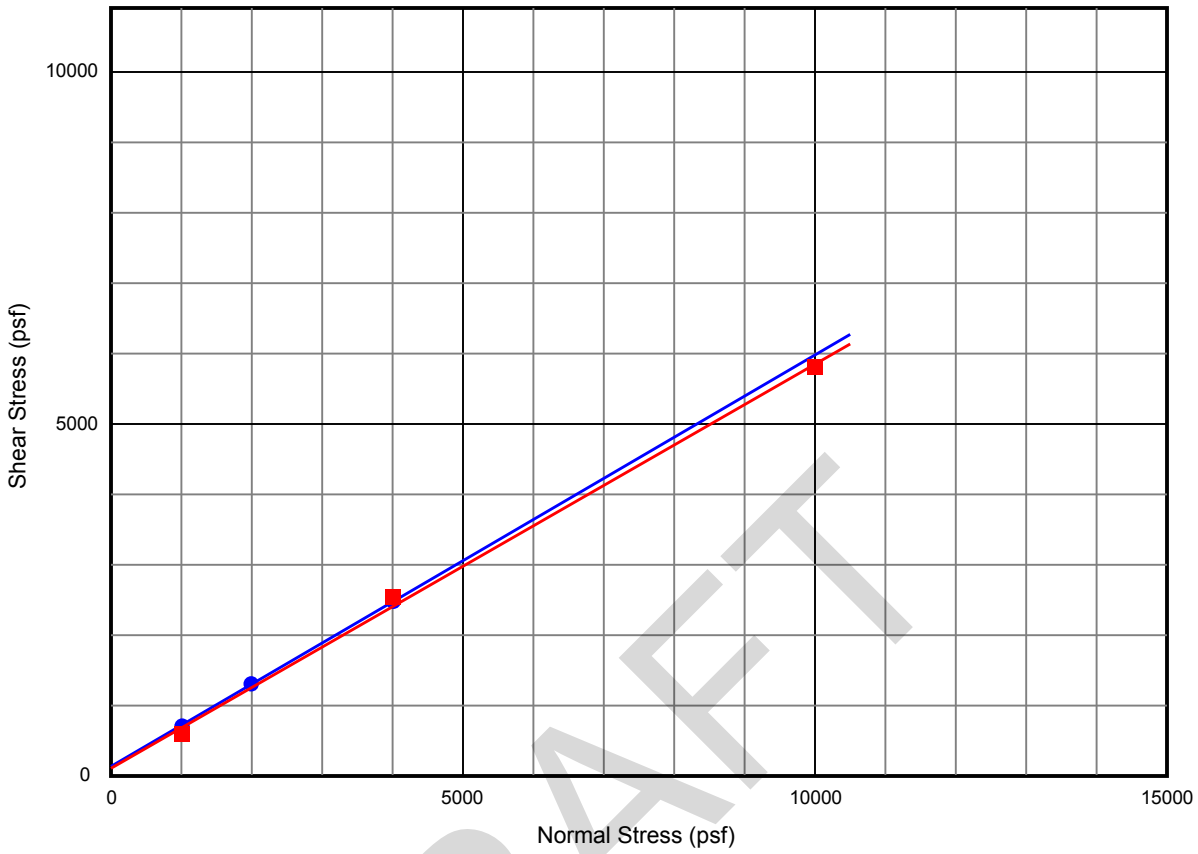

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	Boring No.	Depth (ft)	γ_d (pcf)	w (%)	C_{pk} (psf)	ϕ_{pk} (°)	C_{rs} (psf)	ϕ_{rs} (°)
●	2	45	100.0	21.0	198.7	32.9	144.4	30.2
	(SP-SM) Sand, fine to coarse / Undisturbed							
■	2	60	91.0	30.5	245.1	31.7	107.4	29.9
	(SM) Silty sand, fine to medium / Undisturbed							

DIRECT SHEAR TESTS (ASTM D3080)

Project:	Slope Stability Investigation				
Location:	13964 El MOnte Road, Lakeside, California				
Job Number:	15383-8	Engineer:	fy	Enclosure:	C-4

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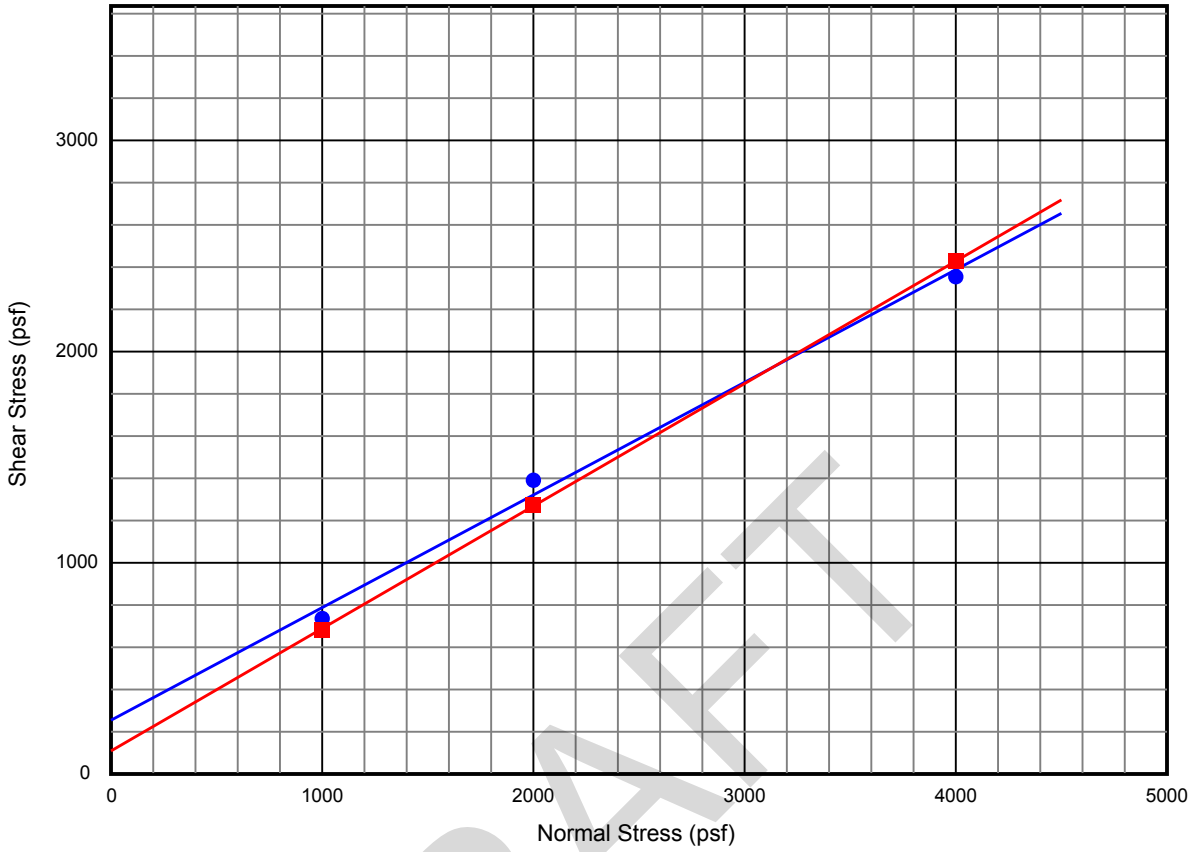

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	Boring No.	Depth (ft)	γ_d (pcf)	w (%)	C_{pk} (psf)	ϕ_{pk} (°)	C_{rs} (psf)	ϕ_{rs} (°)
●	3	40	92.0	28.0	214.2	29.8	250.0	28.1
	(ML) Sandy silt, fine / Remolded (RC=80%)							
■	4	15	99.0	4.3	117.0	30.0	108.6	30.1
	(SM) Silty sand, fine to medium / Undisturbed							

DIRECT SHEAR TESTS (ASTM D3080)

Project:	Slope Stability Investigation				
Location:	13964 El MOnte Road, Lakeside, California				
Job Number:	15383-8	Engineer:	fy	Enclosure:	C-5

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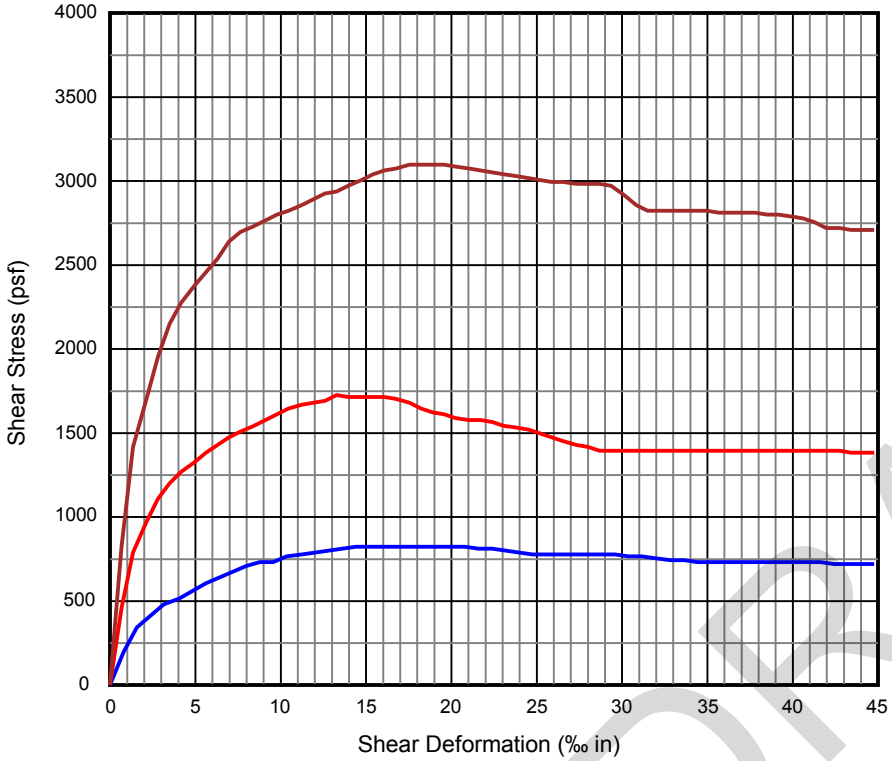

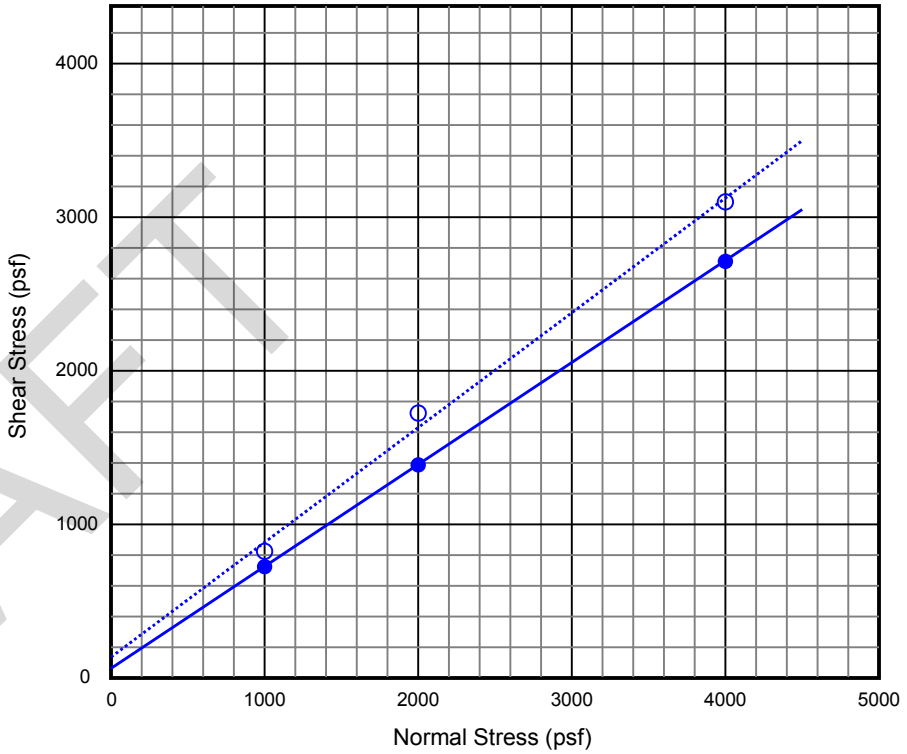

DRAFT

	Boring No.	Depth (ft)	USCS	γ_d (pcf)	w (%)	C_{pk} (psf)	ϕ_{pk} (°)	C_{rs} (psf)	ϕ_{rs} (°)
●	1	20	(SP-SM) Sand, fine to coarse / Undisturbed	108.0	2.1	134.0	36.8	57.5	33.6

CHJ Consultants

DIRECT SHEAR TESTS (ASTM D3080)

Project:	Slope Stability Investigation				
Location:	13964 El MOnte Road, Lakeside, California				
Job Number:	15383-8	Engineer:	fy	Enclosure:	C-6

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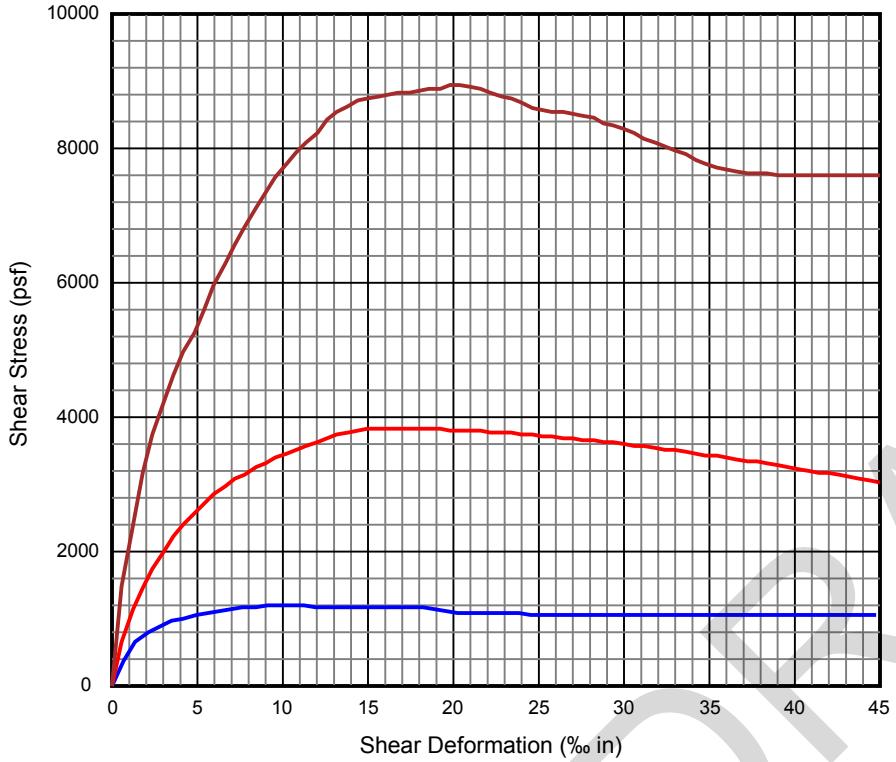

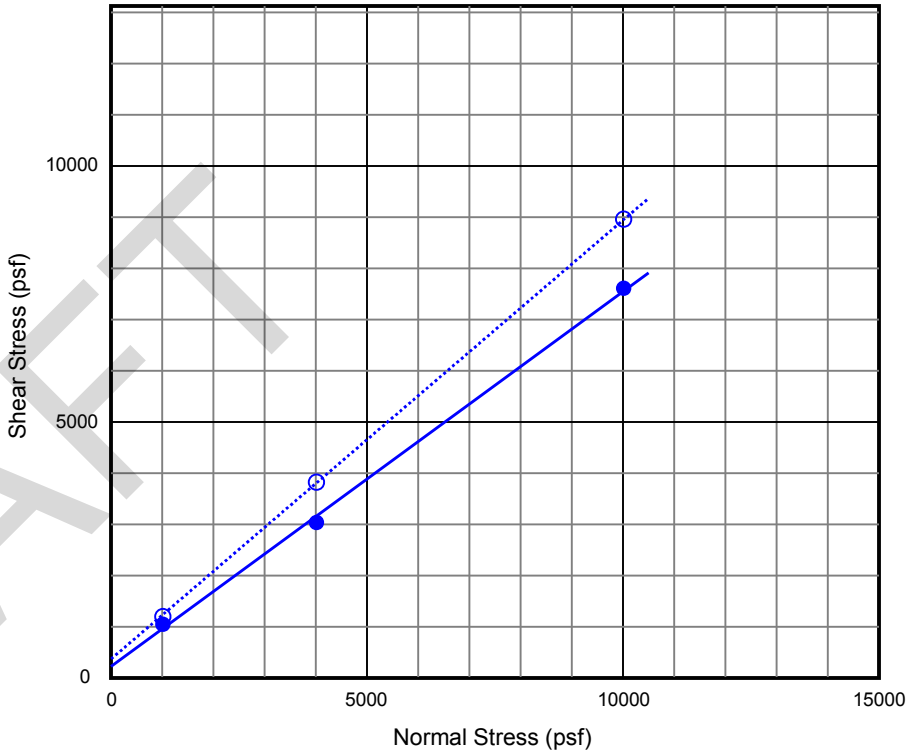

DRAFT

	Boring No.	Depth (ft)	USCS	γ_d (pcf)	w (%)	C_{pk} (psf)	ϕ_{pk} (°)	C_{rs} (psf)	ϕ_{rs} (°)
●	1	90	(SM) Silty sand, fine to coarse / Undisturbed	116.0	18.6	362.2	40.7	229.9	36.2

CHJ Consultants

DIRECT SHEAR TESTS (ASTM D3080)

Project:	Slope Stability Investigation				
Location:	13964 El MOnte Road, Lakeside, California				
Job Number:	15383-8	Engineer:	fy	Enclosure:	C-7

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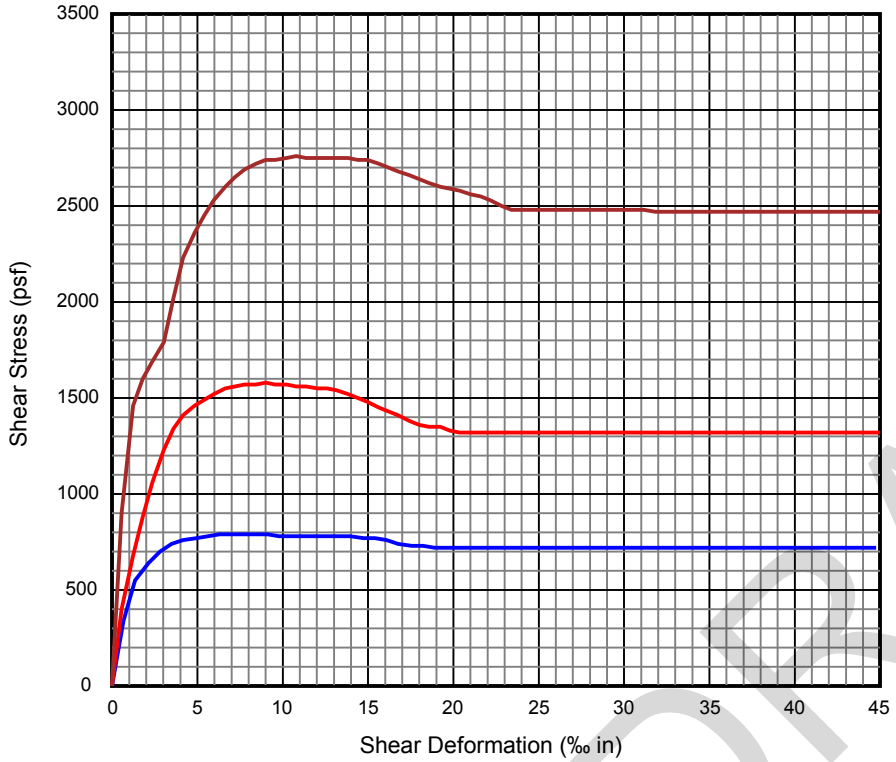

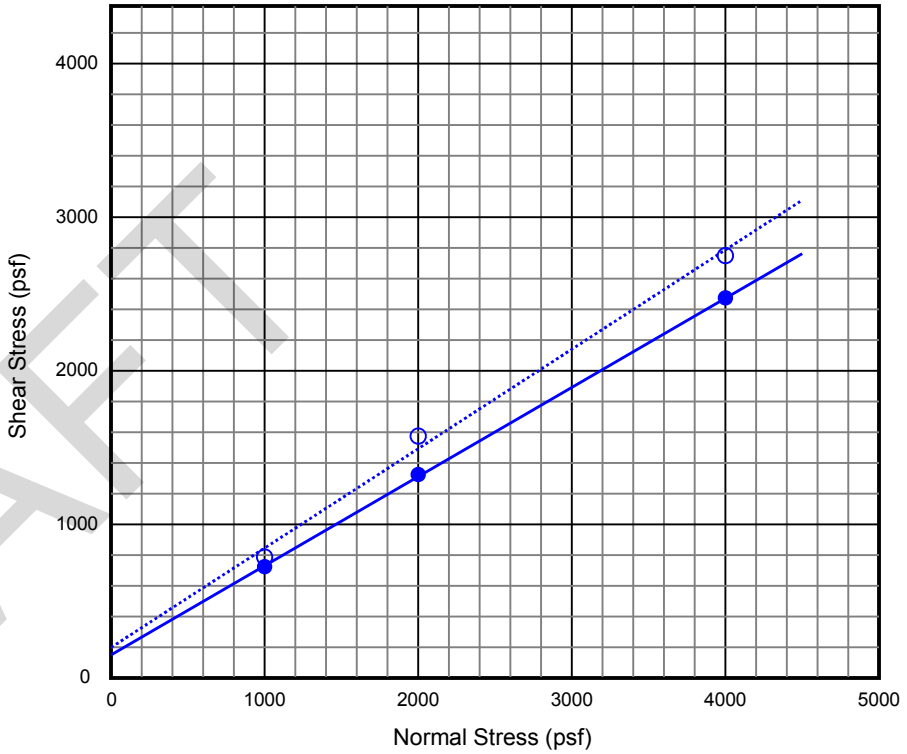

DRAFT

	Boring No.	Depth (ft)	USCS	γ_d (pcf)	w (%)	C_{pk} (psf)	ϕ_{pk} (°)	C_{rs} (psf)	ϕ_{rs} (°)
●	2	45	(SP-SM) Sand, fine to coarse / Undisturbed	100.0	21.0	198.7	32.9	144.4	30.2

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DIRECT SHEAR TESTS (ASTM D3080)

Project:	Slope Stability Investigation				
Location:	13964 El MOnte Road, Lakeside, California				
Job Number:	15383-8	Engineer:	fy	Enclosure:	C-8

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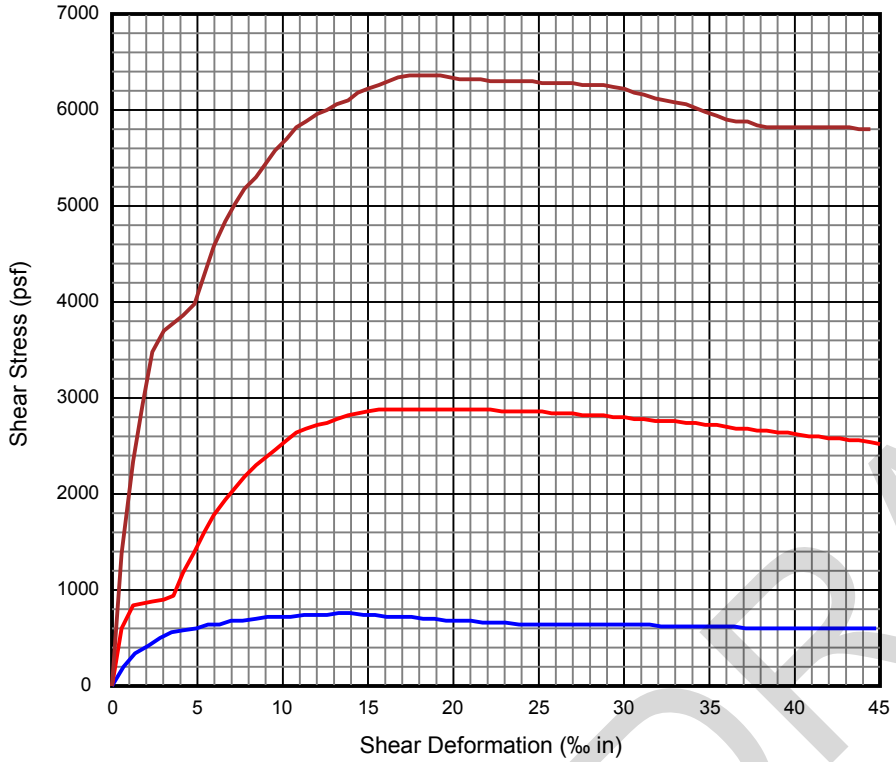

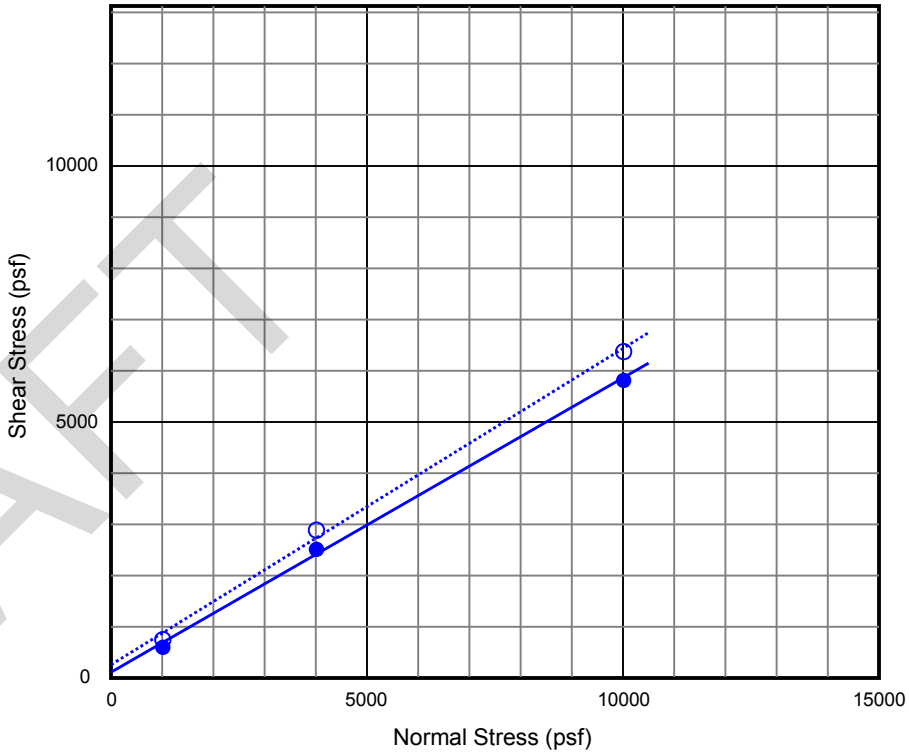

DRAFT

	Boring No.	Depth (ft)	USCS	γ_d (pcf)	w (%)	C_{pk} (psf)	ϕ_{pk} (°)	C_{rs} (psf)	ϕ_{rs} (°)
●	2	60	(SM) Silty sand, fine to medium / Undisturbed	91.0	30.5	245.1	31.7	107.4	29.9

CHJ Consultants

DIRECT SHEAR TESTS (ASTM D3080)

Project:	Slope Stability Investigation				
Location:	13964 El MOnte Road, Lakeside, California				
Job Number:	15383-8	Engineer:	fy	Enclosure:	C-9

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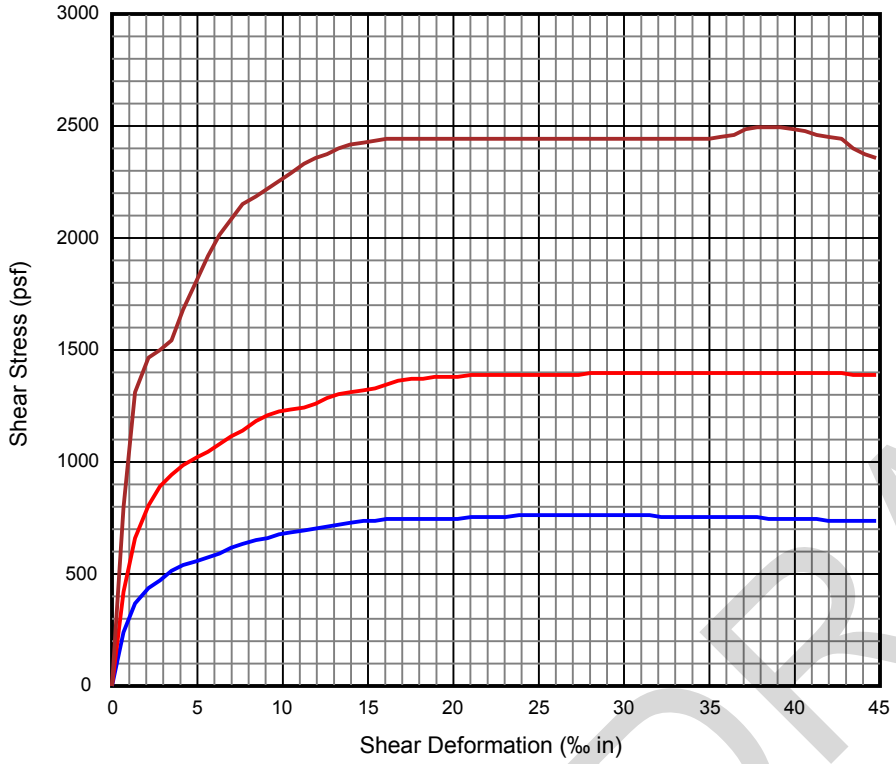

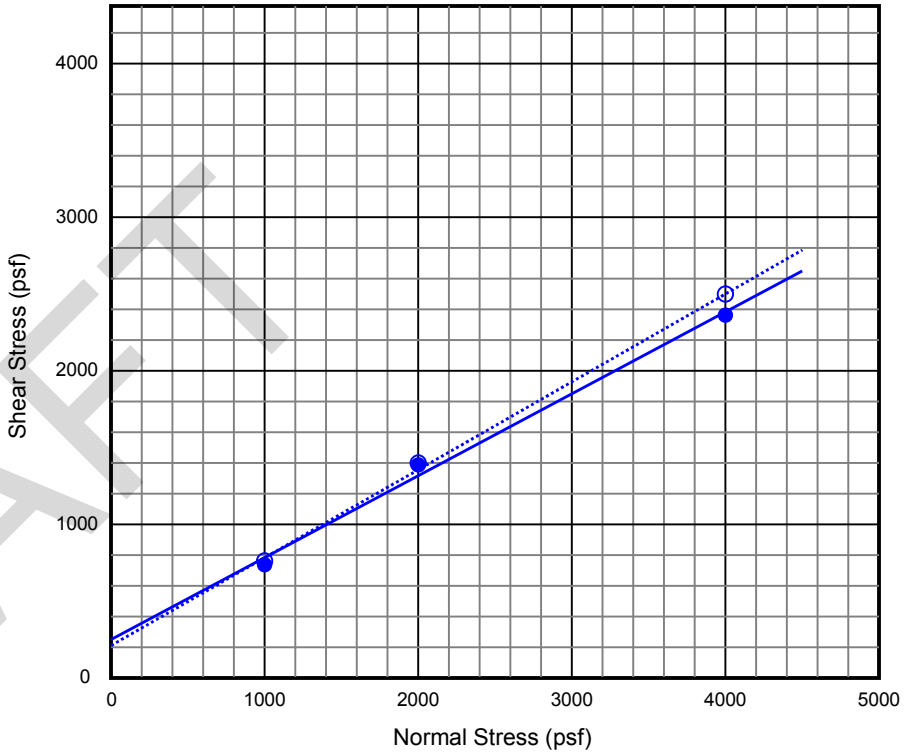

DRAFT

	Boring No.	Depth (ft)	USCS	γ_d (pcf)	w (%)	C_{pk} (psf)	ϕ_{pk} (°)	C_{rs} (psf)	ϕ_{rs} (°)
●	3	40	(ML) Sandy silt, fine / Remolded (RC=80%)	92.0	28.0	214.2	29.8	250.0	28.1

CHJ Consultants

DIRECT SHEAR TESTS (ASTM D3080)

Project:	Slope Stability Investigation				
Location:	13964 El MOnte Road, Lakeside, California				
Job Number:	15383-8	Engineer:	fy	Enclosure:	C-10

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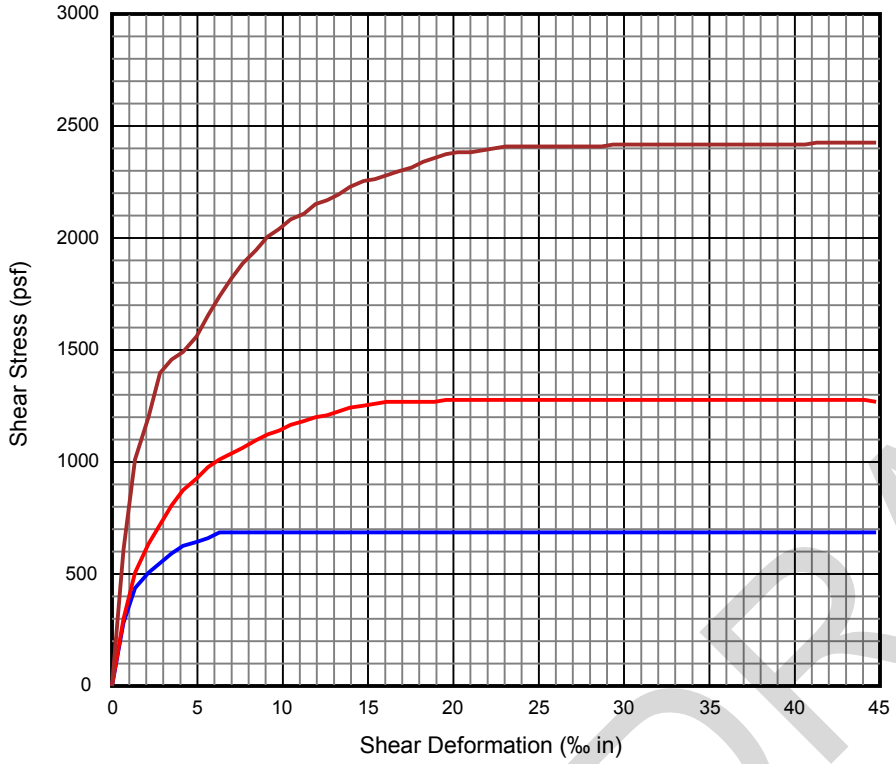

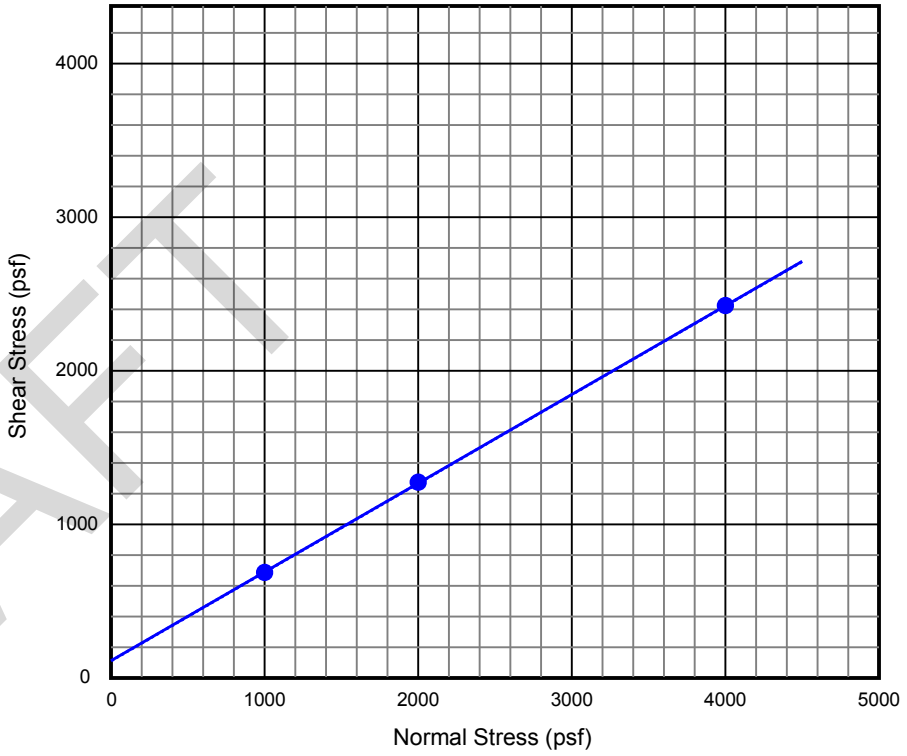

DRAFT

	Boring No.	Depth (ft)	USCS	γ_d (pcf)	w (%)	C_{pk} (psf)	ϕ_{pk} (°)	C_{rs} (psf)	ϕ_{rs} (°)
●	4	15	(SM) Silty sand, fine to medium / Undisturbed	99.0	4.3	117.0	30.0	108.6	30.1

CHJ Consultants

DIRECT SHEAR TESTS (ASTM D3080)

Project:	Slope Stability Investigation				
Location:	13964 El MOnte Road, Lakeside, California				
Job Number:	15383-8	Engineer:	fy	Enclosure:	C-11

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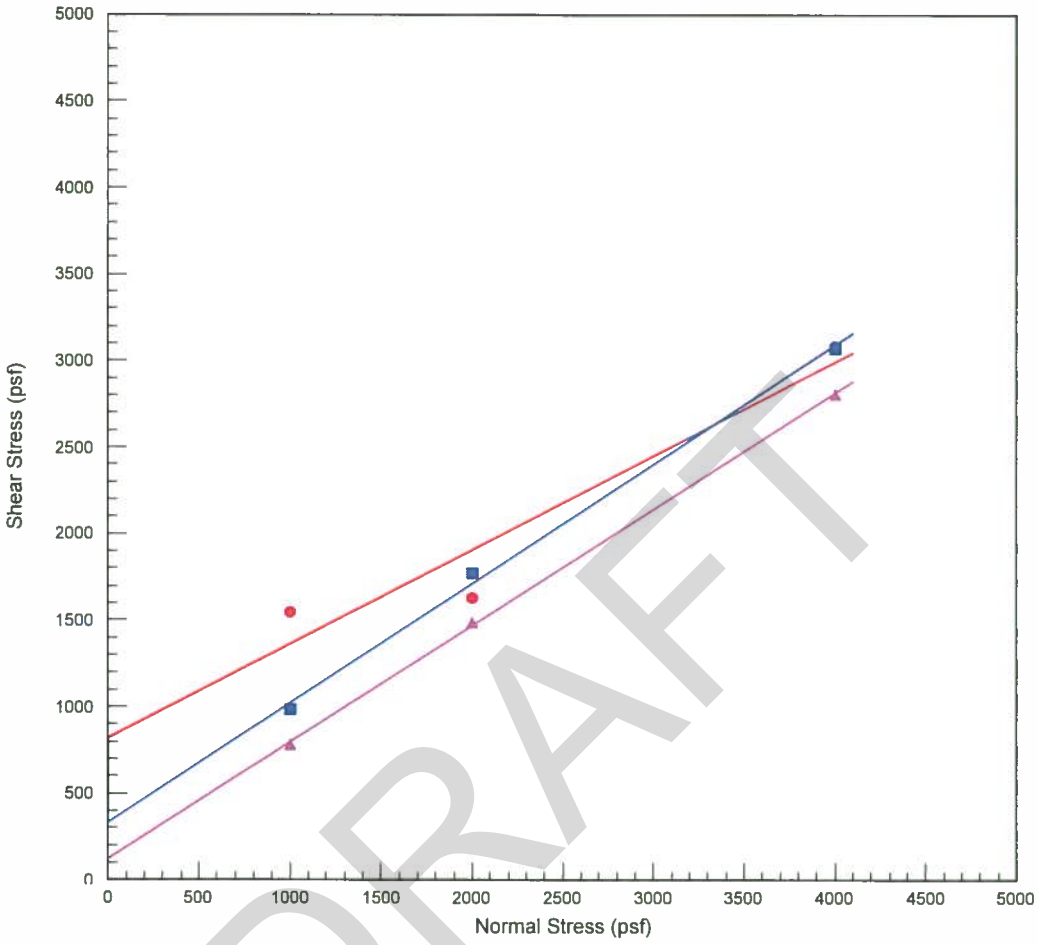

DRAFT

Boring No.		Depth (ft)	Soil/Sample Type	γ_d (pcf)	MC(%)	C (psf)	φ(°)
●	2	10	(MH) Elastic silt	51	73.0	822	28
■	3	20	(MH) Elastic silt	57	71.6	336	35
▲	3	45	(MH) Elastic silt	56	69.9	120	34

C.H.J. Incorporated

DIRECT SHEAR TEST

Project:	Proposed Amended Reclamation of CalPortland Colton Cement Plant		
Location:	Colton, California		
Job No.:	11691-3	Enclosure:	

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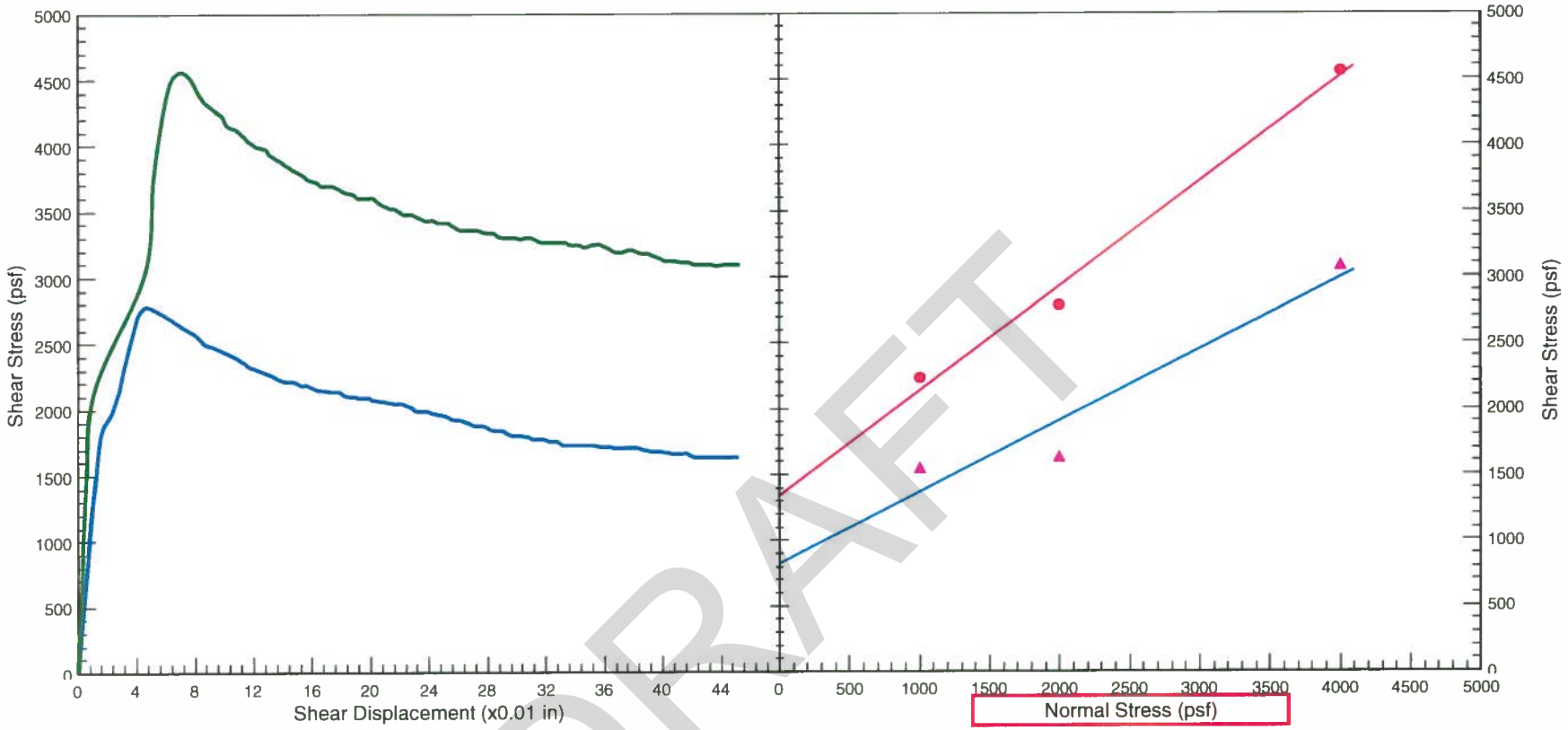

DRAFT

Boring No.		Depth (ft)	Soil/Sample Type	γ_d (pcf)	MC (%)	C_{peak} (psf)	φ_{peak} (°)	C_{res} (psf)	φ_{res} (°)
	2	10	(MH) Elastic silt, CKD	51.0	73.0	1344	38	822	28

C.H.J. Incorporated

DIRECT SHEAR TEST

Project:	Proposed Amended Reclamation of CalPortland Colton Cement Plant		
Location	Colton, California		
Job Number	11691-3	Enclosure	

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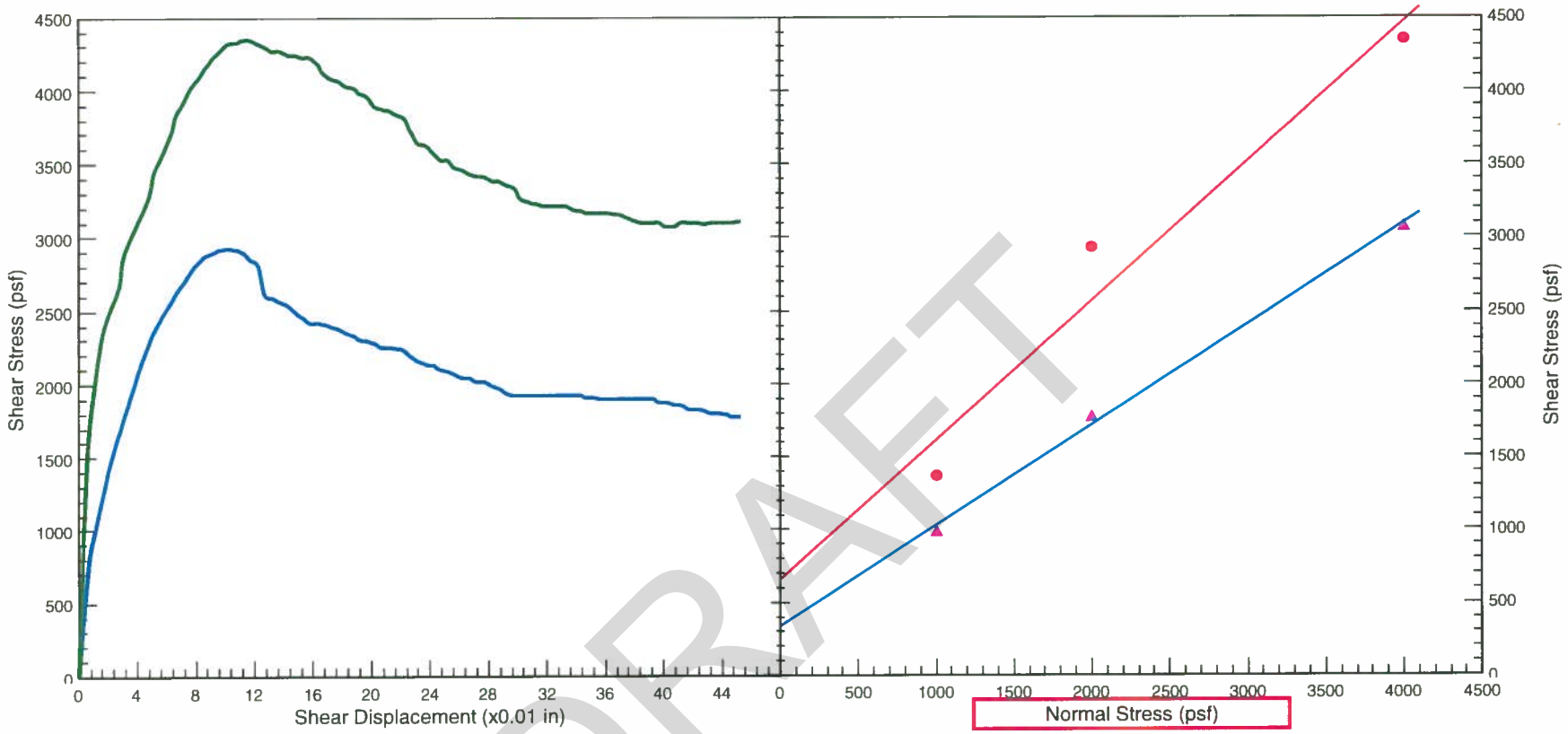

DRAFT

Boring No.	Depth (ft)	Soil/Sample Type	γ_d (pcf)	MC (%)	C_{peak} (psf)	φ_{peak} (°)	C_{res} (psf)	φ_{res} (°)
3	20	(MH) Elastic silt, CKD	57.0	71.6	660	44	336	35

C.H.J. Incorporated

DIRECT SHEAR TEST

Project:	Proposed Amended Reclamation of CalPortland Colton Cement Plant		
Location	Colton, California		
Job Number	11691-3	Enclosure	C-13

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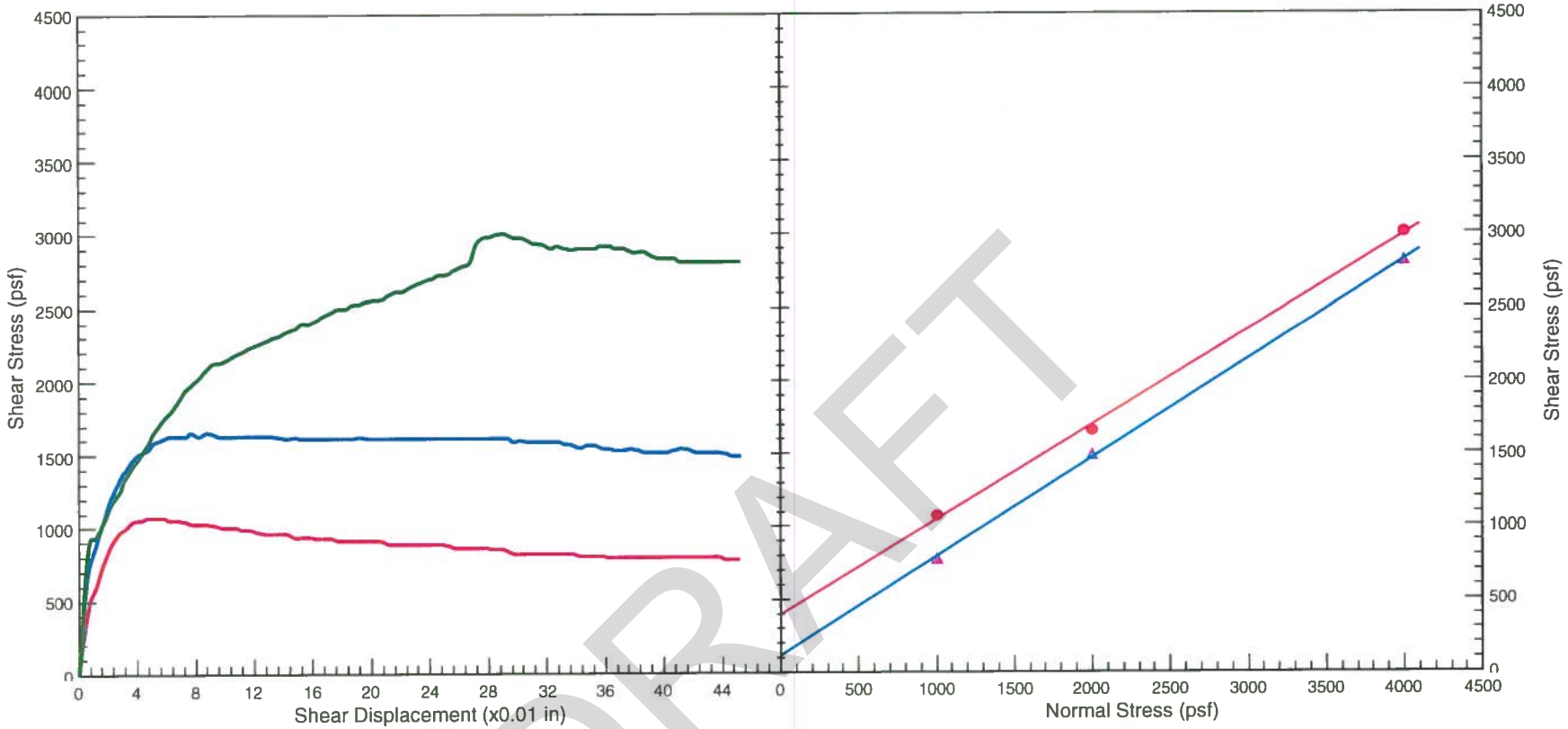

DRAFT

Boring No.	Depth (ft)	Soil/Sample Type	γ_d (pcf)	MC (%)	C_{peak} (psf)	φ_{peak} (°)	C_{res} (psf)	φ_{res} (°)
3	45	(MH) Elastic silt, CKD	56.0	69.9	396	33	120	34

C.H.J. Incorporated

DIRECT SHEAR TEST

Project:	Proposed Amended Reclamation of CalPortland Colton Cement Plant		
Location	Colton, California		
Job Number	11691-3	Enclosure	C-17

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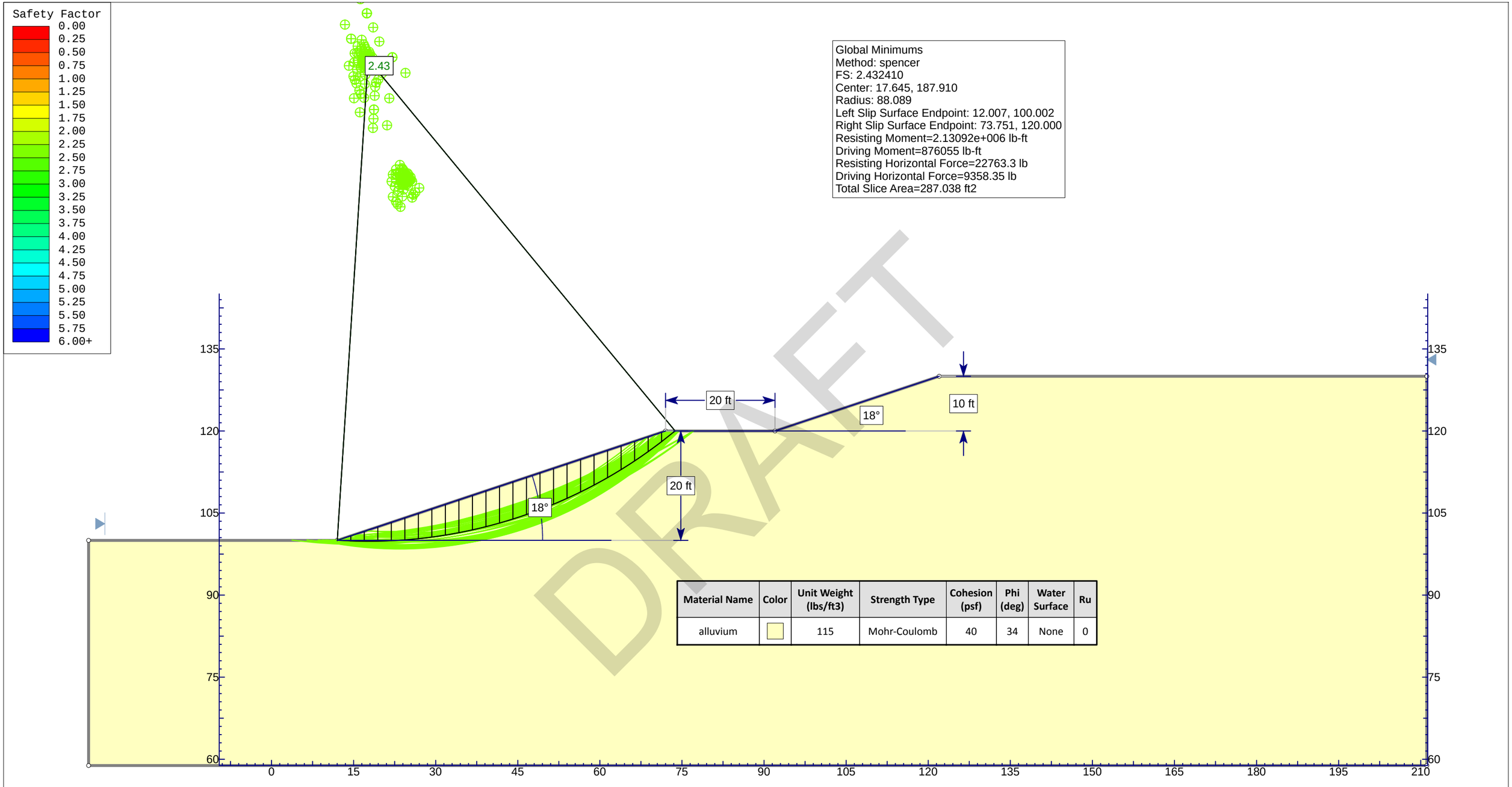
APPENDIX D

GLOBAL STABILITY CALCULATIONS

DRAFT



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru
alluvium		115	Mohr-Coulomb	40	34	None	0

DRAFT

SLIDEINTERPRET 6.038

Project	El Monte Sand		
Analysis Description	Reclamation Slope Geometry		
Drawn By CHJ	*Author* JMc	*Scale* 1:200	
File Name Proposed Recl Slope Geometry.slim	*Date* January 2016	*Enclosure* D-1.1	

Safety Factor
0.00
0.25
0.50
0.75
1.00
1.25
1.50
1.75
2.00
2.25
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
4.75
5.00
5.25
5.50
5.75
6.00+

Global Minimums
Method: spencer
FS: 1.733650
Center: 17.470, 189.886
Radius: 90.151
Left Slip Surface Endpoint: 10.572, 100.000
Right Slip Surface Endpoint: 74.418, 120.000
Resisting Moment=2.19734e+006 lb-ft
Driving Moment=1.26746e+006 lb-ft
Resisting Horizontal Force=23002.5 lb
Driving Horizontal Force=13268.3 lb
Total Slice Area=298.621 ft2

0.12

1.73

20 ft
18°
10 ft
18°
20 ft

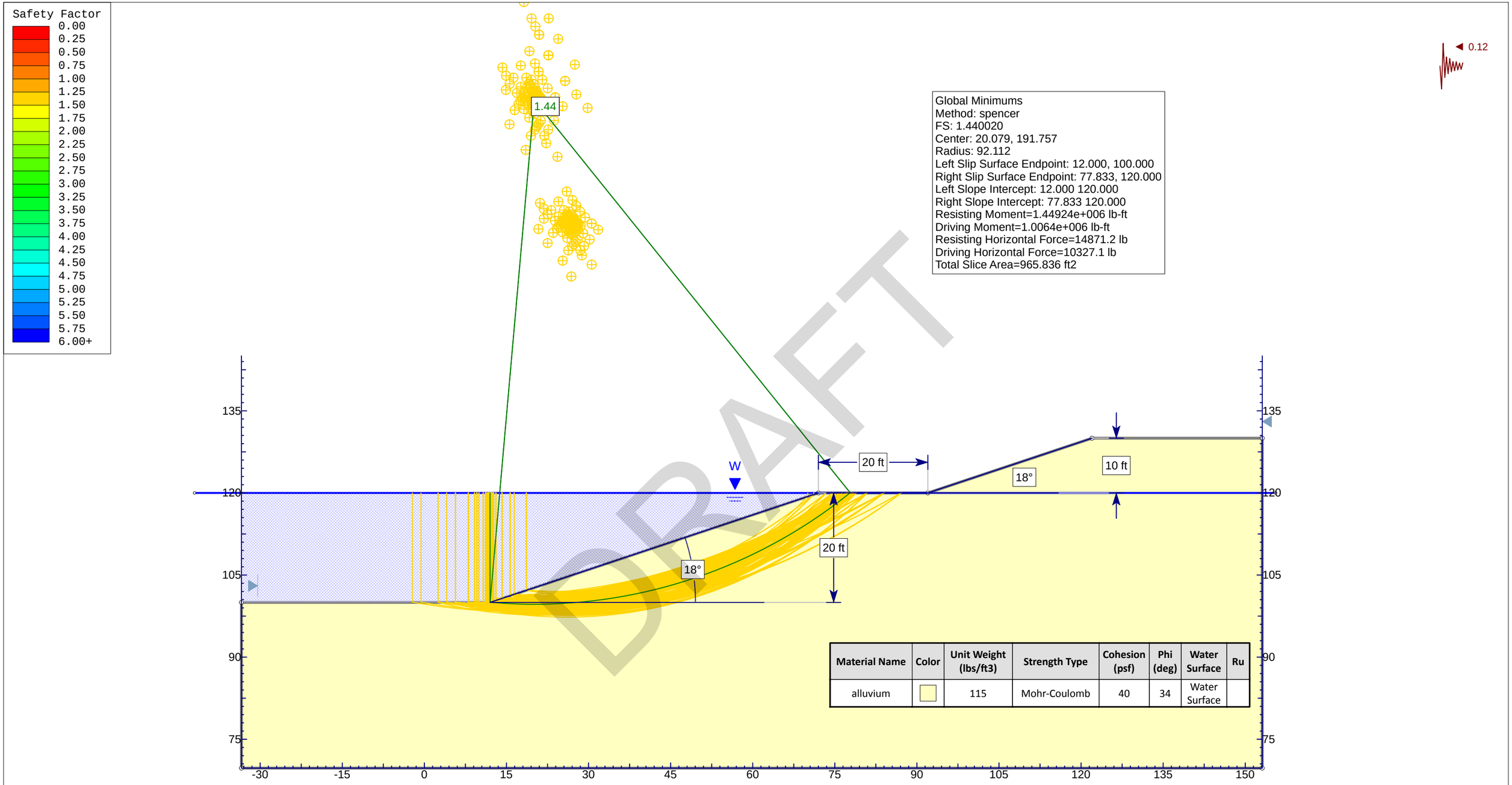
Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru
alluvium		115	Mohr-Coulomb	40	34	None	0

DRAFT

135
120
105
90
75
60
-30 -15 0 15 30 45 60 75 90 105 120 135 150 165 180 195 210

SLIDEINTERPRET 6.038

Project	El Monte Sand		
Analysis Description	Reclamation Slope Geometry		
Drawn By	CHJ	Author	JMc
File Name	Proposed Recl Slope Geometry seis.slim	Date	January 2016
Scale	1:200		
Enclosure	D-1.2		



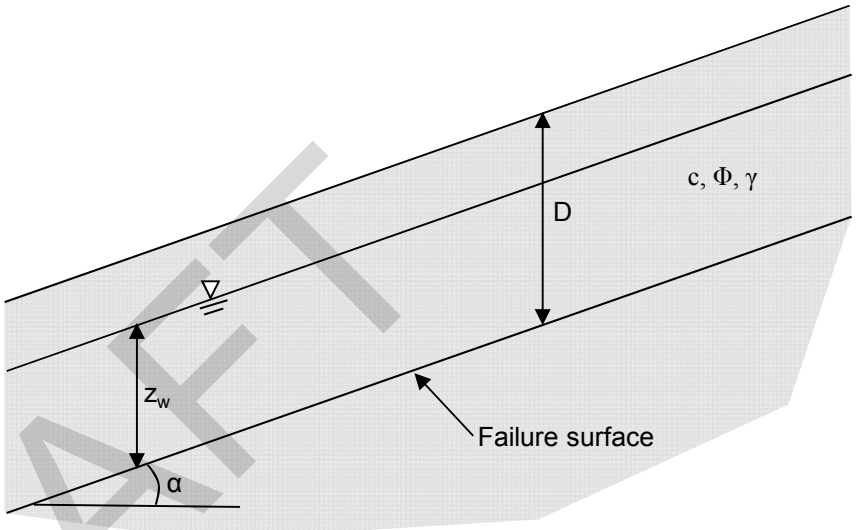
Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru
alluvium		115	Mohr-Coulomb	40	34	Water Surface	

DRAFT

SLIDEINTERPRET 6.038

Project	El Monte Sand		
Analysis Description	Reclamation Slope Geometry		
Drawn By	CHJ	Author	JMc
File Name	Proposed Recl Slope Geometry flooded420.slim	Date	January 2016
Scale	1:200		
Enclosure	D-1.3		

D:	4	ft
z_w:	4	ft
γ:	99	pcf
γ_w:	62.4	pcf
slope, α	26.5	°
Friction Angle, Φ'	30	°
Cohesion, c'	117	psf
Factor of Safety, F:	1.17	



$$F = \frac{c' + [\gamma D - \gamma_w z_w]\cos^2\alpha \tan\phi'}{\gamma D \sin\alpha \cos\alpha}$$

DRAFT

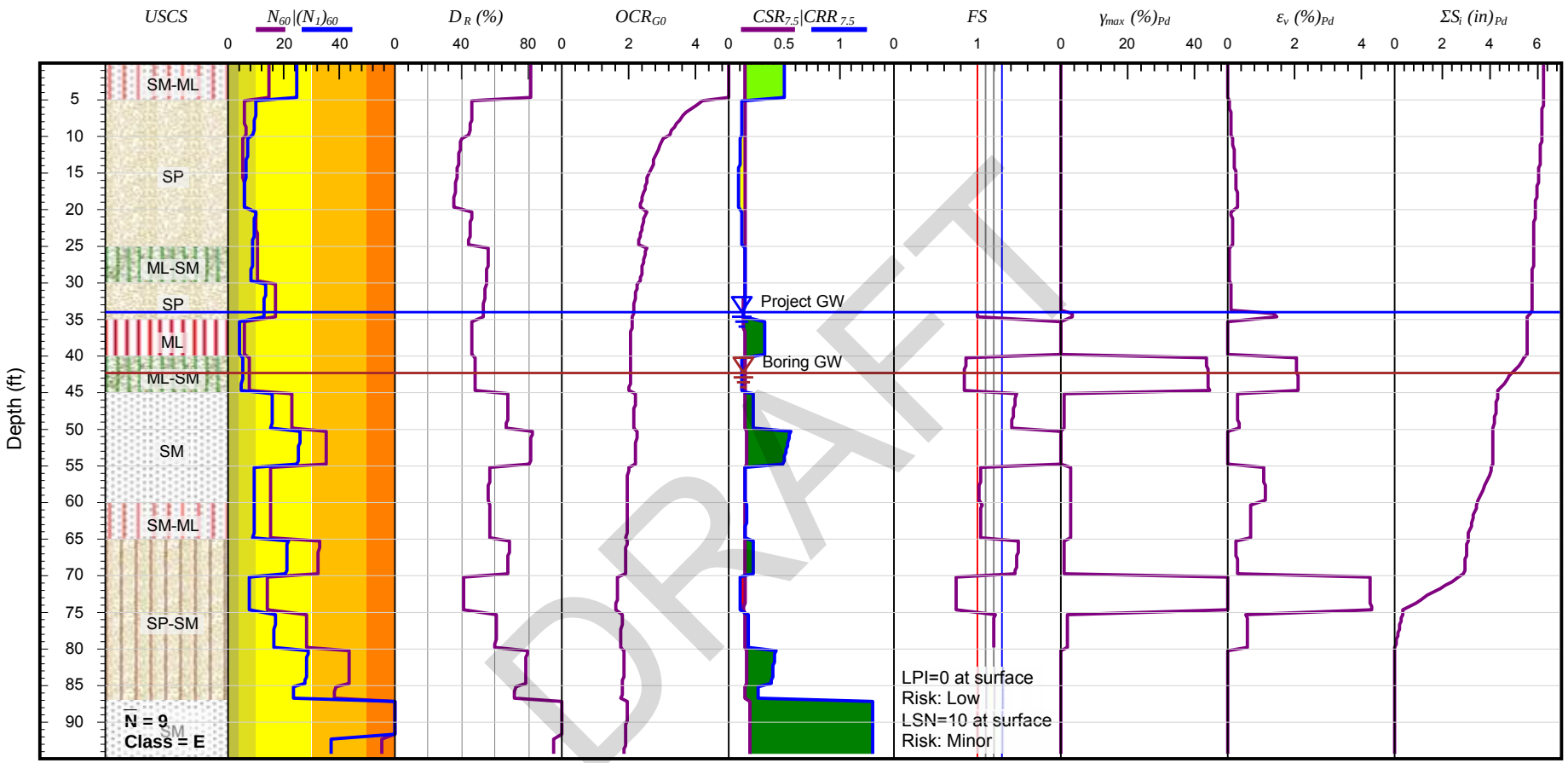
CHJ Consultants

Surficial Stability Analysis			
Project:	El Monte Sand Reclamation Slopes		
Location:	Lakeside Area, San Diego County		
Job Number:	15383-8	Enclosure:	D-2

APPENDIX E

GEOTECHNICAL CALCULATIONS

DRAFT



SM-ML | ML-SM | SM

SP | ML | SP-SM

Earthquake & Groundwater Information:
Magnitude = 6.2
Max. Acceleration = 0.35 g
Project GW = 34 ft
Maximum Settlement = 6.22 in
Settlement at Bottom of Footing = 6.22 in

Liquefaction: Idriss & Boulanger (2008)
Settl.: [dry] Pradel (1998); [sat] Idriss & Boulanger (2008)
Lateral spreading: Idriss & Boulanger (2008)
M correction: [Sand] Boulanger & Idriss(2004)
σv correction: Idriss & Boulanger (2008)
Stress reduction: Idriss & Boulanger (2008)

CHJ Consultants

Seismic Settlement Potential - SPT Data

Project:	Slope Stability Investigation				
Location:	13964 El MOnte Road, Lakeside, California				
Job Number:	15383-3	Boring No.:	B-3	Enclosure:	

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